

GROUP & COMBINATION WISE ROOMS ALLOTMENT

BUILDING	ROOM NO	GROUP	Roll No's	Total
New Building Ground Floor	01	B SC (BZC) III Year T/M	2040-17-445-501,502,503,504,507,508,509,511,512,513,516, 518,519,520,525,527,529,530,532,533,536,538 & 2008-17-445-521 and 6022-17-445-524	24
	02	BSC (MPC) II Year T/M	2040-18-441-502,503,504,505,506,508,509,511,512,513,514, 515,516,517,518,519,522,524 and 2040-16-441-501,506,508	21
	VARANDA 1	BSC (MPC & MPCS) II E/M	2040-18-441-001,003,005,006,007,009,010,012,013,015,017	11
			2040-18-468-001,007,009,010,015,016,017,019,021,024,027,028	12
	05	B COM (GEN) II & III year U/M	2040-18-401-901,902,903,905,906,908,909,910,911,913, 914,916,917,918,919,920,922 2040-17-401-903,904,908,909,911,912	17
			06	
New Building First Floor	06	BCOM(COMP) II Year E/M	2040-18-405-001,004,006,007,008,009,011,012,013, 014,016,017,018,019,020,021,022,024,025,026, 028,029,031,032,033,034,036,038,039,040,041, 042,043,045,046,047,048,050,054,056,059	41
			2040-18-401-001,002,003,004,005,006,008	07
	07	BCOM(GEN) II Year E/M	2040-18-401-501,502,503,504,505,506,507,508,510,512,513, 514,516,517,518,520,521,523,524,525,526, 527,531,533,535,537,538,539,540,542,543,546, 547,548,549,550,552,554,555,557,558	41
	08	BA (HEP) III Year T/M	2040-17-129-502,503,504,505,508,511,512,515,516,517, 518,519,520,522,523,524,525,526,527,528,530,531, 532,533,534,535,539,540,541,542,543,544,545, 546,547,549,552,554,557,558,559,560.	42
	09	B COM (Gen & Comp) III Year	2040-17-401-503,504,505,506,507,508,510,511,512,513,514,515, 518,519,520,522,523,524,525,535,536, 537,538,539 2040-17-402-001,003,006,012,014,015,017,018,020,022,023, 024,025,026,027,030,032,033	24
			18	

BUILDING	ROOM NO	GROUP	Roll No's	Total
Old Building Ground Floor	12	BSC (MPC & MPCS) III Year	2040-17-441-503,504,505,506,507,508,509,510,511,512,513,515, 517,518. & 204015441510	11
			2040-17-468-001,002,003,004,006,009,010,011.	12
Old Building First Floor	15	BA (HEP) II Year T/M	2040-18-129-501,502,503,505,506,507,508,510,511,515,516, 517,518,519,520,521,522,523,525,526,528,530, 531,532,534,535,536,537,538,539,	30
	16	BA (HEP) II Year T/M	2040-18-129-540,541,542,543,544,545,546,547,548,549,550.	11
			2040-18-129-001,003,004,006,007,009,010,012,015,016, 017,018,020,022,024,025	16
		BA (CHP) II Year	2040-18-092-001	01
	17	BSC (BZC) II Year T/M	2040-18-445-501,502,503,504,505,509,511,514,516,517, 518,519,520,521,523,524,526,528,529,530,533, 535,536,538,542,543,545,546,548, 549,551,554,555,556,558,560 and 204017445514 and 200818445553	38
VARANDA	BSC (BZC) II Year E/M	2040-18-445-001,004,006,008,012,013,015,016,018,019 020,021,024,026,027,028,030,031,032,034,037.	21	

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GOVERNMENT DEGREE COLLEGE – TANDUR, VIKARABAD DIST.

UG III AND V SEMESTER FIRST INTERNAL ASSESSMENT TEST 2019-20

TIME TABLE

S.NO	DATE & DAY	TIME	GROUP/YEAR/ SEMESTER					
			BA		B.COM		B.SC	
			II YEAR III SEMESTER	III YEAR V SEMESTER	II YEAR III SEMESTER	III YEAR V SEMESTER	II YEAR III SEMESTER	III YEAR V SEMESTER
01	30-08-2019 Fri day	2:00 TO 2:30 PM	English	Political science - V	English	Cost A/C	English	Chemistry/CA V
02		2:30 TO 3:00 PM	Second Language	Political science - VI	Second Language	BTP	Second Language	Chemistry/CA VI
03		3:00 TO 3:30 PM	Political Science	Economics - V	Advance A/C	B Law	Chemistry/CA	Botany/Physics - V
04		3:30 TO 4:00 PM	-	Economics - VI	-	Computerised A/C	Computerised A/C	Botany/Physics - VI
05	31-08-2019 Saturday	2:00 TO 2:30 PM	Economics/CA	History - V	Income Tax	Auditing/Excel foundation	Botany/Physics	Zoology/Maths - V
06		2:30 TO 3:00 PM	History	History - VI	B Stats	Accounting Standards/ Web Technology	Zoology/Maths	Zoology/Maths - VI
07		3:00 TO 3:30 PM	SEC - 1 Basics of computer skills	Sec III (Citizenship Rights, duties and Laws)	ED&BE/C Language	Sec - III Principles of General Insurance	SEC - 1 1.Safety rules in chemistry laboratory and Lab reagents for BZC & MPC 2.Boolean Algebra for MPCs	Sec III 1. Nursery & Gardening for BZC 2. Electrical Circuit Network Skills for MPC & MPCs
08		3:30 TO 4:00 PM	-	GE - 1 Indian Constitution & Administration	Sec - 1 Principles of Insurance	GE - 1 Indian Economy	-	GE - 1 Disaster Management.

GOVERNMENT DEGREE COLLEGE – TANDUR, VIKARABAD DIST.

BA/BSc III Year VI Semester Examinations Oct- 2020

TIME TABLE

	Time	III YEAR VI SEMESTER	III YEAR VI SEMESTER
2020	10:00 AM to 12:00 Noon	GE-II Good Governance	GE II Nutrition in Health & Disease
0-2020	10:00 AM to 12:00 Noon	SEC-IV Introduction to Archaeology	SEC IV (MPC & MPCS Radiation Safety) / (BZC – Mushroom Culture Technology)

BA/BSc III Year VI Semester 2nd Internal Assessment Test, Oct- 2020

TIME TABLE

DAY	Time	III YEAR VI SEMESTER	III YEAR VI SEMESTER
12-10-2020	10:00 AM to 10:30 AM	GE-II Good Governance	GE II Nutrition in Health & Disease
	10:30 AM to 11:00 AM	SEC-IV Introduction to Archaeology	SEC IV (MPC & MPCS Radiation Safety) / (BZC – Mushroom Culture Technology)
	11:30 AM to 12:00 PM	Political Science - 7	Chemistry-7/CS -7
	12:00 PM to 12:30 PM	Political Science- 8	Chemistry-8/CS-8
13-10-2020	10:00 AM to 10:30 AM	Economics -7	Botany-7/Physics-7
	10:30 AM to 11:00 AM	Economics- 8	Botany-8/Physics-8
	11:30 AM to 12:00 PM	History - 7	Maths-7/Zoology-7
	12:00 PM to 12:30 PM	History - 8	Maths-8/Zoology-8

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GOVERNMENT DEGREE COLLEGE – TANDUR, VIKARABAD DIST.
 BA/BSC/BCOM (CBCS) I Semester AECC I and Internal Examinations, August 2021

Time Table

Day & Date	Time	I Semester		
		BA (CBCS)	BSC (CBCS)	BCOM (CA)
16-08-2021 Monday	10:00 AM to 11:30 Noon	AECC – I (Theory) Environmental Studies	AECC – I (Theory) Environmental Studies	AECC – I (Theory) Environmental Studies
	12:00 Noon To 12:30 PM	AECC – I (Internal) Environmental Studies	AECC – I (Internal) Environmental Studies	AECC – I (Internal) Environmental Studies
17-08-2021 Tuesday	10:00 AM To 10:30 AM	English	English	English
	10:30 AM To 11:00 AM	SL	SL	SL
	11:30 AM To 12:00 Noon	Political Science/ Computer Applications	Chemistry/CA/CS	BOM
18-08-2021 Wednesday	10:00 AM To 10:30 AM	Economics	Botany/Physics	FA - 1
	10:30 AM To 11:00 AM	History	Zoology/Physics	Computer Applications

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GOVERNMENT DEGREE COLLEGE , TANDUR - VIKARABAD DIST.

UG II & IV SEMESTER PRACTICAL TIME TABLE SEP - 2021

DATE & DAY	TIME	BOTANY	ZOOLOGY	CHEMISTRY		PHYSICS	COMPUTERS/ COMPUTER APLL.	
		Lab - 1	Lab - 1	Lab - 1	Lab - 2	Lab - 1	Lab - 1	Lab - 2
06.09.2021 MONDAY	10.00 - 12.00	B2A	B2C	B4A	B4B	M2A		BA4
	02.00 - 04.00	B2C	B2B	B4C	M4A			
07.09.2021 TUESDAY	10.00 - 12.00	B2B	B2A	B2C			M4B	BA2
	02.00 - 04.00	B4C	B4A	B2A	B2B		M2A	
08.09.2021 WEDNESDAY	10.00 - 12.00	B4A	B4B	M2A		M4A		
	02.00 - 04.00	B4B	B4C			M4B		

I Year II SEM Batch List

Group/Course	Batch No.
BSc(MPC E/M, MPCs E/M)	M2A
BSc(BZC) E/M	B2A , B2B
ZCCS E/M & BZCS E/M	B2C
BA (HECA) E/M	BA2

II Year IVSEM Batch List

Group/Course	Batch No.
BSc(MPC) T/M & E/M	M4A
BSc(MPCs) E/M	M4B
BSc(BZC) T/M	B4A , B4B
BSc(BZC E/M, BZCA E/M, ZCCA E/M)	B4C
BA (EPCA) E/M	BA4

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GOVERNMENT DEGREE COLLEGE – TANDUR, VIKARABAD DIST.

BA (CBCS) VI Semester SEC IV, GE-II and Internal Examinations, August 2021

Time Table

Day & Date	Time	Subject
16-08-2021 Monday	10:00 AM to 12:00 Noon	GE – II GOOD GOVERNANCE Theory & Internal ✓
	1:00 AM to 2:30 PM	SEC - IV INTRO.TO ARCHAEOLOGY Theory & Internal ✓
17-08-2021 Tuesday	10:00 AM – 10:30 AM	Political Science - VII
	10:30 AM – 11:00 AM	Political Science - VIII
	11:30 AM – 12:00 Noon	Economics/CA VII
18-08-2021 Wednesday	10:00 AM – 10:30 AM	Economics/CA VIII
	10:30 AM – 11:00 AM	History - VII
	11:30 AM – 12:00 Noon	History - VIII

BCOM (CBCS) VI Semester SEC IV, GE-II and Internal Examinations, August 2021

Day & Date	Time	Subject
16-08-2021 Monday	10:00 AM to 11:30 AM	GE – II REGULATION OF INS.BUSINESS. Theory & Internal ✓
	1:00 AM to 2:30 PM	SEC - IV SECTORS OF INDIAN ECONOMY. Theory & Internal ✓
17-08-2021 Tuesday	10:00 AM – 10:30 AM	714 - MANAGERIAL ACCOUNTING
	10:30 AM – 11:00 AM	715 - COMPANY LAW
	11:30 AM – 12:00 Noon	716 - FINANCIAL INSTIT. & MARKETS and 726 - MANG.INFOR. SYSTEM
18-08-2021 Wednesday	10:00 AM – 10:30 AM	718 - ADVANCED CORPORATE ACCOUNTING/ E Commerce
	10:30 AM – 11:00 AM	728 - THEORY AND PRACTICE OF GST

BSC (CBCS) VI Semester SEC IV, GE-II and Internal Examinations, August 2021

Day & Date	Time	Subject
16-08-2021 Monday	10:00 AM to 11:30 AM	GE – II. For MPC & MPCs & BZC 859B - NUTRITION IN HEALTH& DISEASE. Theory & Internal ✓
	1:00 AM to 2:30 PM	SEC – IV. 1. For MPC & MPCs Students. 7590 - RADIATION SAFETY 2. For BZC Students 759D - MUSHROOM CULT.TECH. ; Theory & Internal
17-08-2021 Tuesday	10:00 AM – 10:30 AM	Chemistry/CS VII
	10:30 AM – 11:00 AM	Chemistry/CS VIII
	11:30 AM – 12:00 Noon	Botany/Physics VII
18-08-2021 Wednesday	10:00 AM – 10:30 AM	Botany/Physics VIII
	10:30 AM – 11:00 AM	Zoology/Mathematics VII
	11:30 AM – 12:00 Noon	Zoology/Mathematics VIII

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OSMANIA UNIVERSITY
B.A (CBCS) SEMESTER VI Instant/Backlog/Special Exam in view of COVID-19/Makeup
Examination-January-2021.
TIME -TABLE

DAY & DATE	PAPER	VI SEMESTER TIME: 2.00 P.M to 4.00 P.M SUBJECTS
19.01.2021 TUESDAY	VII	Political Science (Political Thought - Western & Indian Political Thought)
20.01.2021 WEDNESDAY	VIII	Political Science - Elective (a) International Relations (International Relations in 19th & 20th Century II) (b) Govt. & Politics in Telangana
21.01.2021 THURSDAY	VII	Economics (International Economics)
22.01.2021 FRIDAY	VIII	Economics - Elective (a) Demography (b) Economics of Insurance (c) Industrial Economics
23.01.2021 SATURDAY	VII	Public Administration (Financial and Material Resources Management) Communicative English (Study and Referencing skills)
25.01.2021 MONDAY	VIII	Public Administration - Elective (a) Urban local Governance (b) E-Governance - Case Studies (c) Technology and Office Administration Communicative English- Elective (a) Soft skills and Personality Development. (b) Creative Writing.
27.01.2021 WEDNESDAY	VII	History (World History (1815-1950 CE)) Psychology (Abnormal Psychology)
28.01.2021 THURSDAY	VIII	History - Elective (a) History of Telangana (1724-2014 CE) (b) Islamic History and Culture (Rise of Abbasids to Crusades) (c) Introduction to Indian Art and Architecture Psychology - Elective (a) Health Psychology (b) Cognitive Psychology (c) Child Psychology
29.01.2021 FRIDAY	VII	Sociology (Industrial Sociology) Marketing Management (Personal Selling & Salesmanship) Geography (Geographical Information Systems(GIS)) Computer Applications (Mobile Applications) Communication & Journalism -Public Relations
30.01.2021 SATURDAY	VIII	Sociology - Elective (a) Political Sociology (b) Medical Sociology (c) Gender and Society Marketing Management (Advertising & Media Management) Geography - Elective (a) Geography of Telangana (b) Population Geography (c) Environmental Geography Computer Applications - Elective (a) PHP Programming (b) Information Security and Cyber Laws Communication & Journalism - Elective (a) Introduction to Online Journalism (b) Specialized Reporting
01.02.2021 MONDAY	VII	Modern Languages **
02.02.2021 TUESDAY	VIII (a) (b)	Modern Languages ** Modern Languages **

** English, Telugu and Urdu

NOTE

- All the Chief Superintendents of Examination Centres have to strictly follow the COVID-19 protocols and Standard Operating Procedures(SOP) issued by MHRD/State Government in conducting of examinations.
- Any Omission or clash may be intimated to The Controller of Examinations, O.U. immediately on receipt of the Time Table.
- The Candidates whose forms are rejected by the Examination Branch will not be examined. If any Candidate is found not eligible at a later stage his/her registration will be cancelled for this Examination.
- The Candidates must write the Examination in allotted centers only. The College Principals/ Chief Superintendents should not allow other center candidates under any circumstances.
- Cell Phones & Programmable Calculators are strictly not allowed into the Examination Hall.
- The Candidates responsible for obtaining correct question paper as per Hall Ticket from the Invigilator at the Examinations. Answering a wrong Question paper may leads to Cancellation of Results.



S. D. N. N.
28/1/2021
CONTROLLER OF EXAMINATIONS

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No. 005/1103/CBCS I&III SEM/2017

Dr. 03.11.2017

CIRCULAR

UG I & III SEMESTER SECOND INTERNAL ASSESSMENT

All the UG(CBCS) college Principals are hereby informed that the following details are to be noted for up-loading I Semester first Internal assessment test & III semester 2nd Internal assessment test marks of UG courses under CBCS semester system for the academic year 2017-18.

1. UG I Semester Internal assessment test (only one test) and III semester, second internal assessment test will be conducted as per the OU almanac i.e. on 07-11-2017 to 09-11-2017. Principals are required to upload the marks (including assignment marks) on OU website through college logins on or before 18th November, 2017 at 5.00 p.m.
2. It is also informed to the Principals of U.G. colleges that, the transfer students internal assessment test - I which were already conducted during the 14th and 16th of September, 2017 marks can be uploaded on OU website through College Logins.
3. Maximum internal marks for all UG course subjects are 15 for each assessment and 5 marks for assignments, the total internal marks (internal +assignment) = 20.
4. There is no re-conduct of Internal examination under CBCS system.
5. Maximum internal assessment test marks to SBC subject is 10 marks for all UG courses with no assignments.
6. Absent should be noted as " Ab ".
7. Principal will be held responsible for entries made on the website and award list for internal assessment.
8. Principals are instructed to display the final internal marks on notice board before uploading the marks to O.U. Marks once uploaded by the colleges there is no alterations allowed strictly.
9. Printed award list along with D- Form should be submitted to the exam branch on or before 18th November, 2017. If not submitted, fine will be imposed after the due date.

NOTE

I Semester Register No's (U.C.Nos) will be provided as on when U.SST data received by the University for uploading internal marks before 18th November, 2017.

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CONTROLLER OF EXAMINATIONS,
OSMANIA UNIVERSITY,
HYDERABAD - 500 007.

(Reaccredited by NAAC with A+ Grade)

No. 006/UG/CBCS/II&IV SEM//2017

Dt: 24.02.2018

CIRCULAR

UG II & IV SEMESTER FIRST INTERNAL ASSESSMENT

All the U.G(CBCS) college Principals are hereby informed that the following details are to be noted for up-loading II & IV Semester First Internal assessment test marks of U.G courses under CBCS semester system for the academic year 2017-18.

1. UG II & IV Semester First Internal assessment test will be conducted during 06.03.2018 and 07.03.2018. Principals are required to upload the marks on OU website through college logins on or before 18th March, 2018, at 5.00 p.m.
2. Maximum internal marks for all UG course subjects are 15 for each assessment and 5 marks for assignments, the total internal marks (internal +assignment) = 20.
3. There is no re-conduct of Internal examination under CBCS system.
4. Maximum internal assessment test marks to AECC-II and SEC-II subject is 10 marks for all UG courses with no assignments.
5. Absent should be noted as " Ab ".
6. Principal will be held responsible for entries made on the website and award list for internal assessment.
7. Principals are instructed to display the final internal marks on notice board before uploading the marks to O.U website. Once marks uploaded by the colleges there is **no alterations** allowed strictly.
8. Printed award list along with manual D- Form should be submitted to the exam branch on or before 18th March, 2018. If not submitted, fine will be imposed after the due date.

Sd/-

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OSMANIA UNIVERSITY,
HYDERABAD - 500 007.

(Reaccredited by NAAC with A+ Grade)

No. 007/UG/CBCS/II&IV SEM/2018

Dr: 02.04.2018

CIRCULAR

UG CBCS B.A/B.COM/B.SC/B.B.A/B.S.W

II & IV SEMESTER SECOND INTERNAL ASSESSMENT TEST

All the U.G (CBCS) College Principals are hereby informed that the following details are to be noted for up-loading II & IV Semester **Second Internal** assessment test marks of U.G courses under CBCS semester system for the academic year 2017-18.

1. UG II & IV Semester Second Internal assessment test will be conducted as per O.U almanac i.e on 12.04.2018 and 13.04.2018. Principals are required to upload the marks on OU website through college logins on or before 23rd April, 2018, by 5.00 p.m.
2. Maximum internal marks for all UG course subjects are 15 for each assessment and 5 marks for assignments, the total internal marks (internal +assignment) = 20.
3. There is no re-conduct of internal examination under CBCS system.
4. Maximum internal assessment test marks to AECC-II and SEC-II subject is 10 marks for all UG courses with no assignments.
5. Absent should be noted as " Ab ".
6. Principal will be held responsible for entries made on the website and award list for internal assessment.
7. Principals are instructed to display the final internal marks on notice board before uploading the marks to O.U website. Once marks uploaded by the colleges there is no alterations allowed strictly.
8. Printed award list along with manual D- Form should be submitted to the exam branch on or before 26th April, 2018. Otherwise, fine will be imposed after the due date.

Sd/-

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M. R. J.

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Via. Code: 501 141

Tel: Office: 27098951/293,
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CONTROLLER OF EXAMINATIONS,
OSMANIA UNIVERSITY,
HYDERABAD - 500 007.

(Reaccredited by NAAC with A+ Grade)

No: 036/ UG/Pract./Sup/ 2018

Dt: 06.10.2018

B.A /B.COM/ B.SC/ BBA (Reg&CDE) (Y.W.S)
SUPPLEMENTARY-2018
INTERNAL & PRACTICAL EXAMINATION SCHEDULE

Following is the Schedule of B.A/B.Com/B.Sc/ B.B.A(Reg &CDE) (Y.W.S)
Supplementary Practical Examinations-2018.

Foreign Languages Viva-Voce	17.11.2018	At the concerned departments, Arts College, O.U
IHC - I Year Human Values&P.E-I Year Environmental Studies-II Year Science&Civilisation-III Year Computer Skills(B.A&B.Sc I & II Year) (For the students who do not study Computer Science as core subject for I & II Year)	19.11.2018 and 20.11.2018	At the Respective colleges
CBT English Viva-Voce&CBT (Paper-I&Paper-II) for all the batches for regular & backlog students	22.11.2018 and 24.11.2018	At the Centres allotted
All Practical Examinations including PGRRCDE B. A/B.B.A(Regular) (All Practicals) & Projects B.Com(All Practicals) B.Sc(All Practicals except statistics) B.B.A (CDE) Practicals	26.11.2018 to 29.11.2018	At the Centres allotted
<u>B.SC STATISTICS PRACTICALS:</u> I Year Paper 1 (10.00 a.m to 1.00 p.m) II Year Paper 2 (10.00 a.m to 1.00 p.m) III Year Paper 3 (2.00 p.m to 5.00 p.m) III Year paper 4 (2.00 p.m to 5.00 p.m)	30-11-2018 01-12-2018 30-11-2018 01-12-2018	At the Centres allotted

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No: 42/UG/Pract/CBCS/ 2018

Dr. 15.10.2018

**B.A./B.COM./B.SC./BBA(CBCS) SEMESTER - I, II & V (REGULAR)
PRACTICAL EXAMINATION SCHEDULE - NOVEMBER 2018.**

The Practical Examination schedule of U.G. (B.A./B.Com./B.Sc./ B.B.A./B.S.W) CBCS Semester - I, II & V (Regular) November-2018, is as follows:

COURSE	I SEMESTER	III SEMESTER	V SEMESTER	DATES
B.A	Comp. Applications Geography	Comp. Applications Geography, Psychology	Comp. Applications Geography, Psychology	14.11.2018 to 19.11.2018
B.B.A		Infor. Technology		
B.S.W	Social Work Practicum	Social Work Practicum	Social Work Practicum	14.11.2018 to 19.11.2018
B.Sc	Optional-I	Optional-I	Optional-I	
	Optional-II Optional-III	Optional-II Optional-III	Optional-II Optional-III	

COURSE	I SEMESTER	III SEMESTER	V SEMESTER	DATES
B.Com. (Gen., Advt. & Tax)	IT	-----	Computerised Accounting	14.11.2018 to 19.11.2018
B.Com. (FT)	-----	-----		
B.Com. (Comp)	IT	Programming with 'C'	1. Excel Foundation 2. Computerised Accounting 3. Web Technology	
B.Com (Comp. Appl.)	IT	Programming with 'C'	1. Excel Foundation 2. Computerised Accounting 3. Web Technology	
B.Com. (Hon's.)	IT	M.I.S.	Computerised Accounting	

All the Principals are requested to submit the list of candidates appearing in each paper to the Chief Superintendent concerned. The Chief Superintendents of the Practical Examination centers are requested to implement the following points:-

1. Make arrangements to conduct the Practical Examinations notifying the exact dates of examinations to the concerned candidates.
2. Conduct the Practical Examination on the basis of Registered Numbers submitted by the Principal OR on the basis of Hall Ticket of the candidate.
3. Send the Answer Scripts, on or before 24-11-2018 along with the 'D' forms and the award list in duplicate in the same bundle.
4. The Principals/Chief Superintendents are instructed to upload the practical timetable to OU Web link on or before 13.11.2018.
5. The practical examination should be conducted strictly as per the timetable issued by principal.

NOTE:

- A. THE CHIEF SUPERINTENDENTS ARE REQUESTED TO SUBMIT PRACTICAL MARKS THROUGH ONLINE ON THE SAME DAY OF EXAMINATION
- B. IF ANY MISMATCH FOUND IN SCHEDULE OF EXAMINATION AND WITH UPLOADING MARKS, WILL BE VIEWED SERIOUSLY.

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27098072

CONTROLLER OF EXAMINATIONS,
OSMANIA UNIVERSITY,
HYDERABAD - 500 007.

(Reaccredited by NAAC with A+ Grade)

No. 035/UG/CBCS/III&V SEM//2019


Dt: 19.08.2019


CIRCULAR

UG III & V SEMESTER FIRST INTERNAL ASSESSMENT

All the U.G(CBCS) college Principals are hereby informed that the following details are to be noted for up-loading III & V Semester 1st Internal assessment test marks of U.G courses under CBCS semester system for the academic year 2019-20

1. UG III&V semester First internal assessment test will be conducted as per the OU almanac i.e. on **26-08-2019 to 31-08-2019**. (Any Two days) Principals are required to upload the marks on OU website through college logins on or before **12.09.2019** at 5.00 p.m.
2. Maximum internal marks for all UG course subjects are 15 for each assessment and 5 marks for assignments, the total internal marks (internal +assignment) = 20.
3. There is no re-conduct of Internal examination under CBCS system.
4. Maximum internal assessment test marks to SEC&GE subject is 10 marks for all UG courses with no assignments.
5. Absent should be noted as " Ab ".
6. Principal will be held responsible for entries made on the website and award list for internal assessment.
7. Principals are instructed to display the final internal marks on notice board before uploading the marks to O.U. Marks once uploaded by the colleges will not be allowed for alterations. strictly.
8. Printed award list along with Manual D- Form should be submitted to the exam branch on or before **16.09.2019**. If not submitted, fine will be imposed after the due date.


CONTROLLER OF EXAMINATIONS


PRINCIPAL
Govt. Degree College
Tandur, Vikarabad Dist.
Pin Code: 501 141



Tel : Office: 27098951/293,
27098072

CONTROLLER OF EXAMINATIONS,
OSMANIA UNIVERSITY,
HYDERABAD - 500 007.

(Reaccredited by NAAC with A+ Grade)

No. 035/UG/CBCS/III & IV SEM/2019

Dt: 21.10.2019

CIRCULAR

UG CBCS B.A/B.COM/B.SC/B.B.A/B.S.W

I, III & V SEMESTER SECOND INTERNAL ASSESSMENT TEST

All the U.G (CBCS) College Principals are hereby informed that the following details are to be noted for up-loading I,III & V Semester **Second Internal** assessment test marks of U.G courses under CBCS semester system for the academic year 2019-20.

1. UG I-Semester Internal Assessment Test (only one test) and III & V Semester Second Internal assessment test will be conducted as per O.U **almanac** i.e on **28.10.2019 and 31.10.2019**.(any Two days) Principals are required to upload the marks on OU website through college logins on or before **15.11.2019** at 5.00 p.m.
2. Maximum internal marks for all UG course subjects are 15 for each assessment and 5 marks for assignments, the total internal marks (internal +assignment) = 20.
3. There is no re-conduct of internal examination under CBCS system.
4. Maximum internal assessment test marks to **AECC, SEC & GE** subject is 10 marks for all UG courses with no assignments.
5. W.e.f. 2019-20 Academic year the UG I-Semester AECC subjects are a)Environmental Science. b) Basic Computer Skills
6. Absent should be noted as " Ab ".
7. Principal will be held responsible for entries made on the website and award list for internal assessment.
8. Principals are instructed to display the final internal marks on notice board before uploading the marks to Osmania University. Marks once uploaded by the colleges will not be allowed for alterations strictly.
9. Printed award list along with manual D- Form should be submitted to the examination branch on or before **18.11.2019**. Otherwise, fine will be imposed after the due date.

Sd/-

CONTROLLER OF EXAMINATIONS

MROH
PRINCIPAL
Govt. Degree College
Hyderabad Dist.



Tel: Office: 27098951/293,
27098072
CONTROLLER OF EXAMINATIONS,
OSMANIA UNIVERSITY,
HYDERABAD-500007

(Reaccredited by NAAC with A+ Grade)

No.324/UG/CBCS/1 & VI/SEM/2021

Dr: 05-08-2021

CIRCULAR

CONDUCT OF UG (CBCS) B.A./B.Com./B.Sc./B.S.W./B.B.A. SEMESTER - I & VI (REGULAR) INTERNAL,
AECC, SEC, GE & PRACTICAL PROJECT/VIVA-VOCE EXAMINATIONS AUG/SEP-2021

All the U.G (CBCS) College Principals are hereby informed to conduct UG (CBCS) B.A./B.Com./B.Sc./B.S.W./B.B.A. Semester-I & VI (Regular) Internal, AECC, SEC, GE & Practical/Project/Viva-Voce Examinations for the Academic Year 2020-21.

1. To conduct **UG I & VI Semester** Internal Assessment Test, AECC, SEC, GE & Practical/Project/Viva-Voce Examinations and upload the marks on OU website through college logins **on or before 08-09-2021**.
2. Maximum internal marks for all UG programme subjects are 15 for each assessment and 5 marks for assignment, the total internal marks (internal assessment + assignment) = 20.
3. The internal assessment test may be conducted in offline/online mode.
4. There is no re-conduct of internal assessment test under CBCS system.
5. Maximum internal assessment test marks to AECC, SEC & GE subjects are 10 for all UG programmes with no assignment marks.
6. UG I Semester AECC subjects are: (i) Environmental Science; (ii) Basic Computer Skills.
7. D-Forms will be available in the college logins and absent should be marked as "Ab".
8. Conduct of Practical & Project Examinations is entrusted to the Principals of respective colleges by appointing Practical Internal/External Examiners. Practical/Project/Viva-voce Examinations may be conducted in offline/online mode and scripts of the same should be submitted to the Examination Branch after uploading the marks through the link provided by the Examination Branch.
9. All the colleges are requested to strictly adhere to the COVID-19 protocols. Take every step to sanitize the rooms/premises before and after every examination session also provide hand sanitizers. If needed the face masks must be made available to the students and staff. All those entering into the premises must be thermally screened before being allowed into the College.
10. Principals of the concerned colleges will be held responsible for entries made on the website and award lists for all the examinations held at the college.
11. Principals are instructed to display the final internal assessment test marks on notice board before uploading the marks to O.U. website.
12. Principals are instructed to check meticulously before uploading the marks online through the college logins to OU website. Marks once uploaded by the colleges are final and strictly there is no provision for any alterations.
13. Printed award list(s) along with manual D-Form should be submitted to the Examination Branch **on or before 13-09-2021**. If not submitted fine will be imposed after the due date.
14. The above special provision shall be applicable only for the current academic year 2020-21 as a one-time measure due to COVID-19 Pandemic Situation.



S. V. Rao
CONTROLLER OF EXAMINATIONS

4204
NIPAL
Degree College
Bandur, Karabid Dist.
HYDERABAD-501 141

తేదీ: 01. 10. 2018

కళాశాల ప్రధానాధికారిని ఈ వార్తల ద్వారా మీకు
 ఈ క్రింది విషయాలపై సమాచారం అందించడం జరిగింది. ఈ
 సమాచారం మీకు తెలియజేయబడినట్లు తెలియజేస్తున్నాము.

1. కేరళాలోని కేరళ కళాశాలలో ఉన్న విద్యార్థులకు జరిగిన
 కేరళ 04, 05, 06 తేదీలలో జరిగిన, కేరళ
 పాఠశాల విద్యార్థుల Internal Assessment
 Test-2 ఫలితాలను తెలియజేస్తున్నాము.
2. కేరళ 06వ తేదీనాటి పాఠశాలలో జరిగిన
 కళాశాల వార్తలను తెలియజేస్తున్నాము.

Prin
 కేరళా

2వ పాఠశాల విద్యార్థులు - ఉన్నత విద్యార్థులు

01. [Signature]
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01. [Signature]
02. [Signature]
03. [Signature]
04. [Signature]
05. B. Vinay Kumar
06. [Signature]
07. [Signature]
08. [Signature]

PRINCIPAL
 Govt. Degree College
 Tandur, Vikarabad Dist.
 Pin Code: 501 141

తేదీ: 26. 10. 2018

కేంద్రాల ప్రాధికారాలను ప్రతి వార్షిక పరిశీలన
నా అధికారిక అధికారుల సహాయంతో చేయించి.
సమావేశాల కమిటీకి నివేదికలు పంపించి
- 60 జరిగింది -

- 01. ప్రస్తుత సంవత్సరానికి ప్రాథమిక వివరాలను పూర్తిచేసి
సమావేశానికి వచ్చి, సమావేశం - 1, 2, జాబితాలో పేర్కొన్న.
- 02. సలహాదారుల అధికారులను ప్రతి కేంద్ర కేంద్రాల కమిటీకి
03. ఎంపిక చేయడానికి వీలైన సలహాదారులను జాబితాలో
పేర్కొనాలని అంతు వచ్చిన వివరాలను పంపించాలి.

సహాయక కమిషనరు
ప్రభుత్వ కార్యాలయం

సహాయక అధికారులు - అంతు వచ్చిన అధికారులు

- 01.
- 02.
- 03. Nureeny
- 04.
- 05.
- 06.
- 07. S. Mahan
- 08.

- 01.
- 02.
- 03.
- 04.
- 05. Anuna
- 06. B. Vinay Kumar
- 07.
- 08.

తేదీ 12.11.2018

ఈ గ్రామ 192, తల గిరి 192, చీకా వరకా
 జరిగినవిలో 15.50 ఎకరము 13.011. గ్రామస్థానిక
 సంస్థలకు (సంస్థలకు) అందజేసిన పట్టికలో ఉన్నట్లు ఉన్నట్లు
 (సంస్థలకు) అందజేసిన పట్టికలో ఉన్నట్లు ఉన్నట్లు
 పట్టికలో ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు
 పట్టికలో ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు
 పట్టికలో ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు
 పట్టికలో ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు

అందులో ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు
 ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు

1. అందులో ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు
2. అందులో ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు
3. అందులో ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు
4. అందులో ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు ఉన్నట్లు

సంతకం

సంబంధిత అధికారి -

1. 7.11.2018
- 2.
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- 6.

అదనపు అధికారి

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తేదీ: 05.03.2019
తారీఖు.

ఈ తీర్మానం 11-45 గంటల కాలంలో ప్రతిపాదనలు
ప్రతిపాదనలు (Staff Meeting) జరిగినవి.
ఈ సమావేశంలో ఈ తీర్మానాలు ఆమోదించబడ్డాయి.

1. II, IV మరియు VI సెమిస్టర్లకు సంబంధించి పాఠ్యాంశాలు
సంబంధించి అధ్యాపకులు మరియు విద్యార్థుల సహకారంతో
విద్యార్థులకు అనుకూలంగా ఉండే కార్యక్రమాలను అమలు
చేయాలి. (Staff Meeting) తీర్మానం ప్రకారం.

2. 07.03.2019 నుండి తీర్మానం ప్రకారం విద్యార్థులకు
సహకారం చేయాలి.

- సమంజస అధ్యాపకులు
1. A. S. Reddy
 2. K. S. Reddy
 3. P. S. Reddy
 4. A. S. Reddy
 5. B. S. Reddy

అధ్యక్ష అధ్యాపకులు
1. తలారా తలారా

PRINCIPAL
Govt. High School
Tandur, Vikarabad Dist
Pin Code: 501 141

4/3/19
Govt. High School
Tandur, Vikarabad Dist
Pin Code: 501 141

తేదీ: 07.09.2019
వారం: శుక్రవారం

సంస్థలో జరిగిన 2-30 నిమిషాల సమావేశం
వెళ్ళినవారిని 21 వారం కంటే ఎక్కువ సమయం
అనుమతి లేకుండా జరిగినట్లుగా (Staff Meeting)
సమావేశం జరిగింది. ఈ సమావేశంలో
సభ్యులు చివరకు ఆసక్తికరం జరిగింది.

1. ప్రతిపక్ష సమావేశం తేదీ: 11.09.2019 బుధవారం
తేదీ: 11.09.2019 బుధవారం
- జరిగింది.
2. అధికార బలపరచుకోవడానికి తేదీ: 11.09.2019 బుధవారం
తేదీ: 11.09.2019 బుధవారం
- జరిగింది.
3. తేదీ: 09.09.2019 సోమవారం తేదీ: 09.09.2019
తేదీ: 09.09.2019 సోమవారం
- జరిగింది.

KRISHNA
TANDUR
Dist. N.T.

1. P. Srinivas
2. P. Srinivas
3. S. Srinivas
4. B. Krishna
5. H. Krishna

- 1) G. Krishna
- 2) G. Krishna
- 3) B. Venay Kumar

MR. KRISHNA

Tandur, N.T. Dist.
Pin Code: 501 141

STAFF MEETING

Date: 27.12.19

On 5th December a staff council meeting held under the chairmanship of Dr. Vivek Kumar Dubey in the Principal chamber at 11:00 AM to discuss about college Academic Activities & resolved as below:

- (1) Schedules of I, II & III Semesters
- (2) Time table - It is resolved to prepare time table under the close guidance of convener Sri. T. Narayan Kumar, Lecturer in Botany.
- (3) Follow the college timing 9:30 AM to 4:30 PM
- (4) It is resolved to form CA & IMS committee.
- (5) Student ID card - It is resolved to form a committee to prepare students & staff ID cards
- (6) It is resolved to maintain college registers for college co-curricular activities.
- (7) It is resolved to maintain Department wise Library Register
- (8) It is resolved to select CR's from each group for smooth functioning of college activities.
- (9) It is resolved to conduct Blood Donation camp after completion of I & II semester examinations
- (10) It is resolved to have O.H on 24-12-2019.

- 1) ~~Chairman~~
- 2) ~~Chair~~ (S. Mahender Reddy)
- 3) ~~Chair~~ (S. Ramgopal Reddy)
4. ~~Chair~~ (B. Karavathi)
- 5) ~~Chair~~ (SUAREEFA MARYAM)
- 6) ~~Chair~~ (N. Smitheja)
7. ~~Chair~~ (V. Madhavi)

[Signature]
PRINCIPAL
Govt. Degree College
Tandur, Vikarabad Dist.
Pin Code: 501 141

[Signature]
PRINCIPAL
Govt. Degree College
Tandur, Vikarabad Dist.
Pin Code: 501 141

Date

24.02.2019

On 24th February a staff council meeting held under the chairmanship of principal Dr Vivek Kumar Dahiya at 3.00 pm. to discuss about college activities & resolve as below

(1) It is resolved to congratulate all the faculty members for successfully conducting Blood Donation camp & Awareness Program (on the Birth Day of Honorable CM. K.C.R.)

(2) It is resolved to conduct 3rd Internal Assessment Test of I, II & III semester (as per OU Almanac) on 28 and 29th of February 2020

(3) It is resolved to form a committee under the Chairmanship of G. Navan Kumar Lec in computer APPRINT and as a member Smt. Smitiya Lakshmi Lec. in computer science to take the (AECC - II) Basic computer skills classes for 1 year students.

(4) Group & combination lecturer wise Result Analysis of I, II & III semester of BA, B.com, B.Sc. of I, II & III year - 1

(5) It is resolved to take Remedial classes for slow learners - 2

(6) It is resolved to Increase Group wise overall pass percentage by taking extra classes and Remedial classes - 3

(7) Status of Bio-metric attendance. - 4

(8) Status of NSS - 5

(9) - 6

(10) - 7

(11) - 8

(12) - 9

(13) - 10

(14) - 11

- 1) Dr. Rajendra Kumar
- 2) Atul Kumar
- 3) Mr. Zaker
- 4) R. Gaurav
- 5)
- 6) Saurabh
- 7) G. Anura

- 8) H. K. Dahiya
- 9) B. Vinay Kumar
- 10) R. S. Singh
- 11) N. S. Singh
- 12) S. S. Singh
- 13) V. A. (V. Madhavi)
- 14) R. S. Singh

PRINCIPAL
Govt. Degree College
Tandur, Vikarabad Dist.
Pin Code: 507 141

Govt. Degree College
Tandur, Vikarabad Dist.
Pin Code: 507 141

STAFF COUNCIL MEETING

Date:

19.11.2020

On 19th November 2020 a staff & council meeting held under the chairmanship of principal DR VEER KUMAR Das at 11:00 AM to discuss about college activities & resolved as below

(1) It is resolved to conduct UG I, II, III, IV & V semester Backlog exams (NECC, SEC & GE) as per the scheduled time by Osmania University. (OU)

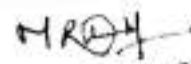

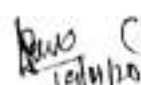
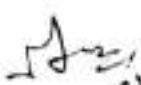
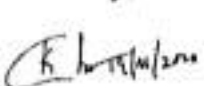
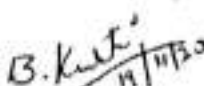
(2) It is resolved to maintain student Library issue register for the academic year 2019-20 & 2020-2021.

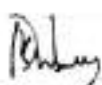
(3) Status of DOST Admission process.


(4) It is resolved to continue online classes for the academic year 2020-21.

(5) It is resolved to prepare Group & Contribution wise VI semester result analysis for the year 2019-20.

(6) Status of the scholarships for the year 2019-20.

- 1)
- 2) 
Dr. M. Ravinder
- 3) 
- 4)  (B. Rangopul Reddy)
- 5)  (S. Leenu)
- 6)  (Ch. Kishan)
- 7)  [B. Kaverthi]


PRINCIPAL
Govt. Degree College
Tandur, Vikarabad Dist.
Pin Code: 501141.

B. Smita - (SHAREEFA NARAYAN)
19/11/20
 (N. Muthyala)


PRINCIPAL
Govt. Degree College
Tandur, Vikarabad Dist.
Pin Code: 501 141

Staff Council Meeting

Date
25.01.2021

On 25th January a Staff Council Meeting held under the chairmanship of Principal Dr VIVEK KUMAR OUBAY at 2:30 PM to discuss about college activities & resolved as below -

(1) It is resolved to conduct AEC-2, SEC-2 and practical examination of II & IV semester for the year 2019-20 as per OU scheduled.

(2) It is resolved to conduct II semester & IV semester IInd instant examinations as per OU Scheduled.

(3) It is resolved to participate 26th Republic Day programme in the premises of our college at 8:00 AM.

(4) As per the instruction given by CCE-Hyderabad. to conduct face to face classes from 3rd Feb. 2021 onwards.

(5) It is resolved to conduct regular classes as per COVID-19 Norms.

(6) It is resolved to construct a committee under the chairmanship of M.S. Ranganopal Reddy, Lecturer in zoology & to prepare time table for smooth functioning of regular classes and the following members & faculty members are in the time table committee.

- (1) CH. Kishan, Lecturer in Physics
- (2) Smt. V. Madavi, Lecturer in Chemistry
- (3) Smt. Shireeta Maryam, Lecturer in Commerce
- (4) Sri. S. Mahender Reddy, Lec in Economics
- (5) Sri. N. Muthyala, Lec in Political Science
- (6) Sri. T. Renukadevi, Lecturer in Telugu

(7) It is resolved to structure TSRC for the year 2020-21

- 1) Ch. Kishan
- 2) S. Leema
- 3) S.M. Reddy

- 4) N. Muthyala
- 5) S. Ranganopal Reddy
- 6) V. Madavi
- 7) B. Karanthi

PRINCIPAL
Govt Degree College
Vikarabad Dist
Hyderabad
(S. Subbarao)

B. Ranganath

B. Kallu

B. Kallu

22.03.2024

ಶ್ರೀ (ಶ್ರೀ) ಸಂವತ್ಸರದ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ
ಪ್ರಶಸ್ತಿ ಪತ್ರಗಳನ್ನು ಹಾಗೂ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ
25, 26, 27ನೇ ದಿನಗಳ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ
ಸಂವತ್ಸರದ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಹಾಗೂ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ
(ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಹಾಗೂ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ) ಹಾಗೂ
ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಹಾಗೂ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಹಾಗೂ

ಪ್ರತಿ,

MRD
PRINCIPAL
Govt. Degree College
Tandur, Vikarabad Dist.
Pin Code: 501141

- 1) ~~Prady~~ (T. Ramesh Kumar)
- 2) ~~Ch~~ (Ch. Kishan)
- 3) ~~Ch~~ (S. Mahender Reddy)
- 4) ~~Prady~~ (S. Rangopal Reddy)
- 5) ~~V. H~~ (Mrs. V. Madhavi)
- 6) ~~B. K~~ (B. Kalavathi)
- 7) ~~Sm~~ (Shareefa Maryam)
- 8) ~~Kalpana~~ (Kalpana)
- 9) ~~Ushy~~ (K. Vishala)
- 10) ~~am~~ (B. Babu)
- 11) ~~Prady~~ (B. Ramesh)
- 12) ~~ash~~ (P. Prakash)
- 13) ~~Prady~~ (Prady)
- 14) ~~Prady~~ (Prady)
- 15) ~~Prady~~ (S. Laxmi)
- 16) ~~Prady~~ (VENKATAPPA)
- 17) B. Vinay Kumar (B. Vinay Kumar)
- 18) B. Vikram (B. Vikram)

MRD
PRINCIPAL
Govt. Degree College
Tandur, Vikarabad Dist.
Pin Code: 501141

30.06.2021

On 30 June 2021 a staff council meeting held under the chairmanship of Principal Dr. M. RAVINDRAN at 11:00 AM to discuss about college activities & Resolved as below.

- (1) It is resolved to conduct UG (CBCS) VI Semester Internal Assessment test as per DU almanac (In online Mode).
- (2) It is resolved to conduct admission campaign for the academic year 2021-22 as per CCE procedure.
- (3) It is resolved to conduct admission drive through pamphlet, wall posters, stickers, voice & video recording, etc.
- (4) It is resolved to distribute pamphlet with the help of following Lecturers: a) Mr. Venkatesh Prasad b) Mr. Prasad.
- (5) It is resolved to motivate the students to pay the college & semester fee.
- (6) It is resolved to submit required Lab equipment & Library books to concern department.
- (7) It is resolved to continue online classes till further orders issued.
- (8) It is resolved to provide Quality education to the students.
- (9) It is resolved to nominate Dr. VIVEK KUMAR DUBEY as a college Academic Co-ordinator for the year 2021-22.
- (10) It is resolved to nominate Sri T. ^{Remunababu} ~~Prasanna~~, Lecturer in Telugu as a NAAC-co-ordinator, and it is also resolved Sri N. Muthyalu, Lecturer in ^{chemistry} ~~Physics~~ Science will act as a ~~co-ordinator~~ ^{convener} of the NAAC Committee.
- (11) Review on NAAC programmes.
- (12) It is resolved to prepare college academic activity registers as per scheduled.

- (13) - ~~Consent~~ It is resolved to implement Certificate course for the students for the academic year 2021-22
- (14) The meeting is concluded with a vote of thanks to the Chair.
- (15) It is resolved to follow the college time table & mark the biometric attendance
- (16)

1. Ruby

2. K. Kishan (Ch. Kishan)
3. S. Ramgopal Reddy (S. Ramgopal Reddy)
4. S. Sharada Maryam (Sharada Maryam)
5. Dr. V. Madhavi (Dr. V. Madhavi)
6. B. Kalavathi [B. Kalavathi]
7. S. Lakshmi (S. Lakshmi)
8. S. Mahender Reddy (S. Mahender Reddy)
9. T. Rambhadrachari (T. Rambhadrachari)
10. Kalpana [Kalpana]
11. J. Venkatappa [J. Venkatappa]
12. K. Vishala [K. Vishala]
13. N. Mukthiyappa (N. Mukthiyappa)
14. C. Ravi Kumar (C. Ravi Kumar)
15. Dr. U. Raghavendra M. Reddy (Dr. U. Raghavendra M. Reddy)
16. B. Vikram (B. Vikram)

[Faint handwritten notes and signatures]

On 7th July 2021 a stable council meeting held under the chairmanship of principal Dr. M. Ravi at 11:00 AM to discuss about college activities & Resolved as below.

- (1) It is resolved to conduct III & V semester exam as per CU scheduled.
- (2) It is resolved to continue admission campaign as per CCE proceedings
- (3) Received feedback by the students about admission campaigning
- (4) It is resolved to submit ^{required} Lab equipment details to the principal of the college.
- (5) It is resolved to submit required library books to the concern department.
- (6) It is resolved to pay the TDS (CA-charges) charges by contract lecturers (Personally) immediately
- (7) The meeting is concluded with a vote of thanks to the chair.

- 1) ~~13~~ 13. Mahender Reddy
- 2) ~~14~~ 14. Ch. Kishan
- 3) ~~15~~ 15. S. Lakshmi
- 4) B. K. S. [B. Kalavathi]
- 5) ~~16~~ 16. K. Vishala
- 6) R. Vijayam [B. Vijayam]
- 7) ~~17~~ 17. J. Venkatarappa
- 8) ~~18~~ 18. T. Ramubabu Aund
- 9) ~~19~~ 19. B. Babu
- 10) ~~20~~ 20. S. Ramgopal Reddy
- 11) ~~21~~ 21. P. Prakash
- 12) ~~22~~ 22. N. Muthusali
- 13) ~~23~~ 23. N. Anand Kumar

- 14) ~~24~~ 24. Sharada Malhan
- 15) ~~25~~ 25. Kalpana [Kalpana]
- 16) ~~26~~ 26. C. Rajkumar Reddy

M. Ravi
Principal

UNDERGRADUATE PROGRAMME IN PUBLIC ADMINISTRATION

Courses

SYLLABI OF UNDER GRADUATE PROGRAMME - CBCS IN PUBLIC ADMINISTRATION

1. Name of the Department : Public Administration
2. Name of the Programme : BA (Public Administration)
3. Programme ID : BA-103; BA-203; BA-303; BA-403;
BA- 503 - A/B
BA 603, - A/B
4. Duration : Three Years
5. AIM of the course :
 - Make the learner to understand the nature and role of Public Administration in the changing socio-economic and political context and in the historical background
 - Understand the impact of political dynamics on administrative processes;
 - Relate the role of public administration to the dynamics of global context;
 - Motivate the students to appear for civil service examinations.

6. Programme Objective

The broad objectives of the Undergraduate Programme in Public Administration include:

- Understand public administration theory and concepts from multiple perspectives;
- Acquaint with the functioning of the Indian administration, at central, state and local levels and the responses of these systems in addressing the concerns of the people;
- Acquaint with India's development experience and changing role of administration;
- Understand the interface of theory and practice in Public Administration;
- Develop conceptual, analytical and problem solving abilities among the learners;
- Acquaint the learner with the required knowledge of administrative science and government in action and the contemporary issues in public affairs management and,
- Understand the world of Public Administration from the public perspective and provide foundation for further studies in Public Administration
- Understand the role of Public Services in the new State of Telangana.

B. A - SUBJECT: PUBLIC ADMINISTRATION
CBCS COURSE STRUCTURE
W.E.F 2019-20

Sl.No	Code	Course Title	HPW	Credits	Exam Hrs	Marks
-1	-2	-3	-5	-6	-7	-8
		SEMESTER - I				
1.	ELS1	English (First Language)	4	4		
2.	SLS1	Second Language	4	4		
3.	AEC1	Environmental Science/ Basic Computer Skills	2	2		
4.	DSC101		5	5	3 hrs	80U+20I
5.	DSC102		5	5	3 hrs	80U+20I
6.	DSC103	Basics of Public Administration	5	5	3 hrs	80U+20I
		Total	25	25		
		SEMESTER - II				
7.	ELS2	English (First Language)	4	4		
8.	SLS2	Second Language	4	4		
9.	AEC2	Basic Computer Skills/ Environmental Science	2	2		
10.	DSC201		5	5	3 hrs	80U+20I
11.	DSC202		5	5	3 hrs	80U+20I
12.	DSC203	Development Dynamics and Emerging Trends	5	5	3 hrs	80U+20I
		Total	25	25		
		SEMESTER - III				
13.	ELS3	English (First Language)	3	3		
14.	SLS3	Second Language	3	3		
15.	SEC1	Public Office Administration	2	2	1 ½ hrs	40U+10I
16.	SEC2	Office Processes	2	2	1 ½ hrs	40U+10I
17.	DSC301		5	5	3 hrs	80U+20I
18.	DSC302		5	5	3 hrs	80U+20I
19.	DSC303	Union Administration	5	5	3 hrs	80U+20I
		Total	25	25		
		SEMESTER - IV				
20.	ELS4	English (First Language)	3	3		
21.	SLS4	Second Language	3	3		
22.	SEC3	Technology & Office Administration	2	2	1 ½ hrs	40U+10I
23.	SEC4	Techniques of Office Administration	2	2	1 ½ hrs	40U+10I
24.	DSC401		5	5	3 hrs	80U+20I
25.	DSC402		5	5	3 hrs	80U+20I
26.	DSC403	State Administration	5	5	3 hrs	80U+20I
		Total	25	25		
		SEMESTER - V				
1.	ELS1	English (First Language)	3	3		
2.	SLS4	Second Language	3	3		
3.	GE Any One	a) Good Governance b) Indian Constitution & Administration	4	4	3 hrs	80U+20I
4.	DSE501 A B C		5	5	3 hrs	80U+20I

5.	DSE502 A B C		3T+4P/ 5	5	3 hrs	50T+35 P+ 15I/ 80U+20I
6.	DSE503 A B	Human Resource Management/ Rural Governance	5 5	5 5	3 hrs 3 hrs	80U+20I 80U+20I
		Total	27/25	25		80U+20I
SEMESTER – VI						
1.	ELS6	English (First Language)	3	3		
2.	SLS6	Second Language	3	3		
3.	PR/ Optional Paper	e-Governance	4T 2T+4R	4 4	3 hrs 1 ½ hrs	80U+20I 40U+10I 35R+15VV
4.	DSE 601 A B C		5	5	3 hrs	80U+20I
5.	DSE 602 A B C		3T+4P/ 5	5	3 hrs	50T+35 P+ 15I/ 80U+20I
6.	DSE 603 A B	Financial & Material Management Urban Governance	5 5	5 5	3 hrs 3 hrs	80U+20I 80U+20I
		Total	29/27	25		
		GRAND TOTAL	156/ 152	150		

ELS: English Language Skill; SLS: Second Language Skill; AEC: Ability Enhancement Compulsory Course; SEC: Skill Enhancement Course; DSC: Discipline Specific Course; DSE: Discipline Specific Elective; GE: Generic Elective; T: Theory; P: Practical; I: Internal Exam U: University Exam; PR: Project Report; VV: Viva-Voce Examination.

Note: i) A student should opt for either a or b or c of DSE Groups in V and VI Semesters.

ii) Project work should be done by a group of 4 students.

SUMMARY OF CREDITS

Sl. No.	Course Category	No. of Courses	Credits Per Course	Credits
1	English Language	6	4/3	20
2	Modern Language	6	4/3	20
3	AEC	2	2	4
4	SEC	4	2	8
5	GE	1	4	4
6	Project Report	1	4	4
7	DSC	12	5	60
8	DSE	6	5	30
	TOTAL	38		150

BA I Year

Course-1: Introduction to Public Administration

The Objectives of the Course are:

1. To understand the nature and scope of Public Administration;
2. To appreciate the methodological pluralism and synthesizing nature of knowledge in Public Administration;
3. To comprehend the changing paradigms of Public Administration;
4. To acquaint with the theories, approaches, concepts and principles of Public Administration;
5. To understand the administrative theories and concepts to make sense of administrative practices.
6. To understand the role of public services in the emergence and development of Telangana state

Semester-I DSC 103: Basics of Public Administration

Unit- I: Nature of Public Administration

- a. Meaning and Importance of Public Administration
- b. State and Evolution of Public Administration

Unit-II: Relationship with other Social Sciences

- a. Law
- b. Political Science
- c. Economics
- d. Psychology

Unit-III: Oriental and Classical Approaches

- a. Oriental Approach -Kautilya
- b. Classical Approach: Henri Fayol, Luther Gulick and Lyndall Urwick
- c. Scientific Management Approach: F.W.Taylor
- d. Bureaucratic Approach: Max Weber and Karl Marx

Unit-IV: Human Relations and Behavioural Approaches

- a. Human Relations Approach –Elton Mayo
- b. Behavioural Approach: Herbert A. Simon
- c. Socio- Psychological Approach: Abraham Maslow; Mc Gregor

Unit-V: Ecological and Social Justice Approaches

- a. Administrative Ecology: F.W.Riggs
- b. Social Justice Approach –B.R.Ambedkar
- c. Jyothirao Pule

References

- Avasthi & Maheshwari (2012) Public Administration, Lakshminarayana Agarwal, Agra.
- Arndt Christian and Charles Oman (2006) Uses and Abuses of Governance Indicators, OECD, Paris.
- Bhattacharya, Mohit (2013), New Horizons of Public Administration, Jawahar Publishers, New Delhi.
- Donald Menzel and Harvey White (eds) (2011) The State of Public Administration: Issues, Challenges and Opportunities, New York, M.E. Sharpe.
- Henry, Nicholas (2006) Public Administration and Public Affairs, Prentice Hall of India, New Delhi.
- Jan – Erik Lane (2000) New Public Management: An Introduction, Routledge, London.
- Ravindra Prasad, D. Prasad, VS Prasad, Satyanarayana, P., and Y. Pardhasaradhi (eds) (2013) Administrative Thinkers, Sterling, New Delhi.
- Frank J. Goodnow, Politics and Administration: A Study in Government, Transaction Publishers, New York, 2003.
- O'Leary, Rosemary et al (2010) The Future of Public Administration around the World: The Minnowbrook Perspective, GeorgeTown University Press, D.C.
- Martin Albrow (1970) Bureaucracy, MacMillan, London.
- UN, Department of Economic and Social Affairs, Development Administration: Current Approaches and Trends in Public Administration for Development, New York, UN, 1975.
- Wilson Woodrow, 'The Study of Administration' Political Science Quarterly 2 (June 1987).
- Telugu Akademi, BA, Ist Year Public Administration.

Semester-II DSC 203: Development Dynamics and Emerging Trends

Unit- I: Comparative & Development Administration

- a. Comparative Administration
- b. Development Administration
- c. Changing Dynamics of Development Administration

Unit-II: New Public Administration

- a. New Public Administration – Minnowbrook-I
- b. New Public Administration – Minnowbrook-II
- c. New Public Administration – Minnowbrook-III

Unit-III: Market Theories

- a. Public Choice Approach
- b. New Public Management

Unit-IV: Emerging Trends-I

- a. Public Policy and Governance
- b. Role of Public Services in the Emergence and Development of New State of Telangana

Unit-V: Emerging Trends-II

- a. Globalization and Public Administration
- b. Present Status of Public Administration in the context of Globalization

Expected Outcomes

After study of the Course-1, the learner should be able to:

- Appreciate the nature, scope and changing paradigms of Public Administration;
- Understand the synthesizing nature of knowledge of public administration from public perspective;
- Grasp the administrative theories, concepts and principles to make sense of administrative practices.

References

- Heady F. (1996) *Public Administration: A Comparative Perspective* (5th ed.) New York: Marcel Dekker.
- Heaphey J. (1968) *Comparative Public Administration: Comments on current characteristics*, *Public Administration Review*, 28 (3), 242-249.
- Montgomery, J. (1966) *Approaches to Development Politics, Administration and Change*, New York, McGraw Hill.
- Pai Panandikar, V.A. (1964) *Development Administration: An Approach*, *Indian Journal of Public Administration*, 10 (1), pp. 34-44.
- Raphaeli, N. (1967) *Readings in Comparative Public Administration*, Boston, Massachusetts: Allyn and Bacon.
- Riggs F.W. (1970) *The Ecology of Administration*, Bloomington: Indiana University.
- Riggs F.W. (1956) *Public Administration: A neglected factor in economic development*, *Annals of the American Academy of Political and Social Sciences*, No. 305, *Agrarian Societies in Transition*, (May 1956), 70-80.
- Swerdlow, I. (1963) (ed). *Development Administration: Concepts and Problems*, Syracuse, New York: Syracuse University Press.
- W.E. Weidner, (ed) (1970), *Development Administration in Asia*, Durham, North Carolina; Duke University Press.
- Waldo D (1963) *Comparative Public Administration: Prologue, Performance and Problems*, *Indian Journal of Political Science*, 24 (3), pp. 177-216.
- Ali Farazmand (2001) *Handbook of Comparative and Development Public Administration*, Merrell Dekker, New York.
- Esmon, Milton J. (1970) *CAG and the Study of Public Administration in F.W. Riggs (ed) The Frontiers of Development Administration* (pp. 41-71), Durham, North Carolina; Duke University Press.
- Telugu Akademi, BA. Ist Year Public Administration.

BA II Year – Semester III

Course-IV C: Public Office Administration (SEC)

The Objectives of the Course are:

1. To understand the concept of Office;
2. To comprehend the administrative process in office;
3. To identify the challenges of public office administration in the background of ICT
4. To sketch out the impact of technology in office administration

SEC I Public Office Administration

Unit I: Introduction

- a) Office Administration: Meaning, Scope & Importance of Office
- b) Changing Nature of Public Office
- c) Basic Principles of Office Organization

Unit II: Office Organization and Management

- a) Office Planning
- b) Office Accommodation and Lay-out
- c) Office Environment

SEC II Office Processes

Unit I: Office Filing System

- a) Forms: Management and Control
- b) Filing System and Classification
- c) Management of Office Records

Unit II: Office Communication

- a) Periodical Reports
- b) Office Communication; Correspondence
- c) Inventory Control; Office Stationery

References:

- Pillai R.S.N. (2010) Office Management, S.Chand, New Delhi.
- Sudhir Andrews (2008) Front Office Management and Operations, Tata McGraw Hill Publishing Co. Ltd, India.
- Balachandran V. (2009) Office Management, Tata McGraw Hill Publishing Co. Ltd, India.
- Bhatia R.C. (2005) Principles of Office Management, Lotus Press, Delhi.
- Gopala Krishnan and Sundaresan, M. (2000) Materials Management: An Integrated Approach, Prentice Hall, India
- Sharma, R.K. and Others (1991) Office Management, Kalyani Publishers, New Delhi
- Niraj Kumar (2013) Modern Office Management, New Royal Book Company. Lucknow.
- Chopra, R.K. (2008) Modern Office and Its Management, Himalaya Publishing House, Hyderabad.

BA II Year

Semester III : Indian Administration

The Objectives of the Course are:

1. To understand the historical evolution and socio-economic, political, cultural and global context of Indian Administration;
2. To identify the transformative role of Indian Administration;
3. To make out the multi-dimensionality of problems and processes of Indian Administration;
4. To understand the form and substance of Indian Administration; and
5. To appreciate the emerging issues in Indian Administration in the context of changing role of state, market and civil society.

DSC 303 : Union Administration

Unit- I: Historical Background

- a. Evolution of Indian Administration
- b. Indian Administration after Independence: Continuity and Change
- c. Indian Constitutional Moorings and Administration.

Unit- II: Union Administration: Structure and Processes

- a. Political Executive at Central Level
 - i) President
 - ii) Prime Minister
 - iii) Council of Ministers
- b. Central Secretariat and other Offices

Unit-III: Centre-State Relations

- a. Centre-State Administrative Relations
- b. Central Personnel Agencies-All India Services

Unit-IV: Constitutional and Other National Bodies

- a. Union Public Service Commission
- b. (i) Election Commission; (ii) Comptroller and Auditor General of India (C&AG)
- c. NITI Aayog

Unit-V: Public Enterprises in India

- a. Forms of Public Enterprises - Department, Corporation, Company
- b. Performance and Disinvestment

References:

- Bidyut Chakravarty, Prakash Chand (2019), Indian Administration: Evolution and Practise, Sage Publications
- Krishna K.Tummala (1996), Public Administration in India, Allied Publishers Limited.
- Kuldeep Mathur (2019), Recasting Public Administration in India: Reform, Rhetoric, and Neoliberalism, Oxford University Press
- M.Sharma (2004), Indian Administration, Anmol Publishers.
- Meredith Townsend (2019), The Annals of Indian Administration, Volume-3, Creative Media Partners.
- Parmar, A., A Study of Kautilya's Arthashastra, Delhi, Atma Ram & Sons, 1987
- Radha Krishna Sapru (2019), Indian Administration: Foundations of Governance, Sage Publications.
- Ramesh K Arora, Rajni Goyal (2018), Indian Public Administration: Institutions and Issues, New Age International Publishers.
- S.R.Maheswari (2004), Indian Administration, Orient Longman Publishers Limited.
- Siuli Sarkar (2018), Public Administration in India (Second Edition), PHI Learning Private Limited.
- Vaman Govind Kale (2010), Indian Administration, Kessinger Publications.
- P.D. Sharma and B.M. Sharma (2009) Indian Administration: Retrospect and Prospect, Rawat Publications.

BA II Year – Semester IV

SEC 3 - Semester-IV: Technology and Office Administration (SEC)

Unit I: Introduction to Technology

- a) Introduction to ICT
- b) Management by Office Computerization
- c) Internet and Intranet

Unit II: Trends in Office Administration

- a) Office Automation
- b) Back Office Operations and Front Office Delivery
- c) Paperless Office

SEC 4 - Semester-IV: Techniques of Office Administration

Unit I: Techniques

- a) Work Study, Work Measurement, Work Simplification
- b) Management by Objectives
- c) Office Supervision

Unit II: Issues in Office Administration

- a) Social System and Public Office Administration
- b) Staff Welfare
- c) Office Management in Government: Issues

Expected Outcomes

After study of the course, the learner is expected:

- Understand the meaning and related concepts of Office and office management;
- Explain the filing and record management
- Identify the issues and challenges in functioning of public office.

References

Satyanarayana J, (2006) e-Government, PHI, New Delhi.

Kooiman, J (ed) (1993) Modern Governance: New Government – Society Interactions, Sage Publications, London.

Bhatnagar, S.C. (2004) e-Government: From Vision to Implementation, Sage, New Delhi.

Bhatnagar, S.C. (2004) The Role and Responsibility of Government in ICT for Development, Sage, New Delhi.

Singhal, A and Evertt, Rogers (1990) India's Information Revolution, Sage Publications, New York.

Semester-IV: DSC 403: State Administration

Unit-I: State Administration: Structure and Processes

- a. Administrative History of Telangana
- b. Political Executive at State Level, Governor & Chief Minister

Unit-II: State Administrative Mechanisms

- a. State Secretariat & Directorates
- b. Local Governance & District Administration in Telangana

Unit- III: Emerging Issues

- a. Administrative Reforms: Need and Importance
- b. 2nd Administrative Reforms Commission – Features and Recommendations

Unit-IV: Technology and Integrity in Government

- a. e-Government
- b. Values and Ethics in Administration

Unit-V: Control over Administration

- a. Redressal of Citizen Grievances: Transparency, Accountability and Right to Information Act
- b. Administrative Accountability: Legislative and Judicial Control

Expected Outcomes

After study of the course, the learner should be able to:

- discern the connects and disconnects between structure, purpose and process and results in Indian Administration;
- Understand the Indian Administration role as the main instrument of State to achieve its developmental goals;
- Appreciate the varying historical, socio-economic, political and other conditioning factors that gave Indian Administration its distinct nature to the learner

References:

- Bidyut Chakravarty, Prakash Chand (2019), Indian Administration: Evolution and Practise, Sage Publications
- Krishna K. Tummala (1996), Public Administration in India, Allied Publishers Limited.
- Kuldeep Mathur (2019), Recasting Public Administration in India: Reform, Rhetoric, and Neoliberalism, Oxford University Press
- M. Sharma (2004), Indian Administration, Anmol Publishers.
- Meredith Townsend (2019), The Annals of Indian Administration, Volume-3, Creative Media Partners.
- Parmar, A., A Study of Kautilya's Arthashastra, Delhi, Atma Ram & Sons, 1987
- Radha Krishna Sapru (2019), Indian Administration: Foundations of Governance, Sage Publications.
- Ramesh K Arora, Rajni Goyal (2018), Indian Public Administration: Institutions and Issues, New Age International Publishers.
- S.R. Maheswari (2004), Indian Administration, Orient Longman Publishers Limited.
- Siuli Sarkar (2018), Public Administration in India (Second Edition), PHI Learning Private Limited.
- Vaman Govind Kale (2010), Indian Administration, Kessinger Publications.

BA III Year

Course-II: (A) Good Governance (GE)

Course Objective

The word 'Governance' appears in diverse academic disciplines. At general level, governance refers to theories and issues of social coordination and the nature of all patterns of rule. The theories of governance have changed the understanding of various concepts of state and its institutions. New jargon of words emerged into the social science literature with different connotations. In this background, the present course is aimed to provide an in-depth understanding of the basic tenets and trends of Good Governance.

Unit - I: Introduction

- a) Meaning and Definitions of Governance
- b) Government and Governance
- c) Concepts of Good Governance

Unit – II: Citizen and Governance

- a) Rule of Law and Human Rights
- b) Accountability
- c) Participation

Unit - III: Techniques of Good Governance

- a) Openness and Transparency
- b) Citizen Charter
- c) Social Audit

Unit - IV: Emerging Trends

- a) Public and Private Governance
- b) Good Governance and Civil Society
- c) ICT and Good Governance

References:

- Bell, S., and Hindmoor, A. (2009) *Rethinking Governance: The Centrality of the State in Modern Society*, Cambridge: Cambridge University
- Bell, Stephen and Andrew Hindmoor. (2009) *Rethinking Governance: The Centrality of the State in Modern Society*. Cambridge: CUP.
- Bevir, Mark (2009), *Key Concepts in Governance*, Sage, London.
- Bevir, Mark, ed. (2010) *The Sage Handbook of Governance*. Thousand Oaks, CA: Sage
- Bovaird, Tony and Elke Löffler, eds. (2009) *Public Management and Governance*, Routledge.
- Farazmand, Ali and Jack Pinkowski, eds. (2006) *Handbook of Globalization, Governance, and Public Administration*. London: CRC/Taylor & Francis.
- Hajer, Maarten, and Hendrik Wagenaar (2003) "Introduction." In *Deliberative Policy Analysis*: Kjaer, A (2004) *Governance*. Cambridge, UK: Polity Press.
- Kooiman, Jan ed. (1993) *Modern Governance: New Government-Society Interactions*. London: Sage.
- Kooiman, Jan. (2003) *Governing as Governance*. London: Sage.

BA III Year

Course-II: (B) Indian Constitution and Administration (GE)

Semester-V Indian Constitution and Administration

Course Objective

The Constitution of India defines the basic objectives and functioning of the government. It has provisions for bringing about social change and defining the relationship between individual citizen and the state. It lays out certain ideals that form the basis of the kind of country that we as a citizen aspire to live in. An in-depth analysis of various basic areas of constitution is the main objective of this inter disciplinary course. This helps the students to strengthen their understanding of Indian constitution and functioning of government.

Unit 1: Indian Constitution

- a) Nature of the Constitution Salient features – Preamble
- b) Fundamental Rights, Directive Principles; Fundamental Duties
- c) Amendments of the Constitution: Procedure for Amendment– Emergency Provisions

Unit II: Centre – State Relations and Local Self Government

- a) Distinctive features of Indian Federation
- b) Legislative, Administrative and Financial relations between the Union and the States
- c) Decentralization Experiments in India – 73rd and 74th Amendments

Unit III: State Government

- a) Governor, Chief Minister and Council of Ministers
- b) Secretariat and Directorates
- c) Changing Nature of District Administration and the role of District Collector

Unit IV: Accountability & Control

- a) Legislative, and Executive Control
- b) Judicial control and Judicial Review
- c) Right to Information Act

References:

- Bidyut Chakravarty, Prakash Chand (2019), Indian Administration: Evolution and Practise, Sage Publications
- Krishna K.Tummala (1996), Public Administration in India, Allied Publishers Limited.
- Kuldeep Mathur (2019), Recasting Public Administration in India: Reform, Rhetoric, and Neoliberalism, Oxford University Press
- M.Sharma (2004), Indian Administration, Anmol Publishers.
- Meredith Townsend (2019), The Annals of Indian Administration, Volume-3, Creative Media Partners.
- Parmar, A., A Study of Kautilya's Arthashastra, Delhi, Atma Ram & Sons, 1987
- Radha Krishna Sapru (2019), Indian Administration: Foundations of Governance, Sage Publications.
- Ramesh K Arora, Rajni Goyal (2018), Indian Public Administration: Institutions and Issues, New Age International Publishers.
- S.R.Maheswari (2004), Indian Administration, Orient Longman Publishers Limited.
- Siuli Sarkar (2018), Public Administration in India (Second Edition), PHI Learning Private Limited.
- Vaman Govind Kale (2010), Indian Administration, Kessinger Publications.

BA III Year

DSE 503A : Human Resource Management

The Objectives of the Course are:

1. To comprehend the nature, scope, structure & processes of human resource management;
2. To identify the systems and processes of financial and material management;
3. To appreciate institutional capacity building strategies and programmes; and
4. To understand the changing paradigms of Resources management.

Semester-V: DSE 503-A: Human Resource Management

Unit-I: Introduction

- a. Meaning and Significance of Human Resource Management
- b. Human Resource Planning

Unit-II: Human Resources

- a. Job Analysis, Job Description,
- b. Recruitment and Promotion
- c. Compensation Administration - Wage, Pay and Pay Commissions

Unit- III: Capacity Building

- a. Performance and Competency Mapping System
- b. Employee Capacity Building Strategies-Training
- c. Sensitivity Training

Unit-IV: Reforms

- a. Reddressal of Employee Grievances
- b. Right sizing, Outsourcing and Consultancies
- c. Interpersonal Skills

Unit V: Emerging Trends

- a. Human Resource Audit
- b. Total Quality Management
- c. Productivity Management

References:

- Armstrong, Michael (2007), A Handbook of Human Resource Management Practice, Kogan Page, London.
- Aswathappa K. (2013), Human Resource Management: Text and Cases, McGraw Hill, New Delhi
- Farazmand , Ali (1994), Handbook of Bureaucracy, Taylor & Francis , New York.
- Flippo Edvin B., (1976), Principles of Personnel Management, McGraw-Hill
- Goel, S.L.& Rajneeesh, Shalini(2003), Public Personnel Administration, Deep & Deep, Delhi
- Government of India, Second ARC, Tenth Report on 'Refurbishing of Personnel Administration'
- Jack Robin, et al (eds) (1994), Handbook of Public Personnel Administration, Taylor & Francis,NY
- Jain, R.B.(1994), Aspects of Personnel Administration, IIPA, New Delhi
- Maheswari Sriram (2005), Public Administration in India: The higher Civil Service, Oxford University Press, New Delhi
- Naff , Katherine C., Norma M. Riccucci, (2014) ,Personnel Management in Government: Politics and Process(Seventh Edition), CRC, Taylor & Francis, New York.
- Riccucci ,Norma(2007), Public Personnel Administration and Labor Relations, M.E. Sharpe,NY

BA III Year

Rural Governance (Optional)

The Objectives of the Course are:

1. To understand the concept of democratic decentralisation;
2. To trace the evolution of local self-government in India;
3. To comprehend the institutional arrangements and processes of rural and urban governance;
4. To identify the challenges of development and the administrative responses.
5. To sketch out the new organisational arrangements for delivery of public welfare programmes.

Semester-V DSE 503/B : Rural Governance

Unit-I: Introduction

- a. Democratic Decentralization and Local Organisations
- b. Evolution of Rural Governance Institutions-Balwanth Rai Mehta
- c. Ashok Mehta Committee

Unit:-II

- a. Third Generation Panchayats
- b. Constitutional Status of Rural Local Government- with special reference to 73rd CAA

Unit-III: Local Organisations for Rural Development

- a. Panchayati Raj: Patterns, Functions and Performance
- b. Finances of Panchayati Raj Institutions --- State Finance Commission

Unit-IV: Rural Development Strategies and Services

- a. Rural Development: Strategies, Programs and Issues
- b. Co-operatives: Structure, Functions and Performance
- c. Basic Services and Welfare Measures in Rural Areas (MNREGA, NRLM, SHYAMA MUKHERJEE RURBAN MISSION)
- d. State Control over Rural Local Governments

Unit V: Emerging Trends

- a. Rural Unrest
- b. Land Reforms
- c. Corporatization of Agriculture

References:

- B.D.S. Bhadouria and V.P. Dubey (1989), Panchayati Raj and Rural Development, Commonwealth Publishers, New Delhi.
- B.S. Khanna, (1992), Rural Development in South Asia Deep and Deep, New Delhi.
- Danny Burns, et. al. (1994), The Politics of Decentralisation: Revitalising Local Democracy, Macmillan, London.
- George Mathew (1994), Panchayati Raj in India: From Legislation to Movement, ISS, New Delhi.
- Jain L.C, et.al (1986), Grass without Roots; Rural Development Under Government Auspices, Sage
- K.C. Sivaramakrishanan, et. al. (1993), Urbanisation in India: Basic Services, ISS, New Delhi.
- M.A. Oommen (1995), Devolution of Resources from the State to the Panchayati Institutions, ISS, New Delhi.
- M.A. Oommen and Abhijit Datta (1995), Panchayats and their Finance, ISS, New Delhi.
- Mohit Bhattacharya (1976), Management of Urban Government in India: Uppal, New Delhi.
- Peter Oakley (1991), Projects with People: The Practice of Participation in Rural Development, ILO
- R. C. Choudahry and S.P. Jain (eds.) (2001) Patterns of Decentralized Government in Rural India, NIRD, Hyderabad.
- Ramesh K. Arora and Rajni Goyal (1996), Indian Public Administration Vishwa Prakashan, New Delhi.
- S.N. Mishra (1996), New Panchayati Raj in Action, Mittal Publication, New Delhi.
- S.R. Maheshwari (2003), Local Government in India, Lakshmi Narain Aggarwal.

BA III Year

Course-IV-B E- GOVERNANCE (OPTIONAL in Lieu of Project Report)

Objectives of the Course are:

1. To explain the meaning and importance of e-governance;
2. To provide the students with the analytical skills to comprehend the e-governance initiatives in India;
3. To make the learner understand e-governance initiatives at national and international level;
4. To inform the learner about the e-Governance measures initiated in Telangana state.

BA 503/B Semester-V: E-Governance

Unit-I: Introduction

- a. Concept of Governance and Good Governance
- b. Meaning, Evolution and Importance of E-Governance

Unit-II: Acts and Initiatives

- a. Information Society and Community Empowerment
- b. IT Acts and National E-Governance Plan
- c. E-Governance Initiatives in India

Unit-III: Methods of E-Governance

- a. GIS Based Management Systems
- b. Citizen Database and Human Development
- c. National Informatics Centre (NIC)

Unit-IV E-Governance in Public Office

- a. Back Office Operations and Front Office Delivery
- b. Business Process Reengineering (BPR)

References:

Bellamy, Christine, and John, A., Taylor, (1998), *Governing in the Information Age*, Buckingham, Open University Press.

Bhatnagar, S.C. (2004) *E-Government – from Vision to Implementation: A practical guide with case studies*, Sage Publications, New Delhi.

Bhatnagar, S.C. (2009) *Unlocking E-Government Potential: Concepts, cases and practical insights*, Sage Publications, New Delhi.

Bouwman, Harry, and et.al., (2005), *Information and Communication Technology in Organisations*, Sage Publications, London.

Heeks, R. (2006) *Implementing and Managing eGovernment: An international text*, Sage

Marchionini, G., (1995), *Information Seeking in Electronic Environments*, New York, The Press Syndicate of the University of Cambridge, USA.

Michael E. Milakovich, (2012), *digital governance - New Technologies for improving Public Service an Participation*, Routledge, Taylor and Francis group, New York.

Pardhasaradhi, Y. (et.al) (2009), *E-Governance and Indian Society: An Impact of Study*, Kanishka, New Delhi.

Satyanarayana, J, (2004), *E-Government: The Science of the possible*, PHI Learning Pvt Ltd, New Delhi.

Semester-VI:
DSE 603/A: Financial and Material Management

Unit- I: Financial Management

- a. Meaning and Scope
- b. Importance of Financial Management

Unit-II: Budget

- a. Concept and Principles of Budget
- b. Preparation, Enactment and Execution of Budget
- c. Gender Budget and Green Budget

Unit-III: Financial Institutions

- a. Organization and Functioning of Finance Ministry
- b. Finance Commission
- c. Union – State Financial Relations

Unit IV: Parliamentary Financial Committees

- a. Financial Control Mechanisms
- b. Public Accounts Committee and Estimates Committee
- c. Committee on Public Undertakings

Unit- V: Materials Management

- a. Meaning and Concept of Materials Management
- b. Procurement, Storage and Distribution
- c. Inventory Control and Management

Expected Outcomes

After study of the course, the learner should be able to:

- Understand the way in which the public power is exercised and public resources are managed and expanded;
- Unravel the varying methods of performance assessment of public institutions; and
- Appreciate the changing paradigms of human resource management.

References:

- Brigham Eugene F. (2011), Financial Management : Theory and Practice, Cengage Learning
Government of India, Second Administrative Reforms Commission, Fourteenth Report, Strengthening Financial Management, Systems, April 2009.
L.K.Jha (1986), Economic Administration in India – Retrospect and Prospect, New Delhi: IIPA
Lee Robert D. Jr., et al (Eds) (2007), Public Budgeting Systems, Jones & Bartlett Learning.
Mahajan Sanjeev Kumar Mahajan (2014), Financial Administration in India, PHI, Delhi
Mikesell, John (2010), Fiscal Administration, Cengage Learning.
R.K. Lekhi and Joginder singh(2013), Public Finance, Kalyani Publishers, New Delhi.
Rabin Jack, et.al (2006) Handbook of Public Financial Management, Taylor & Francis Group.
Sharma M.K. (2006), Financial Administration, Anmol Publications, New Delhi.
Steppan J. Beiley (1995), Public Sector Economics: Theory, Policy and Practice, London
Wang Xiaohu (2010), Financial Management in the Public Sector, M. E. Sharpe.

Semester-VI: DSE 603/B Urban Governance

Unit-I: Local Organisations for Urban Development

- a. Evolution of Urban Local Bodies- Pattern, Functions and Performance
- b. Constitutional Status of Urban Local Governments with special reference to 74th CAA

Unit-II: Strategies for Urban Development

- a. Urban Development: Strategies, Programs and Issues
- b. Finances of Urban Local Governments

Unit-III: Urban Services

- a. Basic Services and Welfare Measures in Urban Areas
- b. Urban Development Authorities and Parastatals
- c. Sustainable Development and Future of Urban Governance

Unit-IV: Agencies and Programs for Rural and Urban Sector

- a. Development Planning, District Planning Committee
- b. Special Agencies Urban Development
- c. Elimination of Poverty Initiatives in Urban Areas

Unit V: Emerging Trends

- a. Urban Reforms in India: SMART and AMRUT Cities
- b. Swachh Bharat Mission
- c. Urban Unrest

Expected Outcomes

After study of the course, the learner should be able to:

- Critically appreciate the relationship of local governance and development;
- Appreciate the rural and urban institutional arrangements for development;
- Understand the processes and results of systems of delivery of welfare programmes

References:

- Aziz Abdul (ed.), (1996), *Decentralised Governance in Asian Countries*, Sage New Delhi.
- Baud, Isa S A, J De Wit (2009), *New Forms of Urban Governance in India: Shifts, Models, Networks and Contestations*, SAGE Publications.
- Bhattacharya, Mohit (1976), *Management of Urban Government in India*, Uppal, New Delhi
- Burns, Danny et. al. (1994), *The Politics of Decentralisation: Revitalizing Local Democracy* Macmillan, London,
- Chaturvedi T.N. and Abhijit Datta (1984), *Local Government*, IIPA, (New Delhi).
- Devas Nick(2004) ,*Urban Governance Voice and Poverty in the Developing World*, Routledge.
- Maheshwari, S.R. (2003), *Local Government in India*, Lakshmi Narain Aggarwal, Agra.
- Oakley Peter (1991), *Projects with People: The Practice of Participation in Rural Development* , I.L.O., Geneva.
- Oakley Peter, et. Al (1984), *Approaches to participation in Development*, I.L.O., Geneva.
- Pierre , Jon (2011), *The Politics of Urban Governance: Rethinking the Local State*, Palgrave MacMillan.
- Prasad , R N(2007), *Urban Local Self-Government in India ; With Reference to North-Eastern States*, Mittal Publications.
- Rao , C. Nagaraja (2007),*Accountability of Urban Local Governments in India*, Atlantic, New Delhi
- Sivaramakrishnan K.C., et. al. (1993), *Urbanisation in India: Basic Services and People's Participation*, ISS, New Delhi.

B.A., (Economics) Syllabus
Choice Based Credit System- w.e.f.2019-20
Osmania University, Hyderabad, TS

Year	Semester	DSC/GE/ DSE/SEC	Paper	Title of the paper	Credits	Hours PW
I	I	DSC*101	Paper - I	Micro Economics	5	5
		AEC	AEC	Environmental Science/ Basic Computer kills	2	2
	II	DSC*201	Paper - II	Macro Economics	5	5
II		AEC	AECC	Environmental Science/ Basic Computer kills	2	2
	III	DSC-301	Paper - III	Statistics for Economics	5	5
		SEC-1	SEC-I	Computer Applications	2	2
		SEC-2	SEC-II	Rural Development	2	2
	IV	DSC*401	Paper - IV	Indian Economy	5	5
		SEC-3	SEC-III	Data Analysis	2	2
		SEC-4	SEC-IV	Entrepreneurship and Development	2	2
III	V	GE**	Paper - I	Telangana Economy	4	4
		DSE*501	Elective- A	Agricultural Economics	5	5
		DSE*501	Elective - B	Public Economics	5	5
		DSE*501	Elective - C	Economics of Environment	5	5
	VI	DSE*601	Paper - A	International Economics	5	5
		DSE*601	Paper B	Development Economics	5	5
		DSE*601	Paper - C	Industrial Economics	5	5
		Project/Optional	Project/Optional	Financial Economics	4	4

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DSC(DisciplineSpecificCourse),SEC(SkillEnhancementCourse)&DSE(DisciplineSpecificElective)forStudentsofEconomics.(PW) Per week.** GE(Generic Elective)or Inter-Disciplinary Course for Students of Social Sciences other than Economics.

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Chairman BOS in Economics

B.A. (ECONOMICS) SYLLABUS

Semester - I MICRO ECONOMICS - I Discipline Specific Course - Paper - I

MICRO ECONOMICS

Module-I: CONSUMER BEHAVIOUR:

Ordinal utility Analysis: Properties of Indifference curves, concept of budget line, equilibrium of consumer, price consumption curve, income consumption curve, derivation of demand curve with the help of ordinal utility analysis. Concepts of price, income and substitution effects; separation of price effect: compensating variation and cost difference methods.

Module-II PRODUCTION ANALYSIS

Concepts of Short run and long run production function; properties of iso-product curves, concept of factor price line, analysis of least cost input combination, concepts of expansion path and economic region of production, concept of returns scale and types of returns to scale. Linear and homogeneous production function, properties of Cobb-Douglas production function.

Module-III: COST AND REVENUE ANALYSIS

Cost concepts: Accounting, real, opportunity, explicit cost. Total cost, total fixed cost, total variable cost, average cost, average fixed cost, average variable cost, marginal cost and the relationship between average and marginal cost, derivation of long run average cost curve. Economies of scale: internal and external.

Revenue concepts: total, average and marginal, relationship between Average revenue & marginal revenue and price elasticity of demand.

Module--IV: MARKET STRUCTURE: IMPERFECT COMPETITION

Monopoly: Equilibrium of a monopolist with price discrimination, degrees of price discrimination, welfare loss under monopoly. Monopolistic competition: characteristics, concepts of product differentiation and selling cost, analysis of resource wastage under monopolistic competition. Oligopoly: characteristics of oligopoly, reasons for price rigidity in non-collusive oligopoly. Duopoly: Augustin Cournot's modern version of duopoly.

Module-V: ANALYSIS OF BUSINESS FIRM, PROFIT AND PRICING STRATEGIES

Characteristics of a business firm, objectives of business firm: profit maximization, sales revenue maximization, market share maximization, growth maximization. Profit concepts: Accounting and economic; break-even point and profit –volume analysis

Pricing strategies: Cost plus pricing, marginal cost pricing, rate of return pricing, price skimming, penetration pricing, loss-leader pricing, mark-up pricing and administered prices.

References:

1. M L Seth : Micro Economics
2. M L Jhingoan: : Micro Economics
3. H L Ahuja: : Modern Micro Economics
4. Koutsainies; : Modern Micro Economics
5. Stonier and Hague : Micro Economics
6. Salvatore : Micro economics
7. Schaum Series : Micro economics
8. Pyndick : Micro economics
9. Gregory Mankiw : Principles of Micro Economics

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B.A. (ECONOMICS) SYLLABUS
Semester - II
MACRO ECONOMICS
Discipline Specific Elective - Paper - II

Module– I: Introduction

Macro Economics – Concept of Circular Flow of Incomes –National Income Analysis: Concepts and Components – Methods of Measurement –Difficulties and Limitations in the Estimation of National Income.

Module– II: Theories of Income and Employment

Keynesian Theory of Income and Employment: Effective Demand – Consumption Function: Average Propensity to Consume (APC) and Marginal Propensity to Consume (MPC) – Factors Determining Consumption Function – Savings Function: Average Propensity to Save and Marginal Propensity to Save – Concepts of Multiplier and Accelerator

Module– III: Investment & Theories of Interest Rate

Capital and Investment: Types of Investment, Determinants of Level of Investment – Marginal Efficiency of Capital and Marginal Efficiency of Investment, Neo-Classical and Keynesian Theories of Interest.

Module – IV: Supply of Money & Demand for Money

Functions and Classification of Money – Money Supply – Measures of Money Supply with reference to India: M1, M2, M3 and M4 – Classical Theories of Money: Fisher’s and Cambridge Versions of Quantity Theory of Money – Keynes’ Theory of Money and Prices.

Module– V: Inflation & Trade Cycles

Inflation: Concept, Types, Causes and Measurement – Effects of Inflation – Measures to Control Inflation – Concepts of Phillips Curve, Deflation and Stagflation – Trade Cycles: Concept, Causes and Phases of trade cycle.

Reference Books:

- Ackley, G (1976) : Macro Economics: Theory and Policy, Macmillan, New York
Shapiro, E (1996) : Macro Economic Analysis, Galgotia Publications, New Delhi
Hansen A H (1953): A Guide to Keynes, McGraw Hill, New York
Keynes JM (1936): The General Theory of Employment, Interest and Money,
MC Vaish : Macro Economic Theory
HL Ahuja : Macro Economic Theory & Policy
Vanitha Agarwal: Macro Economic Theory & Policy, Pearson Education
HL Ahuja : Macro Economic Analysis
Gupta, SB : Monetary Economics: Institutions, Theory and Policy
M.L. Seth : Macro Economics, Lakshmi Narain Agarwal, Agra, 2006

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B.A. (ECONOMICS) SYLLABUS
Semester - III
DSC-SEMESTER – III: STATISTICS FOR ECONOMICS

Module– I: Introduction to Statistics

Meaning and Basic Concepts of Statistics – Population and Sample, Frequency Distribution, Cumulative Frequency – Graphic and Diagrammatic Representation of Data –Types of Data: Primary and Secondary Data –Methods of Collecting Data: Census and Sampling Methods (Random, Non-random Sampling Methods)

Module– II: Measures of Central Tendency and Dispersion

Measures of Central Tendency: Mean, Median, Mode, Geometric Mean and Harmonic Mean – Properties of Good Average – Comparison of Different Averages –Measures of Dispersion – Absolute and Relative Measures of Dispersion: Range, Quartile Deviation, Mean Deviation, Standard Deviation, Coefficient of Variation and Variance

Module– III: Correlation and Regression

Correlation: Meaning and Types – Karl Pearson's Correlation Co-efficient – Spearman's Rank Correlation –Regression: Meaning and Uses of Regression.

Module– IV: Index Numbers

Meaning and Uses – Aspects and Difficulties in the Construction of Index Numbers - Types of Index Numbers –Methods of Index Numbers - Laspayer, Paasche and Fisher.

Module– V: Analysis of Time Series

Meaning and Uses – Components of Time Series Analysis: Secular, Seasonal, Cyclical and Irregular Variations – Methods of Measurement of Secular Trends: Graphic, Semi-Averages, Moving Averages.

Reference Books:

- Allen, RGD : Mathematical Analysis for Economists, Macmillan Press, London.
Bhardwaj RS : Mathematics for Economics and Business, Excel Books, New Delhi
Bose : Mathematics for Economics, Himalaya Publishing, New Delhi
Chiang, AC : Fundamental Methods of Mathematical Economics McGraw Hill,
New Delhi
Nagar & Das: Basic Statistics
S.P. Gupta : Statistics
G.S. Mongha : Mathematics for Economists

B.A. (ECONOMICS) SYLLABUS
Semester - III
BASICS OF COMPUTER APPLICATIONS IN ECONOMICS
Skill Enhancement Course-I - Paper – I

Module-I:Introduction of Computers

Definition - Evolution of Computer - Computer Generations - Micro Computers - Structure of Computer - Uses of Computer - Basic Components of Computer - Central processing Unit (CPU) Operating System – Window Operating System - Salient Features - Merits of Windows Operating System - Accessories - System tools - Scan Disk - Word Pad - Note Pad - Paint - Imagination - Windows Explorer - Ms- Word: Creating, Opening and saving files - editing and formatting text - spell and grammar check - auto correct - creation of tables and volumes.

Module – II Data Analysis using SPSS: Basics of Data Analysis – Data Entry in SPSS – Computing with SPSS – Preparation of Graphs with SPSS – Distribution Functions and Density Functions – Statistical Package handling and command description for SPSS – Reports, Descriptive – Statistics, Compare Means, Time Series Analysis, Correlation and Regression Models.

References

1. Sinha, P.K. : Computer Fundamentals, BPB Publications, NewDelhi.
2. Raja Raman.V. : Fundamentals of Computers, PHI, New Delhi.
3. Kerns : Essentials of Microsoft Windows, Word and Excel,PHI.
4. Alexis Leon &Mathews Leon:Introduction to Computers with Ms-Office, TMH.
5. Asthana &Braj Bhushan : Statistics for Social Sciences (with SPSS applications), PHI.

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B.A. (ECONOMICS) SYLLABUS
Semester - III
RURAL DEVELOPMENT
Skill Enhancement Course-I - Paper – II

Module-I Aspects of Rural Development

Concept of Rural Development, Rural Development vs. Agricultural Development, Role of NGOs in Rural Development, Rural Non farm sector and Rural Development, Decentralized planning and Participatory development, role Panchayats in decentralized in rural development.

Module-II Rural Credit and Self Help Groups

Role of National Bank for Agriculture and Rural Development (NABARD) for rural development, Constraints of micro-enterprises in rural areas, credit need for rural non farm sector, the concept of micro credit, Micro credit role of Grameen Bank, SHG's in India Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) and rural development.

References

1. Katar Singh , Rural Development : Principles, Policies and Management, Sage Publications, New Delhi
2. K.G. Karmakar, Rural Credit and Self-Help Groups, Sage Publications, New Delhi
3. S.Sau, Rural Industrialization –Development Trajectory in India, Farma K.L.M., Kolkata
4. Misra D. and Puri K. Indian Economy, Himalaya Publishing House
5. Datt and Sundharam (Revised by G.Datt and A. Mahajan), Indian Economy, 70th edition, S. Chand
6. N. Narayanasami, Participatory Rural Appraisal: Principle, Methods and Applications, Sage Publications, New Delhi, 2009.
7. Vasant Desai, A Study of Rural Economics, Himalaya Publishing House, New Delhi.
8. Mahi Pal, —Panchayati Raj and Rural governance□, Economic and Political Weekly, Jan. 10-16, vol. XXXIX, 2004,No.2, p.13 16.
9. Raghava, D. V. Rao, Panchayats and Rural Development, Ashish Publishing House, New Delhi, 1980.
10. Ram Reddy, Pattern of Panchayati Raj in India, Heritage Publishers, New Delhi, 2

B.A. (ECONOMICS) SYLLABUS
Semester - IV
INDIAN ECONOMY
Discipline Specific Course - Paper –IV

Module I: Structure of the Indian economy:

Indian Economy at the time of Independence. Changes in the Composition of National Income and Employment. Natural Resource base: Land, Water, Forest, Mineral and Metal Resources. Population: Size, Growth and Composition and their implications for Indian economy.

Module II: Indian Agriculture:

Importance and Role of Agriculture. Trends in Agricultural Production and Productivity. Land Reforms. Green Revolution. Agricultural Finance. Agricultural Marketing. Agricultural Price Policy. Food Security in India.

Module III: Indian Industry and Services:

Role and Importance of Industrialization. Trends in Industrial Production and Services. Industrial Policy Resolutions: 1956, 1991 the Role of Public and Private Sectors. Formal and Informal Sectors in Industry and Services

Module IV: NIIT AAYOG

Demise of planning commission. Genesis of NITI Aayog: structure and composition of NIIT Aayog, Functions and objectives of NIIT Aayog, Differences between NIIT Aayog and planning commission, Economic prism-cooperative federalism platform for interface between Centre and State. NIIT Aayog role in strategic planning and innovation and knowledge hub. Challenges ahead.

Module-VService Sector, Economic Reforms:

Concept, Components, Trends and Role of Service Sector,-Infrastructural Development: Transport, Banking, Insurance, and InformationTechnology.

Economic Reforms: Linearization, Privatization, and Globalization- A critical evaluation.

References:

- | | |
|----------------------|--|
| 1. SK Misra and Puri | : Indian Economy, Himalaya Publishing House. |
| 2. Ishwar C Dhigra | : The Indian Economy: Environment and Policy,
SC Chand & Sons, New DelhiRC Dutt and |
| 3. KPM Sundaram | : Indian Economy |
| 4. PK Dhar | : Growing Dimensions of Indian Economy,
Kalayani Publisher. |

B.A. (ECONOMICS) SYLLABUS
Semester - IV
SEC-3 Data Analysis

Module -I: Collection and representation of data

Collection of data (some methodological issues), Census, Sample survey Representation of data the basic of data Management in stata / R / Eviews / SPSS / MS Excel

Module-II: Indian official statistics (Basic concepts)

Central statistical office (CSO) – National Accounts statics (NAS) Industrial statics (ASI, IIP), National sample survey Office (NSSO) - Household Consumer Expenditure Survey Rounds, Employment and Unemployment Survey Rounds. Census of India – Population Census 2011. Reserve Bank of India (RBI) – Handbook of statistics on Indian Economy Selected Parts)

Suggested Readings;

1. Goon A.M, Gupta, M K, and Dasgupta, B. *Fundamentals of Statistics (volume One)*, The World Press private Ltd
2. GOI, *Note sample Design and Estimation procedure of NSS 68th Round, national Sample Press private Ltd*
3. GOI. *SRS statistical Report 2016* office of the Registrar General & Census Commissioner of India.

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B.A. (ECONOMICS) SYLLABUS
Semester - IV
SEC-4 ENTREPRENEURSHIP AND DEVELOPMENT

Module-I Basic Issues of Entrepreneurship and Economic Development

Basic features of Entrepreneurship, Entrepreneurship and its linkages with economic development, Growth of entrepreneurship in India- Role of entrepreneurship in Economic Development and problems of rural entrepreneurship in India.

Module-II Financial Resources for new ventures of an entrepreneur:

Source of finance, capital structure, Institutional support to enterprises- National Small Industries Board- State Small Industries Development Corporation- District Industrial estates- Indian Experience, Stages of growth, types of growth strategies of expansion, Diversification, joint venture, merger and subcontracting.

References:

1. S.S. Khanka Entrepreneurial Development, S Chand & Company Ltd.
2. David . H. Holt- Entrepreneurship New Venture Criterion
3. Poornima M. Entrepreneurship Development and Small Business Enterprises (2nd Edition Pearson)
4. Datt and Sundaram (Revised by A. Mahjan), Indian Economy, 70th Edition, S Chand.

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B.A. (ECONOMICS) SYLLABUS
Semester - V
TELANGANA ECONOMY
Generic Elective- Paper - I

Module- I: Telangana Economy

Economic Features of Telangana, Demographic Features of Telangana- Occupational Distribution of population in Telangana- Sectoral Distribution of population.

Module- II: Gross State Domestic Product, Poverty and Unemployment

Growth and Trends in Gross State Domestic Product and Per capita income in Telangana- Sectoral Contribution to Gross State Domestic Product. Poverty and unemployment in Telangana: Trends, Causes & Concentration of Economic Power.

Module- III: Agriculture Sector

Growth of Agriculture in Telangana Economy- Trends in Agricultural Production and Productivity. Agrarian Structure and Land Reforms, Irrigation sources Trends- Mission Kakatiya, Agricultural Credit and Rural Indebtedness.

Module- IV: Industrial Sector and Service Sector

Structure of Telangana Industry- Its Growth and Pattern Industrial Policy of Telangana-TS iPASS Special Economic Zones. Importance of Service Sector in Telangana- Growth and Pattern of Development of Service Sector in Telangana.

Basic Reading List:

1. Rao S Kishan and Rahul A Shastry (2009): Andhra Pradesh Economy – Dynamics of Transformation with a focus on Regional Disparities, National Academy of Development,
2. Hanumantha Rao and S.Mahender Dev (2003); Andhra Pradesh Development – Economic Reform and Challenges Ahead, Centre for Economic and Social Studies, Hyderabad.
3. Kankalatha Mukund (1990); “Andhra Pradesh Economy in Transition; Centre for Economic and Social Studies, Hyderabad and Book Links Corporation, Hyderabad.
4. Mahendra Dev, S.C.Ravi and M.Venkatanarayana (2009); Human Development in Andhra Pradesh: Experiences, Issues and Challenges; Centre for Economic and Social Studies (CESS), Hyderabad.

B.A. (ECONOMICS) SYLLABUS
Semester - V
DSE-AGRICULTURAL ECONOMICS-V-A

Module-I

Nature and scope of agricultural economics, Factors affecting agricultural development, technological, institutional and general. Interdependency between agriculture and industry.

Module-II

Concept of production function: input and product relationship in farm production. Resource use and efficiency; Production function analyses in agriculture; Factor combination and resource substitution.

Module-III

Growth and productivity in Indian agriculture. Recent trends in agricultural growth in India. Agrarian reforms and their role in economic development. Inter-state variations in growth of output and productivity; cropping pattern shifts; Supply of inputs - Pricing of inputs and role of subsidies.

Module-IV

Systems of farming, farm size and productivity relationship in Indian Agriculture. New agriculture strategy and Green revolution and its impact.

Module-V

Emerging trends in production, processing, marketing and exports, Policy controls and regulations relating to industrial sector with specific reference to agro-industries in agri-business enterprises.

REFERENCE BOOKS:

1. Sadhu An, Singh Amarjit and Sing Jasbir (2004) Fundamental of Agriculture Economics, Himalaya Publishing House, Delhi.
2. Lekhi RK and Sigh Joginder, Agriculture Economics, Kalyani Publishers.
3. Government of India (1976) , Report of the National commission on Agriculture, New Delhi
4. Bilgrami, S.A.R. (1996) Agriculture Economics Himalaya Publishing House, Delhi.
5. Dantwala, M.L. et al (1991) Indianan Agriculture Development since Independence, Oxford& IBH, New Delhi.

B.A. (ECONOMICS) SYLLABUS
Semester - V
PUBLIC ECONOMICS
Discipline Specific Elective- Paper – V-B

Module - I: Introduction

Meaning and importance of Public finance -Evolution of public finance. Multiple theories of public household-Public and Private goods-Markets mechanism in public and private goods. State as an agent of planning and development

Module- II: Public Expenditure

Theories of public expenditure- Wagner' s law of increasing state activities – Peacock Wisemans hypothesis- Principle of Maximum Social advantage –Growth and pattern of public expenditure, Effects of public expenditure-Cost benefit analysis.

Module- III: Taxation & Public Debt

Approaches to taxation- Benefit approach, Ability to pay approach and Neutrality approach- Elasticity and buoyancy of taxation-incidence and shifting of taxation-Types and classification of taxes and VAT, Approaches to public debt.

Module- IV: Fiscal Policy & Federal Finance

Definition of fiscal policy and its objectives; Fiscal Policies for redistribution of income and wealth and stabilization – fiscal policies in a developing country, federal financial structure and its main features – Direct taxes-Income tax-Corporate tax. Indirect tax structure- –GST

Module- V: Budget

Budget – Classification of budgets –Economic, Functional, organizational, classification of budgets- performance programming and zero based budgets- surplus, balanced and deficit budgets- Concepts of budget deficit and their implications – State and Central budgets. Fiscal crisis and Fiscal sector reforms in India;

References

1. Atkinson, A Band J.E Siglitz (1980) : Lecturers on Public Economics, Tata McGraw Hill, New York.
2. Auerbach, A J and M. Feldson (Eds.) (1985): Handbook of Public Economics, Vol. 1, North Holland, Amsterdam.
3. Buchanan, J M (1970): The Public Finances, Richard D Irwin, Homewood.
4. Goode, R (1986):Government Finance in Developing Countries, Tata McGraw Hill, New Delhi.
5. Houghton, J M (1970): The Public Finance: Selected Readings, Penguin, Harmondsworth.
6. Jha, R (1998): Modern Public Economics, Routledge, London.
7. Menutt, P (1996): The Economics of Public Choice, Edward Elgar, U.K.
8. Musgrave, R A and P.B. Musgrave (1976): Public Finance in Theory and Practice, McGraw Hill, Kogakusha, Tokyo.
9. S K Singh Public Economics
10. Om prakash Public Economics

ECONOMICS OF ENVIRONMENT

Discipline Specific Elective (DSE)

Paper –V(b)

Module- I: Theory and Concept of Environmental Economics

Nature and Significance of Environmental Economics –definition and scope of environmental economics –Market Failure& Externality– Theories of Environmental Economics.

Module- II: Environment and Economics

Environment and Economics- Inter linkage – Environment as a public good – Environment vs. Economic growth - Population and Environment linkage –Environmental use as an allocate problem —Valuation of Environmental damages: land, water, air and forest.

Module-III: Environmental Problems

Economic development and environmental problems –Air, Water and Soil Pollution, Natural Resource Depletion, Deforestation, Industrial and Agricultural Pollution, Urbanization, Vehicular Pollution. Global warming and green house effect - Environmental degradation.

Module -IV: Environmental Pollution Control

Prevention, control and abatement of pollution –Choice of policy instruments in developing countries – Environmental Education- Environmental law – Sustainable development –indicators of sustainable development – Environmental planning – Environmental accounting.

Module-V: Policy measures

Basic approach –Design of environmental policy –Indian environment policies and performance –Functions of Ministry of Environment and Forest and Pollution Control Boards.

References:

1. M. Karpagam (1993), Environmental Economics, Sterling Publishers, New Delhi.
2. S. Sankaran (1994), Environmental Economics, Margham, Madras.
3. N. Rajalakshmi and Dhulasi Birundha (1994), Environomics, Economic Analysis of Environment, Allied Publishers, Ahmedabad.
4. S. Varadarajan and S. Elangovan (1992), Environmental Economics, Speed, Chennai.
5. Singh G.N (Ed.) (1991) Environmental Economics, Mittal Publications, New Delhi.
6. Garge, M.R. (Ed.) (1996), Environmental Pollution and Protection, Deep and Deep Publications, New Delhi.
7. Lodha, S.L (Ed.)(1991), Economics of Environment, RBSAPublishers, Jaipur.

INTERNATIONAL ECONOMICS
Discipline Specific Elective - Paper –VI -A

Module - I: Theories of International Trade:

Theories of absolute advantage, comparative advantage and opportunity costs; Theorem of factor price equalization; - Heckscher - Ohlin theory of trade, Leontief Paradox.

Module - II: Trade and Growth

Gains from Trade.-Trade as an Engine of Economic Growth. Concepts of Terms of Trade- Factors affecting Terms of Trade- Singer-Prebisch secular deterioration of Terms of Trade.

Module- III: Tariff and Non-Tariff Barriers to Trade

The basic analysis of Tariffs, Quotas, Protection and Imperfect Competition, Optimum tariff. Customs unions, trade barriers, Arguments for and against a Tariff.

Module- IV: Balance of Payments

Concepts and Components of BOP, Equilibrium and disequilibria in Balance of payments, Types of Disequilibria. Remedial measures to control disequilibrium. Causes of Devaluation. Direction and Composition of Foreign trade, Export and Import Policies of India.

Module – V: Internal Factor movements

International Movement of labor, international lending and world debt crisis, Foreign Direct Investment.

References:

1. Soderston B (1990):International Economics, Macmillan Press Ltd. London
2. Kindle Berger C P (1986): International Economics RD Irwin Concepts wood
3. Vaish MC&Sudhama Singh (2000): International Economics, Himalaya Publishing House, New Delhi
4. Francis Cherunilam: International Economics 4th Edition
5. Mithani DM (2000):International Economics, Himalaya, Mumbai
6. Desai:International Economics, Himalaya, New Delhi.

B.A. (ECONOMICS) SYLLABUS
Semester - VI
DEVELOPMENT ECONOMICS
Discipline Specific Elective - Paper –VI B

Module- I: Economic Development and Growth

Concepts of Economic Growth and Development. Measurement of Economic Development: Per Capita Income, Basic Needs, Physical Quality of Life Index, Human Development Index and Gender Empowerment Measure. Role of State and Market in Economic Development

Module- II: Factors in Economic Development

Factors effecting Economic Development-Characteristics of developing Countries- Population and Economic Development- Theories of Demographic Transition. Human Resource Development and Economic Development

Module- III: Theories of Economic Development

Theories of Adam Smith, David Ricardo, Karl Marx and Schumpeter

Module- IV: Theories of Under Development

Lewis, Rodan, Libenstien, Nurkse's Balanced Growth Strategy, Hirsch man's Un-balanced Growth Strategy, Myrdal model.

Module V

Financing Economic Development External resources - FDI, Foreign aid vs. trade, technology inflow, MNC activity in developing countries; Borrowings - domestic and external; Burden of borrowing - IMF and World Bank.

References:

1. Mier, Gerald, M : Leading issues in Economic Development, OUP, Delhi
2. Todaro, Micheal P : Economic Development in the third world, Orient Longman,Hyderabad
3. Ghatak Subrata : Introduction to development economics
4. Sukumoy chakravarthy : Development Planning- Indian Experience, OUP, Delhi
5. Misra &Puri : Economic Development and Planning, theory and practice

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B.A. (ECONOMICS) SYLLABUS
Semester - VI
INDUSTRIAL ECONOMICS
Discipline Specific Elective - Paper –VI- C

Module –I: Meaning and classification of Industries.

Use-based, Resource Based and ASI Two and Three Digit classification. Industrial Location theories: Weber, Sargent Florence, and Losch- factors affecting industrial location.

Module II: Market Structure and Market Performance:

Types of Markets based on Place, Time and Competition. Concepts & Organization of a firm. Market Structure; Sellers Concentration; Product Differentiation; Entry Conditions; Economics of Scale.

Module III: Industrial Pattern under Five Year Plan;

Industrial economic concentration and remedial measures. Industrial Policy 1991: Role of Public and Private Sector, LPG Program. Recent Trends in Industrial growth.

Module –IV: Industrial Finance:

Industrial Finance: Owned, External and other Components of Funds; Role, Nature, Volume and types of Institutional Finance – State Level Financial Institutions and Commercial Banks.

Module -V Financial soundness Assessment of Industrial sector: Financial Statement – Balance Sheet- Assets and Liabilities, Profit & Loss Account, Ratio Analysis

Basic Reading List:

1. Ahuliwalia, I.J. (1985) Industrial Growth in India, Oxford University Press, New Delhi.
2. Barthwal, R.R. (1985), Industrial Economics, Wiley Eastern Ltd., New Delhi.
3. Chernuliam, F. (1994), Industrial Economics: Indian Perspective (3RD Edition), Himalaya Publishing House, Mumbai.
4. Desai, B. (1999), Industrial Economy in India (3rd Edition,) Himalaya Publishing House, Mumbai.
5. Divine, P.J. and R.M. Jones Et. Al (1976), An Introduction to Industrial Economics, George Allen and Unwin Ltd., London.
6. Hay, D. and D.J.Morris (1979), Industrial Economics: theory and evidence, Oxford University Press, New Delhi.
7. Kuchhal, S.C. (1980), Industrial Economy of India (5th Edition), Chaitanya Publishing House, Allahabad.
8. Sing, A and A.N.Sadhu (1988), Industrial Economics, Himalaya Publishing House, Mumbai.

Optional Paper

FINANCIAL ECONOMICS

Module 1: Introduction to Indian Financial System

Overview of Indian Financial System – functions of financial system – players – structure and growth – regulatory bodies.

Module 2: Money and Capital Markets

Indian money market – instruments – institutions – functioning of Indian money market – changes in the regulatory framework – growth – stocks and bonds – primary and secondary markets – process of initial public offer – offer of Government bonds – stock market functioning – stock indices – evaluation of stocks and bonds – understanding stock market information.

Module 3: Foreign Exchange Market

Exchange rate – types – determination of exchange rate – nature of forex market – nature of forex inflow and outflow – examples of ECBs and NREs – RBI and exchange rate management.

Module 4: Financial Derivatives

Need for derivatives – types of derivatives – example of how stock index derivatives could be used to hedge risks in stock market investment – evaluation of financial derivatives.

Readings:

1. Bhole, L.M. (2002), Indian Financial Institutions and Markets, Tata McGraw Hill Ltd, New Delhi.
2. David S. Kidwell, David W. Blackwell, David A. Whidbee, Richard L. Peterson, (2005) Financial Institutions, Markets, and Money, 9th Edition, Wiley Publication, New York.
3. Khan M.F., (2006), Indian Financial Institutions, Tata McGraw Hill Ltd, New Delhi.
4. Pathak, Bharathi V., (2007), The Indian Financial System: Markets, Institutions and Services, 2/e, Pearson Education India, New Delhi.

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OSMANIA UNIVERSITY

(As per TSHCE Model)

Scheme of Instruction and Examination

Titles of B.A. History (Regular) (CBCS) Syllabus w.e.f. 2019-2020

Year	Semester	DSC/GE/ DSE/SEC	Paper	Title	Credits	Hours
I	I	DSC*101	Paper - I	History of India (From Earliest Times to c.700 CE)	5	5
	II	DSC201*	Paper – II	History of India (c.700 -1526 CE)	5	5
II	III	DSC*301	Paper – III	History of India (1526-1857 CE)	5	5
		SEC-I	Paper-I	Historical and Cultural Tourism	2	2
	IV	DSC401*	Paper - IV	History of India (1858-1964 CE)	5	5
		SEC-II	Paper-II	Archives and Museums	2	2
		GE**	Open Stream	Indian National Movement (1857-1947 CE)	4	4
III	V	DSE-501*	Elective-A	History of Modern World (1453-1964 CE)	5	5
		DSE-501*	Elective-B	Tourism and Culture	5	5
	VI	DSE601*	Paper – A	History and Culture of Telangana (From Earliest Times to 2014 CE)	5	5
		DSE601*	Paper – B	Islamic History	5	5
		***Optional	Open Stream	Ancient Civilizations	4	4

* DSC (Discipline Specific Course), SEC (Skill Enhancement Course) & DSE (Discipline Specific Elective) for Students of History.

** GE (Generic Elective) or Inter-Disciplinary Course for Students of Social Sciences other than History.

*** Optional

Head

Chairman, Board of Studies

OSMANIA UNIVERSITY
Model
Scheme of Instruction and Examination
Tentative Titles of B.A. History (Regular) (CBCS) Syllabus w.e.f. 2018-2019

Year	Semester	DSC/GE/ DSE/SEC	Paper	Title	Credits	Hours
I	I	DSC*101	Paper - I	History of India (From Earliest Times to c.700 CE) -----	5	5
		SEC-I	Paper - I	History and Culture of Modern Telangana (Two Credits)	2	2
	II	DSC201*	Paper – II	History of India (c.700 -1526 CE) -----	5	5
		SEC-II	Paper – II	Archives and Museums	2	2
II	III	DSC*301	Paper – III	History of India (1526-1857 CE)	5	5
		SEC-III*	Paper – III	Understanding Heritage	2	2
	IV	DSC401*	Paper - IV	History of India (1858-1964 CE)	5	5
		SEC-IV*	Paper - IV	Introduction to Archaeology	2	2
III	V	GE**	Paper – A	Indian National Movement (1857-1947 CE)	4	4
			Paper – B	History of Telangana Movement and State Formation (1948-2014 CE)	4	4
		DSC501*	Paper – A	History of Modern World (1453-1950 CE)	4	4
			Paper – B	History of USA (1774 to 1945)	4	4
	VI	DSE601*	Paper – A	History and Culture of Telangana (From Earliest Times to 2014 CE)	4	3T+4P
			Paper – B	Tourism and Culture in Telangana	4	
			Paper – C	Islamic History and Culture	4	

* DSC (Discipline Specific Course), SEC (Skill Enhancement Course) & DSE (Discipline Specific Elective) for Students of History.

** GE (Generic Elective) or Inter-Disciplinary Course for Students of Social Sciences other than History.

Chairman, Board of Studies

**B.A. History (Regular) Syllabus according
to Choice Based Credit System (CBCS)
(as per TSCHE Model)
w.e.f. 2019-2020**



**DEPARTMENT OF HISTORY
OSMANIA UNIVERSITY
HYDERABAD
TELANGANA.**

(2019-2020)

**TELANGANA STATE
B.A. (HISTORY) SYLLABUS
Semester - I**

**History of India (From Earliest Times to c.700 CE)
(DSC-101) Discipline Specific Course - Paper – I
(With Effect from 2019-2020)**

- Module-I: Definitions - Nature and Scope of History - History and Its Relationship with other Social Sciences - Geographical Features of India – Sources of Indian History: Pre-History – Paleolithic, Mesolithic, Neolithic, Chalcolithic and Megalithic Cultures.
- Module-II: Indus Valley Civilization - Its Features & Decline; Early Vedic and Later Vedic Civilizations – Vedic Literature – Society – Economy - Polity – Religion.
- Module-III: Rise of New Religious Movements – Charvakas, Lokayathas, Jainism and Buddhism; Mahajanapadas - Rise of Magadha; Alexander’s Invasion and Its Impact.
- Module-IV: Foundation of the Mauryan Dynasty; Ashoka and His Dharma – Polity – Administration - Society – Economy – Religion – Literature - Art and Architecture; Disintegration of the Mauryan Empire; Post-Mauryan Kingdoms - Indo-Greeks - Kushanas and Kanishka - Society – Economy – Literature – Art and Architecture; The Satavahanas; Sangam Age – Literary Development.
- Module-V: Gupta Empire: A Brief Political Survey - Polity and Administration, Social and Economic Conditions, Agriculture and Land Grants - Feudalism, Caste System, Position of Women, Education, Literature, Science and Technology, Art and Architecture - Harshavardana and His Achievements.

Recommended Books:

- A.L. Basham, *The Wonder that was India*, Rupa & Co., New Delhi, 2001.
- Allchin, Bridget & Raymond, *The Rise of Civilization in India and Pakistan*, CUP, New Delhi, 1996.
- E.H. Carr, *What is History?* Penguin Books, England, 1990.
- Majumdar, R.C., *History and Culture of the Indian People*, Vols. I, II & III.
- Romila Thapar, *Asoka and the Decline of the Mauryas*, OUP, New Delhi, 1995.
- Romila Thapar, *Early India (From the earliest to AD 1300)*.
- Romila Thapar, *A History of India*, Vol. I, Penguin Books, New Delhi, 1990.
- Upinder Singh, *A History of Ancient and Medieval India*.

TELANGANA STATE
B.A. (HISTORY) SYLLABUS
Semester - II
History of India (c.700-1526 CE)
(DSC-201 - Discipline Specific Course) - Paper – II
(2019-2020)

- Module-I: The Age of Rajputs Society, Economy and Culture - Rise of Regional States: Pallavas, Chalukyas of Badami, Rashtrakutas, Cholas; Local Self Government under Cholas; Society, Economy, Literature, Art and Architecture; Bhakti Movement in South India: Shaiva Nayanars and Vaishnava Alwars.
- Module-II: Arab Conquest of Sind, Ghaznavids and Ghoris; Foundation of Delhi Sultanate: Slave, Khaljis, Tughlaqs, Sayyids and Lodis – Polity, Administration, Society – Religion - Economy - Art and Architecture - Growth of Education and Literature – and the decline of Delhi Sultanate.
- Module-III: Bhakti and Sufi Movements Prominent Bhakti and Sufi Saints their Preaching's - Impact on Society and Culture - Emergence of Composite Culture.
- Module-IV: Kakatiyas – Polity – Administration - Society and Economy - Literature and Religion – Art and Architecture – Yadavas – Hoysalas and Pandyas – their contribution to South Indian Culture.
- Module-V: Vijayanagara – A Brief survey of Political History – Polity - Administration - Society and Economy – Religion – Art and Architecture – Language and Literature - The Brief History of Bahamanis and their Contribution to the Deccan Culture.

Recommended Books:

- A.L. Basham, *The Wonder that was India*, Rupa & Co., New Delhi, 2001.
 Irfan Habib, *Medieval India-I*, OUP, Delhi, 1999.
 K.A. Nilakanta Sastri, *A History of South India*.
 Majumdar, R.C., *History and Culture of the Indian People*, Vols. I, II & III.
 Romila Thapar, *Early India (From the earliest to AD 1300)*.
 Satish Chandra, *Medieval India (From Sultanate to the Mughals)*, Part-I, Har-Anand Publications, New Delhi, 1997.
 Upinder Singh, *A History of Ancient and Medieval India*.
 Vipul Singh, *Interpreting Early and Medieval India*.

Telugu:

- A. Bobbili and others, *Bharatha Desha Charitra upto A.D. 1526*, Telugu Academy, Hyderabad, 2003.
 D.D. Kosambi, *Bharatha Desha Charitra Parichaya Vyasalu*, Hyderabad Book Trust, Hyderabad, 1996.
 B.A. First & Second Year *Indian History Text Books (English & Telugu Medium-CBCS) 2017-18*.

TELANGANA STATE
B.A. (HISTORY) SYLLABUS
Semester - III
History of India (1526-1857 CE)
(DSC - Discipline Specific Course - Paper – III
(2019-2020)

- Module-I: Establishment of Mughal Dynasty - Sources – Shershah Sur and His Reforms - Brief Survey of Political History of Mughals – Akbar, Shah Jahan and Aurangzeb - Polity - Administration – Society – Economy – Technological Developments - Religion – Hindu-Muslim Relations – Emergence of Composite Culture – Education – Language and Literature – Art and Architecture - Disintegration of Mughal Empire.
- Module-II: Rise of Regional Powers - Marathas – Shivaji his Military Achievements, and his Administration – The Rise of Peshwas – and their role in Maratha History - The Third Battle of Panipat – The Rise of Sikhs. – Ranjit Singh – Rise of Princely States – Hyderabad – Avad - Junagarh – Mysore – Kashmir.
- Module-III: Advent of European Powers - Portuguese, Dutch, English and French, Anglo-French Rivalry - Expansion and Consolidation of British Power – Wellesley’s Subsidiary Alliance – Dalhousie’s Doctrine of Lapse.
- Module-IV: Three Stages of Colonialism – Mercantilism - Free Trade Policies – Finance Capital - Land Revenue Settlements – Cornwallis and Permanent Revenue Settlement; Thomas Munroe and Ryotwari; Mahalwari System – Changes in the Agrarian Economy and Condition of Peasantry – Famines.
- Module-V: Decline of Rural Cottage Industries and Urban Handicrafts - Growth of Railways, Roads, Communication – Modern Industries – Coal Mines, Textiles, Iron and Steel, etc. - Anti-Colonial Upsurge - 1857 Revolt – Nature, Causes and Results.

Recommended Books:

- A.L. Srivastava, *History of India from A.D. 1000 to 1707*.
- A.R. Desai, *Social Background of Indian Nationalism*.
- Bipan Chandra, *A History of Modern India*.
- Harbans Mukhia, *The Mughals*.
- John F. Richards, *The Mughal Empire*, CUP, New Delhi, 1995.
- R.C. Majumdar (ed.), *A History and Culture of India People*, Bharatiya Vidya Bhavan Series (Relevant Vols.).
- R.C. Majumdar, H.C. Raychaudhuri & K. Datta, *An Advanced History of India*, Madras, 1995.
- Satish Chandra, *Medieval India*, Vol. II.
- Sumit Sarkar, *Modern India (1885-1947)*, Macmillan India Ltd., Madras, 1995.
- Tarachand, *A History of the Freedom Movement in India*, Four Volumes.
- V.D. Mahajan, *History of Medieval India (Sultanate Period and Mughal Period)*.
- V.D. Mahajan, *Modern Indian History*.

Telugu:

- B. Laxminarayana Rao, *Bharatadesa Swathantra Charitra* (Part-3), (Trans.), Telugu Academy, 2005.
- Bipan Chandra, *Adhunik Bharatadesa Charitra* (Translation Sahavasi), Hyderabad Book Trust.
- B.A. First & Second Year Indian History Text Books (English & Telugu Medium-CBCS) 2016-17.
- J. Durga Prasad and Others, *Bharatadesa Charitra (1526-1964 A.D.)*, Telugu Academy, 2006.
- V. Rama Krishna Reddy, *Bharatadesa Charitralo Mukhya Ghattalu*, Telugu Academy, 2005.

TELANGANA STATE
B.A. (HISTORY) SYLLABUS
Semester - III
Historical and Cultural Tourism
(SEC - Skill Enhancement Course – I)
(2019-2020)

The main objective of this course is to make student understand the relevance of Tourism as history and its relationship with culture. This course not only deals with the various aspects of tourism industry but also deals with the impact of tourism. This course also brings out the growing trends in tourism and the demand it is generating in the present times.

Module-I: Tourism – Concept and Meaning – Nature – Scope - Tourism as an Industry - Socio-Economic Impact of Tourism - History of Tourism Development in India - Promotional Strategies of Tourism - Tools of Publicity, Role of Films, Television, Press, Poster-display, Brochures, Role of Guides - Historical Tourism - Monuments, Religious and Secular - Historical Sites - Historical Events - Impact of Tourism Development on Protection and Conservation of Historical Monuments and Sites and Vice-Versa - Socio-Cultural Tourism: Fairs and Festivals of India - Performing Arts (Dance, Drama and Music) - Museums, Art - Galleries, Yoga and Health Centers - Indian Cuisine.

Module-II: Eco-Tourism - Beaches, Hill-Resorts, Surf-Riding, Ballooning, Rafting, Gliding - Wild-life Sanctuaries - National Parks, Safaris, Mountaineering –Trekking – Skiing - Sports Tourism - Tourism in Telangana – Tourist Places - Tourism Handicrafts: Textiles – Metal Work, Stone and Wood Carvings, Furniture, Jewellery, Toys, Musical Instruments – Terracotta - Display and Sale of Handicrafts - Shops at Heritage Centers – Organizing Exhibitions – Duty Free Shops.

Recommended Books:

- Dallen, J. Timothy, *Cultural Heritage and Tourism: An Introduction (Aspects of Tourism Texts)*, Channel View Publications, 2011.
- INTACH, *Heritage and Development: Recent Perspectives*, Aryan Books International, 2012.
- K.R. Gupta, *Concise Encyclopedia of India: (Places of Historical and Tourist Interest)*, 2010.
- Melanie, K. Smith, *Issues in Cultural Tourism Studies*, Psychology Press, 2003.
- P.N. Girija Prasad, *Eco-Tourism and Its Development*, Adhyayan Publishers, 2012.
- S.P. Gupta & Lal Krishna (eds.), *Cultural Tourism in India: Museums, Monuments and Arts*, 2003.
- V.K. Singh, *Historical and Cultural Tourism in India*, Aadi Publications, 2008.
- Vaibhav Chauhan, *Heritage Tourism: Territory Unexplored*.
- Vanaja Uday, *Cultural Tourism and Performing Arts of Andhra Pradesh: Prospects and Perspectives*, Research India Press, 2012.
- A.K. Bhatia, *Tourism Development – Principles & Practices*, Sterling Publishers, 2016.
- Sampad Kumar, Swain & Jitendra Mohan Mishra, *Principles and Practices in Tourism*, OUP, 2011.
- Indira, *Tourism in Andhra Pradesh: Growth and Developments, 1956-2007*, Research India Press, New Delhi, 2014.
- D. Satyanarayana, *Kotha Paryataka Sthalalu* (Telugu).

TELANGANA STATE
B.A. (HISTORY) SYLLABUS
Semester - IV
History of India (1858-1964 CE)
(DSC - Discipline Specific Course-401) - Paper – IV
(2019-2020)

- Module-I: Queen's Proclamation – Beginning of Colonial Rule – Introduction of Western Education – Role of Christian Missionaries – Press, Communication and Emergence of Middle Classes - Lytton and Rippon: Impact of their Policies.
- Module-II: Socio-Religious Reform Movements – Brahma Samaj - Arya Samaj - Theosophical Society - Ramakrishna Mission - Aligarh Movement; Anti-Caste Movements - Jyotibha Phule - Narayana Guru - Periyar Ramaswamy Naicker and Dr. B.R. Ambedkar.
- Module-III: Factors for the Rise of Nationalism – Formation of Indian National Congress – Three Phases of Freedom Struggle: Moderate Phase, Extremist Phase and Gandhian Era - Non-Cooperation, Civil Disobedience and Quit Indian Movement; Indian National Army and Subhash Chandra Bose.
- Module-IV: Revolutionary Movement: Gadhar Party – Bhagath Singh – Chandra Sekhar Azad and Others; Left-Wing Movement – Rise of Socialist and Communist Parties - Peasant and Workers Movements.
- Module-V: Emergence of Communal Politics and Mohd. Ali Jinnah – Prelude to Partition of India - Sardar Vallabhai Patel and Integration of Princely States into Indian Union – Republic of India – Jawaharlal Nehru and His Policies.

Recommended Books:

- A.R. Desai, *Social Background of Indian Nationalism*, Popular Prakashan Pvt. Ltd., Mumbai, 2002.
- Bipan Chandra (et.al.), *India's Struggle for Independence*, Penguin Books, Kolkata, 2001.
- Bipan Chandra, *A History of Modern India*.
- Kenneth Jones, *Social and Religious Reform Movements in India*.
- R.C. Majumdar (ed.), *A History and Culture of India People*, Bharatiya Vidya Bhavan Series (Relevant Vols.).
- R.C. Majumdar, H.C. Raychaudhuri & K. Datta, *An Advanced History of India*, Macmillan, Madras, 1995.
- S. Gopal, *Jawaharlal Nehru – A Biography*.
- Sumit Sarkar, *Modern India (1885-1947)*, Macmillan India Ltd., Madras, 1995.
- Tarachand, *A History of the Freedom Movement in India*, Four Volumes.
- V.D. Mahajan, *Modern Indian History*.

Telugu:

- B. Vijaya Bharati, *Mahatma Jyothirao Phule* (Translation), Hyderabad Book Trust, 2004.
- Bhoopati Laxminarayana Rao, *Bharatadesa Swathantra Charitra* (Part – 3), (Translation), Telugu Academy, 2005.
- Bipan Chandra, *Adhunik Bharatadesa Charitra* (Translation Sahavasi), Hyderabad Book Trust.
- J. Durga Prasad and Others, *Bharatadesa Charitra (upto 1526-1964 A.D.)*, Telugu Academy, 2006.
- V. Rama Krishna Reddy, *Bharatadesa Charitralo Mukhya Ghattalu*, Telugu Academy, 2005.

TELANGANA STATE
B.A. (HISTORY) SYLLABUS
Semester - IV
Archives and Museums
(SEC - Skill Enhancement Course – II)
(2019-2020)

This course introduces students to the institutions that house and maintain documentary, visual and material remains of the past. Students will be encouraged to undertake collection, documentation and exhibition of such materials in their localities and colleges. Visit to National Archives and National Museum are an integral part of the course.

Module-I: Definition of Archives – Scope – Types of Archives – Development of Archives – National and State Archives in India - Archives – Understanding the Traditions of Preservation – Collection - Purchase –Documentation: Accessioning – Indexing – Cataloguing – Digital Documentation and De-accessioning - Chemical Preservation and Restoration.

Module-II: Definition of Museum - Introduction – Scope - Types of Museums - Significance of Museums - Museums in India - Museums – Collection – Field Exploration – Excavation – Purchase – Gift and Exchanges – Treasure Trove – Documentation - Indexing – Museum Presentation and Exhibition – Outreach Activities of Museums and Archives.

Recommended Books:

- Saloni Mathur, *India by Design: Colonial History and Cultural Display*, University of California, 2007.
- Sengupta, S., *Experiencing History through Archives*, Munshiram Manoharlal, Delhi, 2004.
- Guha Thakurta, Tapati, *Monuments, Objects, Histories: Institution of Art in Colonial and Post-Colonial India*, New York, 2004.
- Kathpalia, Y.P., *Conservation and Restoration of Archive Materials*, UNESCO, 1973.
- Choudhary, R.D., *Museums of India and Their Maladies*, Agam Kala, Calcutta, 1988.
- Nair, S.M., *Bio-Deterioration of Museum Materials*, Agam Kala Prakashan, 2011.
- Agrawal, O.P., *Essentials of Conservation and Museology*, Sundeep Prakashan, New Delhi, 2007.

TELANGANA STATE
B.A. HISTORY SYLLABUS
Semester - V
History of the Modern World (From 1453 CE to 1964 CE)
(DSE - Discipline Specific Elective-501 (A) - Paper – V
(2019-2020)

- Unit-I: Decline of Medieval Socio-Political, Religious, Economic conditions - Characteristic features of Renaissance - Significance of Reformation and Counter Reformation movements in Europe - Geographical Discoveries and Rise of Colonialism – Colonization of America - Mercantilism and Commercial Revolution. Emergence of Nation States in Europe – Spain – France – England – Russia – Austria – Italy and Prussia - Nature of Absolute Monarchies and Feudalism in Europe and Asia.
- Unit-II: Age of Revolutions – Glorious Revolution (1688) - American Revolution (1776) - French Revolution (1789) – Napoleon – Wars – Reforms- Revolutions of 1830 and 1848 - Industrial Revolution.
- Unit-II: Rise of Capitalism – Impact on Asia and Africa – Colonization of Africa - Asia and Latin America - Entry of European Powers in China – Opium Wars – Revolution in China – Boxer Revolt - Sun-Yat-Sen – Mao’s Communist Revolution - Meizi Restoration and Modernization of Japan- Unification Movements in Germany and Italy.
- Unit-IV: World between 1914-1945 Rivalry among colonial powers Imperialist Hegemony - Causes and consequences of first World War – World between the Wars - League of Nations - Russian Revolution – Causes and consequences. Fascism in Italy, Nazism in Germany, Militarism in Japan – Nationalist and Communist Movements in China - Role of Sun-Yat-Sen and Mao-Tze-Dung.
- Unit-V: Causes and consequences of Second World War – UNO, Its Contribution to World Peace – Decolonization and National Liberation Movements in Asia, Latin America and Africa – NAM – its Origin – Aims Importance..

Recommended Books:

Arun Bhattacharjee, *History of Modern Europe*, Vol. II.

C.J.H. Hayes, *Europe since 1870 A.D.*, Vol. II.

C.J.H. Hayes, *Europe upto 1870 A.D.*, Vol. I.

Fischer, *A History of Europe*.

J.M. Roberts, *History of the World*, New York, 1976.

Peter Moss, *Modern World History*, Hampshire, 1978.

Taylor, A.J.P., *The Struggle for Mastery in Europe*.

Thompson, D., *Europe Since Napoleon*.

V.D. Mahajan, *History of Modern Europe since 1789*.

Telugu:

Badriraju Sheshagiri Rao and Others, *Adhunika Prapancha Charitra*, Telugu Academy, 2002.

Y. Vaikuntham., *Prapancha Charitra*, Telugu Academy.

TELANGANA STATE
B.A. HISTORY SYLLABUS
Semester - V
Tourism and Culture
(DSE - Discipline Specific Elective-501 (B) - Paper – V
(2019-2020)

The main objective of this course is to make student understand the relevance of Tourism as history and its relationship with culture. This course not only deals with the various aspects of tourism industry but also deals with the impact of tourism. This course also brings out the growing trends in tourism and the demand it is generating in the present times.

Unit-I: Definition – Meaning, Nature and Scope of Tourism – Concepts: Who is a Tourist, Travellers, Visitor and Excursionist – definitions and differentiation – Types of Tourism: Religious Tourism, Eco Tourism, Rural Tourism, Health Tourism, Adventure Tourism, Historical Tourism, Cultural Tourism.

Unit-II: Historical Dimensions of Tourism Travel and Tourism through the Ages: Early Travels, ‘Renaissance’ and ‘Age of Grand Tours’ – Emergence of Modern Tourism, Concept of ‘Paid Holiday’ – Understanding Tourism Motivations – Concept of Push and Pull Factors in Tourism.

Unit-III: Infrastructure in Tourism: Tourist Transport – Forms & Types: Road-Rail-Sea-Air-Tour Operators – Travel Agency – Planning the Itinerary – Tourist Accommodation – Forms & Types.

Unit-IV Impact of Tourism – Socio-Cultural Impact – Ecological & Environmental Impact – Economic Impact – Multiplier Effect – Political Impact and Government Policies – Tourism as an Industry – Future of Tourism in India.

Unit-V: Development of Tourism in Telangana – Tourist attractions in Telangana Historical Tourism Monuments – Golconda Fort, Qutub Shahi Tombs, Charminar, Mecca Masjid, Chow Mohalla Palace – Warangal – Kakatiya Fort – Thousand Pillar Temple, Ramappa Temple, Yadadri, Vemulavada – Medak Church – Museums – Salar Jung Museum, State Museum, Tribal Museum, Archaeological Museum – Buddhist Heritage – Dhulikatta, Phanigiri – Nelakondapalli – Cultural Tourism – Sammakka – Sarakka Festivals, Bonalu – Batukamma, Tribal Cultures of Adilabad – Handicrafts (Bidri Ware, Pembarti Brass Work, Karimnagar Filigri, Dokra Tribal Craft, Cheriyal Naqash Paintings and Handlooms (Gadwal, Pochampalli) – Eco-Tourism – Nehru Zoological Park, Durgam Cheruvu, Waterfalls.

SUGGESTED READINGS:

Mc. Intosh, Robert, W., *Tourism, Principles, Praces & Philosophies.*

A.K. Bhatia, *Tourism Development: Its Principles and Practices.*

Ram Acharya, *Tourism in India.*

F.R. Allchin, *Cultural Tourism in India: Its Scope and Development*, Department of Tourism, Government of India, New Delhi.

A.L. Basham, *The Wonder That was India*, Rupa & Company, New Delhi, 1967.

Burkart and S. Medlik, *An outline of Tourism*, Heinemann, London, 1976.

Chris Copper, *Tourism: Principles and Practice*, Harlow Longman, London, 1998.

S. Dharmarajan & Seth, Rabindra, *Tourism in India: Trends and Issues*, New Delhi, 1994.

Kaul, Virendra, *Tourism and the Economy*, Har-Anand Publications, New Delhi, 1994.

Leela, Shelly, *Tourism Development in India: A Study of the Hospitality Industry*, Arihant, Jaipur, 1991.

Satish Babu, *Tourism Development in India.*

Messenger, Rob Allen, *The Economics of Tourism*, Routledge, London, 1997.

- P.N. Seth, *Successful Tourism – Planning and Management*, Cross Sections Publications, New Delhi, 1979.
- K.S. Subrahmaniam, *Buddhism in South India and Early History of Andhra*, Kondal Publications, Madras.
- Williams, Stephen, *Tourism Geography*, Routledge, London, 1998.
- Indira, *Tourism in Andhra Pradesh: Growth & Developments 1956-2007*, Research India Press, New Delhi, 2014.

TELANGANA STATE
B.A. HISTORY SYLLABUS
Semester - VI

(A) History and Culture of Telangana (From earliest times to 2014 CE)

(DSE - Discipline Specific Elective-601 A
(2019-2020)

- Unit-I: Sources – Pre-History of Telangana – Asmaka Janapada and the Culture of Ancient Telangana – Jainism and Buddhism – Brief Political Survey of Satavahanas – Ikshvakus, Vishnukundins – Medieval Telangana from Kakatiyas to Qutb Shahis – Popular Revolts – Sammakka-Sarakka, Sarvai Papanna – Society, Economy and Culture; Fairs, Festivals, Folk, Batukamma, Bonalu, Urs, Moharram, etc. Telangana Food, Festivals, Arts, Folksongs, Symbols, Musical Instruments, Composite Culture.
- Unit-II: Foundation of Asaf Jahi Dynasty – A Brief Survey of The Political History of Asaf Jahis from 1724-1857 – Salarjungs Reforms and their Importance Mir Mahboob Ali Khan and Mir Osman Ali Khan – Modernization of Hyderabad under them – Growth of TRanspotation and Communication, Public Health, Industries and Osmania University – Public Health – Hospitals – Social, Cultural and Political Awakening in Telangana – Press, Journalism and Library Movements – Nizam Andhra Jana Sangham – Arya Samaj and Its Activities – Ittehadul Muslimin Party – Bhagya Reddy Varma and Dalit Movements.
- Unit-III: Political Developments in Hyderabad State 1900 to 1942 – The Andhra Maha Sabha – Hyderabad State Congress – Mulki-Non-Mulki Issue (1930) - Vandemataram Movement – Comrades Association, Student and Workers Organisations and Movements - Communist Party and Its Activities – The Role of Women in Hyderabad Freedom Movement.
- Unit-IV: Anti-Nizam and Anti-Feudal Movements - Telangana Peasants Armed Struggle – Adivasis Revolt – Kumaram Bheem – Razakars and their Activities – Police Action - Formation of Popular Ministry under Burgula Rama Krishna Rao - Assertion of Mulki Identity and the City College Incident (1952) - Merger of Telangana and the Formation of Andhra Pradesh, (1956) .
- Unit-V: Discrimination, Dissent and Protest - Violation of Gentlemen’s Agreement - Agitation for Separate Telangana State: Formation of TPS – Role of Intellectuals, Students, Employees in 1969 Movement - Second Phase Movement for Separate Telangana – Formation of Various Associations – Telangana Aikya Vedita – Telangana Jana Sabha – Telangana Rashtra Samiti (2001) – Mass Mobilization – Sakala Janula Samme – Millennium March – Sagara Haram, Chalo Assembly – December 2009 Declaration and the Formation of Telangana State, June 2014.

Recommended Books:

- Bhangya Bhukya, *The Subjugated Nomads*, Hyderabad, 2010.
 Goutham Pingle, *The Fall and Rise of Telangana*, Hyderabad, 2014.
 H. Rajendra Prasad, *Asaf Jahis*, Hyderabad, 2006.
 I. Thirumali, *Against Dora and Lord*, New Delhi, 2008.
 I. Thirumali, *Telangana – Andhra*, Delhi, 2010.
 Kingshuk Nag, *Battle Ground Telangana*, Hyderabad, 2010.
 Lalitha & Susie Tharu, *We were Making History*, Kali for Women, New Delhi.

Sarojini Regani, *Highlights of Freedom Struggle in Andhra Pradesh*.

Sarojini Regani, *Nizam-British Relations*.

Y. Gopal Reddy, *A Comprehensive History of Andhra Pradesh*, Hyderabad, 2008.

Telangana History and Culture, B.A. Third year (TM & EM) Telugu Academy, Hyderabad, 2019

Telugu:

Anveshi, *Manaku Teliyani Mana Charitra*.

G. Chakrapani, *Telangana Jaitrayatra*, Hyderabad, 2012.

Madapati Hanmanth Rao, *Telanganalo Andhrodyamam*, Hyderabad.

Mandumula Narsing Rao, *Yabai Sanvatsarala Hyderabad*, Hyderabad, 1977.

P. Sundaraiah, *Veera Telangana – Viplava Poratam*.

Raavi Narayana Reddy, *Viplava Telangana – Naa Gnapakaalu*.

Sarojini Regani, *Nizam-British Sambandhalu*.

Sunkireddy Narayana Reddy, *Telangana Charitra*, Hyderabad, 2014.

Surepalli Sujatha, *Irusuchakra Bandilo Telangana*.

V. Manikya Rao, *Hyderabad Swatantra Charitra*, 2000.

TELANGANA STATE
B.A. (HISTORY) SYLLABUS
Semester - VI
Islamic History
(DSE - Discipline Specific Elective-601) – B
(2019-2020)

- Unit-I: The Scope of Islamic History – Geographical Conditions of Arabia – Pagan – Civilization and Islam – Political and Social Conditions before the Prophet at Mecca and Madina - Early Life of Prophet Muhammad – Meccan Period – Migration to Madina – The Holy Quran – The Battle of Badr –The Truce – Conquest of Mecca – Conditions of Arabia – Prophet Muhammad Social Reformer and Leader.
- Unit-II: The Era of Pious Khalifas – Abu-Bakr-Umar – Further Expansion – Osman-Ali – Their Achievements – The Struggle for Power between Syria and Al-Iraq and Hij’az – Administrative System under Khalifa - Causes for the Fall of Khalifas.
- Unit-III: The Ummayad Khalifas – Mua-Wiyah-Yazid-I Battle of Karbala – Marwan-I-Abdul Malik and His Achievements - Al-Walid-I, Suleman – Ibn-Ul-Azi-Hisan – His Relations with Byzantine – Conquests in East and West Development of Society and Growth of Fine Arts – Marwan-II and the Fall of Ummayads – Administrative System under Ummayads – Society under Ummayads.
- Unit-IV: The Advent of Abbasids – Al-Saffah and Al-Mnsur Al-Mahddi – Revolt in Khurasan – Byzantine Raid – Al-Hadi – His Achievements – Haroon – Al-Rasheed – His Political and Non-Political Achievements – Rise and Fall of Barmakids – Estimate of Haroon – Al-Rasheed’s Character - Al-Amin – Civil War between – Al-Amin and Al-Mamun – Achievements of Al-Mamun – Later – Khalifas of Abbasid Dynasty – Al-Mutasm – War with the Byzantine Empire – Revolt of Tabaristan – The Buwaids – Azad-ud-Daula – The Seluqs – Malekshah - The Crusades – Causes – Course of Crusades – Imaduddin Zangi – Nuruddin – Mahmud – The Results of Crusades- The Abbasid State – Political and Military Systems – Judician Reforms – Education – Growth of the Fine Arts – Socio-Economic Conditions – Art and Architecture under Abbasids – Growth of Scientific Spirit - Fall of Abbasid Dynasty.
- Unit-V: The Ummayads in Spain – Abdur-Rahman-Hisham-I – War with the Franks – Cultural Progress in Muslim Spain – The Fatimids of Egypt – Al-Mahdi – Al-Qaim – Al-Muizz Fall of Fatimids (1171 A.D.) – Administration and Society under Fatimids.

Recommended Books:

AmirAli, *History of Islamic People*.
P. Hitti, *History of Arabs*.
Moinuddin Nadvis, *Tarikh-i-Islam*.
Suleiman, *Rahamatullah in Alamin*.

TELANGANA STATE
B.A. (HISTORY) SYLLABUS
Semester - IV
Indian National Movement (1857-1947 CE)
(GE - Generic Elective – (Open Stream)
(2019-2020)

- Module-I: 1857 Revolt – Causes – Consequences - Factors for the Rise of Nationalism – English Education – Communications, News Papers – Economic Exploitation – Socio-Religious Reform Movements – Political and Administrative Unity - Emergence of Educated Intelligentsia.
- Module-II: Formation of Indian National Congress – Its Aims & Objectives - Three Phases of India’s Freedom Struggle – Moderates and Extremists – Their Ideology: Constitutional Type of Agitation – Vandemataram and Home Rule Agitations.
- Module-III: Emergence of Gandhi – His Ideology, Non-Cooperation its importance and Civil Disobedience Dandi March – Role played by Women in National Movement - The Militant Nationalists – Their Ideology – Bhagath Singh – Rise of Left Ideology.
- Module-IV: Origin of Peasant and Tribal Movements – Growth of Working Class Movement - Azad Hind Fauz – Subash Chandra Bose - Origin of Communalism – Factors for the Rise of Communalism in India - All India Muslim League and Hindu Mahasabha – Their Activities - results.
- Module-V: Second World War – Quit India Movement – Course of the Quit India Movement – Second World War its Impact on Indian National Movement - Cripps Proposals; Cabinet Mission; Factors led to the Partition of Country and Emergence of Independent India August, 1947.

Recommended Books:

- A.R. Desai, *Social Background of Indian Nationalism*, Popular Prakashan Pvt. Ltd., Mumbai, 2002.
- Bipan Chandra, *Nationalism and Colonialism in Modern India*, Orient Longman, New Delhi, 1979.
- Bipan Chandra, *India’s Struggle for Independence*, Penguin Books, Kolkata, 2001
- Sumit Sarkar, *Modern India (1885-1947)*, Macmillan India Ltd., Madras, 1995.
- Sekhar Bandyopadhyay, *National Movement in India*, Oxford University Press, New York, 2009.
- Sekhar Bandyopadhyay, *From Plassey to Partition*, Orient Longman Pvt. Ltd., New Delhi, 2004.
- Amles Tripathi, Barun De and Bipin Chandra, *Freedom Struggle*, National Book Trust, 2007.
- D. Rothermund, *The Phases of Indian Nationalism and Other Essays*, Nachiketa Publications, Bombay, 1970.
- R. Suntherlingam, *Indian Nationalism – An Historical Analysis*, Vikas Publishing House, New Delhi, 1983.
- D.N. Dhanagare, *Peasant Movements in India, 1920-1950*, Oxford University Press, New Delhi, 1991.
- Ahmed, *Jinnah, Pakistan and Islamic Identity – The Search for Saladin*, Routledge, London, New York, 1997.
- Mushirul Hasan (Ed.), *India’s Partition - Process, Strategy and Mobilization*, Oxford University Press, Delhi, 1993.
- Kapil Kumar (Ed.), *Congress and Classes: Nationalism Workers and Peasants*, Manohar Publishers, New Delhi, 1988.
- D. Argov, *Moderates and Extremists in Indian Nationalist Movement, 1883-1920*, Asia Publishing House, London, 1967.
- Indian History, B.A. Second year (TM & EM) Telugu Academy, Hyderabad, 2017.

TELANGANA STATE
B.A. (HISTORY) SYLLABUS
Semester - VI
Ancient Civilizations
Optional
(2019-2020)

- Unit-I: Beginnings of Ancient Civilizations – Features - Mesopotamian Civilization - Beginning and Expansion - Contacts with Other Civilizations - Nature of Polity – Socio-Economic and Religious Conditions - Evolution of Script - Art & Architecture.
- Unit-II Egyptian Civilization - Origin and Spread – Polity - Society – Economy - Art and Architecture.
- Unit-III Indus Valley Civilization – Salient Features – Decline - China - Nature and Extent of Civilization – Polity – Society - Economy – Religious Beliefs - Philosophy and Culture.
- Unit-IV Greek Civilization - Nature of Polity and Society - Agrarian Economy - Trade and Urbanization - Distinctive Features of Greek Civilization – Philosophy – Education - Art and Architecture - Roman Civilization - Origin and Spread of Roman Empire – Features - Polity and Roman Republic – Slavery - Social Structure - Economic Organization - Religious System and Cultural Contribution – Decline.

Recommended Books:

- A.L. Basham, *The Wonder that was India*, Rupa & Co., New Delhi, 2001.
 Breasted, J.H., *Ancient Times: A History of the Early World*, Ginn, 1916, Vol. 2-5, 10
 Bury, J., *History of Greece*.
 Durant, W., *The History of Civilizations & Our Oriental Heritage*.
 Gordon Childe, *What Happened in History*.
 Joseph Needham, *Science and Civilization in China*.
 Schneider, H., *The History of World Civilizations from Pre-Historic Times to the Middle Ages*.
 B.V. Rao, *World History*.

CODE NO.

**MODEL PAPER
B.A. HISTORY
SEMESTER I, II, III, IV, V & VI
2019-2020**

Time: 3 Hours

Max. Marks : 80

Section – A**(1x10 = 10)****Multiple Choice Bits.**

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

Section – B**(5x4 = 20)****(Short Answer Type)****Note: Answer any FIVE of the following questions.**

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

Section – C**(5x10 = 50)****(Essay Answer Type)****Note: Answer ALL the following questions.**

9 (a)

or

(b)

10 (a)

or

(b)

11 (a)

or

(b)

12 (a)

or

(b)

13 (a)

or

(b)

B.Com (Computer Applications)

(w.e.f. 2016–2017)

First Year Syllabus (CBCS)



**FACULTY OF COMMERCE, OSMANIA UNIVERSITY
HYDERABAD - 500 007 T.S.**

2016

DEPARTMENT OF COMMERCE, O.U.

*Structure of B.Com (Computer Application) (CBCS) for Osmania University, Hyderabad.
(w.e.f. Academic Year 2016-17)*

B.COM (Computer Applications) PROGRAMME**FIRST YEAR:****SEMESTER-I**

Sl.No.	Code	Course Title	Course Type	HPW	Credits
(1)	(2)	(3)	(4)	(5)	(6)
1.	BC101	A/B/C/D	AECC-1	2	2
2.	BC102	English	CC-1A	5	5
3.	BC103	Second Language	CC-2A	5	5
4.	BC104	Financial Accounting - I	DSC-1A	5	5
5.	BC105	Business Economics	DSC-2A	5	5
6.	BC106	Business Organization	DSC-3A	4	4
7.	BC107	Information Technology	DSC-4A	3T+2P	4
		Total		31	30

SEMESTER-II

8.	BC201	A/B/C/D	AECC-2	2	2
9.	BC202	English	CC-1B	5	5
10.	BC203	Second Language	CC-2B	5	5
11.	BC204	Financial Accounting - II	DSC-1B	5	5
12.	BC205	Managerial Economics	DSC-2B	5	5
13.	BC206	Principles of Management	DSC-3B	4	4
14.	BC207	Relational Database Management Systems	DSE-2B	5	5
		Total		30	30

SECOND YEAR:**SEMESTER-III**

15.	BC301	Principles of Insurance Business	SEC-1	2	2
16.	BC302	English	CC-1C	5	5
17.	BC303	Second Language	CC-2C	5	5
18.	BC304	Advanced Accounting	DSC-1C	5	5
19.	BC305	Income Tax-I	DSC-2C	5	5
20.	BC306	Business Statistics-I	DSC-3C	4	4
21.	BC307	Programming with C	DSE-2A	5	5
		Total		31	30

SEMESTER-IV

22.	BC401	Practice of Life Insurance	SEC-2	2	2
23.	BC402	English	CC -1D	5	5
24.	BC403	Second Language	CC-2D	5	5
25.	BC404	Corporate Accounting	DSC-1D	5	5
26.	BC405	Income Tax-II	DSC-2D	5	5
27.	BC406	Business Statistics-II	DSC-3D	4	4
28.	BC407	Objective Oriented Programming with C++	DSE-2A	4T+2P	5
		Total		30	30

THIRD YEAR:					
SEMESTER-V					
29.	BC501	Practice of General Insurance	SEC-3	2	2
30.	BC502		GE-1	2	2
31.	BC503	Cost Accounting	DSC-1E	4	4
32.	BC504	Business Law	DSC-2E	4	4
33.	BC505	Banking Theory & Practice	DSC-3E	4	4
34.	BC506	Computerised Accounting	DSC-4E	3T+2P	4
35.	BC507	Elective – I	DSE-1A	4T+2P	5
36.	BC508	Elective – II	DSE-2A	4T+2P	5
		Total		33	30
SEMESTER-VI					
37.	BC601	Regulation of Insurance Business	SEC-4	2	2
38.	BC602		GE-2	2	2
39.	BC603	Managerial Accounting	DSC-1F	4	4
40.	BC604	Company Law	DSC-2F	4	4
41.	BC605	Financial Institutions & Markets	DSC-3F	4	4
42.	BC606	Commerce Lab	DSC-4F	2T+4P	4
43.	BC607	Elective – I	DSE-1B	5	5
44.	BC608	Elective - II	DSE-2B	5	5
		Total		32	30
		GRAND TOTAL		187	180

AECC: Ability Enhancement Compulsory Course; SEC: Skill Enhancement Course; DSC: Discipline Specific Course; DSE: Discipline Specific Elective; GE: Generic Elective; T=Theory; P=Practicals;

SUMMARY OF CREDITS

Sl. No.	Course Category	No. of Courses	Credits Per Course	Credits
1	AECC	2	2	4
2	SEC	4	2	8
3	CC Language	8	5	40
	DSC	8	5	40
		16	4	64
4	DSE	4	5	20
5	GE	2	2	4
	TOTAL	44		180
	Commerce Total	28		124

SYLLABUS

FINANCIAL ACCOUNTING – I

Paper: BC 101

Max. Marks: 50

PPW: 6 Hrs

Exam Duration: 3 Hrs

Objective: to acquire conceptual knowledge of basics of accounting and preparation of final accounts of sole trader.

UNIT-I: ACCOUNTING PROCESS:

Financial Accounting: Introduction – Definition – Evolution – Functions-Advantages and Limitations –Users of Accounting Information- Branches of Accounting – Accounting Principles: Concepts and Conventions- Accounting Standards– Meaning – Importance – List of Accounting Standards issued by ASB – Accounting System- Types of Accounts – Accounting Cycle- Journal- Ledger and Trial Balance. (Including problems)

UNIT-II: SUBSIDIARY BOOKS:

Meaning –Types - Purchases Book - Purchases Returns Book - Sales Book - - Sales Returns Book - Bills Receivable Book - Bills Payable Book – Cash Book - Single Column, Two Column, Three Column and Petty Cash Book - Journal Proper.(Including problems)

UNIT-III: BANK RECONCILIATION STATEMENT:

Meaning – Need - Reasons for differences between cash book and pass book balances – Favourable and over draft balances – Ascertainment of correct cash book balance (Amended Cash Book) - Preparation of Bank Reconciliation Statement. (Including problems)

UNIT-IV: RECTIFICATION OF ERRORS AND DEPRECIATION:

Capital and Revenue Expenditure – Capital and Revenue Receipts: Meaning and Differences - Differed Revenue Expenditure. Errors and their Rectification: Types of Errors - Suspense Account – Effect of Errors on Profit. (Including problems)

Depreciation (AS-6): Meaning – Causes – Difference between Depreciation, Amortization and Depletion - Objectives of providing for depreciation – Factors affecting depreciation – Accounting Treatment – Methods of depreciation: Straight Line Method - Diminishing Balance Method (Including problems)

UNIT-V: FINAL ACCOUNTS:

Final Accounts of Sole Trader: Meaning -Uses -Preparation of Manufacturing, Trading and Profit & Loss Account and Balance Sheet – Adjustments – Closing Entries.(Including problems)

SUGGESTED READINGS:

1. Accountancy-I: Haneef and Mukherjee, Tata McGraw Hill Company.
2. Principles & Practice of Accounting: R.L.Gupta&V.K.Gupta, Sultan Chand.
3. Accountancy-I: S.P. Jain & K.L.Narang, Kalyani Publishers.
4. Accountancy–I: Tulasian, Tata McGraw Hill Co.
5. Introduction to Accountancy: T.S.Grewal, S.Chand and Co.
6. Advanced Accountancy-I: S.N.Maheshwari& V.L.Maheswari, Vikas.
7. Fundamentals of Financial Accounting: Deepak Sehgil, Tax Mann Publication.
8. Financial Accounting: Jawahar Lal, Himalaya Publishing House.

BUSINESS ECONOMICS

Paper: BCO102
PPW: 4 Hrs

Max. Marks: 50
Exam Duration: 3Hrs

***Objective:** to acquire knowledge for application of economic principles and tools in business practices.*

UNIT-I: INTRODUCTION:

Business Economics: Meaning - Nature – Characteristics - Importance and Role - Micro & Macro Economics - Scope - Objectives - Law of Diminishing marginal utility - Law of Equi-marginal utility.

UNIT- II: DEMAND ANALYSIS:

Meaning – Function - Factors influencing Demand -Types of Demand -Demand Curve - Law of Demand –Exceptions to the law of demand-Elasticity of Demand: Concept - Types of elasticity of demand-price, income and cross Elasticity of Demand –measurement of elasticity—arc and point methods—Importance of various Elasticity of Demand

UNIT-III: SUPPLY ANALYSIS:

Law of Supply - Factors influencing Supply - Market Equilibrium- Consumer Surplus - Theory of Consumer behavior - Utility and indifference curve analysis.

UNIT-IV: PRODUCTION ANALYSIS:

Concept of Production –production function-Total Production - Marginal Production - Average Production –returns to a factor- Law of Variable Proportions - Law of Returns to Scale - Isocost – Isoquants - Economies and Dis-economies of Scale.

UNIT-V: COST AND REVENUE ANALYSIS:

Theory of Cost - Concepts of Cost - Short run and Long run cost curves - Traditional and Modern Approaches -Revenue Curves–relationship between total marginal and average revenues- --Break Even Analysis—Meaning – Assumptions – Uses and Limitations.

SUGGESTED READINGS:

1. Business Economics: V. G. Mankar, Himalaya Publishing House
2. Managerial Economics: Vanith Agrawal, Pearson Education
3. Business Economics: H. L. Ahuja, S. Chand & Co. Ltd.
4. Business Economics : R. K. Lekhi, Kalyani Publishers
5. Business Economics: D. M. Mithani, Himalaya Publishing House
6. Business Economics: P. N. Chopra, Kalyani Publishers
7. Essential of Business Economics: D. N. Dwivedi, Vikas Publishers
8. Managerial Economics: Varshney and Maheswari, Sultan Chand
9. Business Economics: P. K. Mehta, Tax Mann Publication.

BUSINESS ORGANISATION

Paper: BCO103

Max. Marks: 50

PPW: 4 Hrs

Exam Duration: 3Hrs

Objective: To acquaint the students with the basics of Commerce and Business concepts and functions and forms of Business Organization

UNIT-1: FUNDAMENTAL CONCEPTS:

Concepts of Business, Trade, Industry and Commerce - Classification - Relationship between Trade, Industry and Commerce - Nature of Business - Objectives of Business – Functions of Business- Social Responsibility of a business - Steps to Start an Enterprise

UNIT-II: BUSINESS ORGANIZATION:

Forms of Business Organization - Classification - Factors Influencing the Choice of Suitable Form of Organization - Sole Proprietorship – Meaning, Definition - Characteristics - Advantages and Disadvantages - Suitability of Sole Proprietorship - Partnership -Kinds of Partners - Partnership Deed -- Meaning – Contents - Registration of Partnership Advantages and Disadvantages of Partnership - Suitability of Partnership - Limited liability partnership – Hindu Undivided Family - Meaning - Characteristics - Advantages and Disadvantages - Co-Operative Organization – Characteristics -Types of Co-Operative Societies - Limitations of Cooperatives.

UNIT-III: FORMATION OF JOINT STOCK COMPANY:

Joint Stock Company - Meaning - Definition - Characteristics - Advantages and Disadvantages - Kinds of Companies -Promotion - Stages of Promotion - Promoter - Characteristics - Kinds - Preparation of Important Documents - Memorandum of Association - Clauses - Articles of Association - Contents – Prospectus - Contents – Red herring Prospectus- Statement in lieu of Prospectus.

UNIT-IV: SOURCES OF FINANCE:

Industrial Finance - Long Term and Short Term Finance - Fixed and Working Capital Finance - Sources of Corporate Finance (A brief introduction to Shares and Debentures, Retained Earnings, Underwriting, Inter Company Investments and Venture Capital, Angel Investors, lease, hire purchase, franchising) .

UNIT V: STOCK EXCHANGE AND MUTUAL FUNDS:

Stock Exchange, Functions — Working of Stock Exchanges, Mutual Funds –Importance, Functions, Types — Role of SEBI in Regulating Stock Exchanges and Mutual Funds in India

SUGGESTED READINGS:

1. Business Organization & Management: Sharma Shashi K. Gupta, Kalyani Publishers
2. Business Organization: Sharma Shashi K. Gupta, Kalyani publishers.
3. Organization & Management: R. D. Agarwal, McGraw Hill.
4. Modern Business Organization: S.A. Sherlekar, V.S. Sherlekar, Himalaya Publishing House
5. Business Organization & Management: C.R. Basu, Tata McGraw Hill
6. Business Organization & Management: R. N. Gupta, S. Chand,
7. Organizational Behaviour Text & Cases: V.S.P. Rao, Himalaya Publishing House
8. Business Organization & Management: Uma Shekaram, Tata McGraw Hill
9. Business Organization & Management: Niranjana Reddy & Surya Prakash, Vaagdevi publishers.
10. Business Organisation and Management, Dr. Neeru Vasith, Tax Mann Publications.

INFORMATION TECHNOLOGY

Paper: BCO104
PPW: 6 (4T & 2P)

Max. Marks: 35T + 15P
Time: 3 Hrs.

Objective: to acquire basic knowledge in Information Technology and its applications in the areas of business.

UNIT-I: INTRODUCTION:

Introduction to computers - Generations of computers – An overview of computer system - Types of computers - Input & Output Devices. Hardware: Basic components of a computer system - Control unit – ALU - Input/output functions - Memory – RAM – ROM – EPROM - PROM and Other types of memory.

UNIT-II: OPERATING SYSTEM (OS):

Meaning - Definition & Functions - Types of OS - Booting process - DOS – Commands (internal & external) - Wild card characters – Virus & Hackers – Cryptography & cryptology Windows: Using the Start Menu –Control Panel – Using multiple windows – Customizing the Desktop – Windows accessories (Preferably latest version of windows or Linux Ubuntu).

UNIT-III: WORD PROCESSING:

Application of word processing - Menus & Tool Bars - Word processor – Creating – Entering - Saving & printing the document - Editing & Formatting Text - Mail Merge and Macros (Preferably latest version of MS Word or Libre Office Writer).

UNIT-IV: SPREAD SHEET:

Application of work sheet/spread sheet - Menus & Tool bars - Creating a worksheet - Entering and editing of numbers - Cell referencing - Worksheet to analyze data with graphs & Charts. Advanced tools: Functions – Formulae – Formatting numbers - Macros – Sorting- Filtering - Validation & Consolidation of Data (Preferably latest version of MS Excel or Libre Office Calc)

UNIT-V: POWER POINT PRESENTATION:

Application of Power Point Presentation – Menus & Tool bars – Creating presentations – Adding - Editing and deleting slides - Templates and manually creating presentation– Slide show – Saving - Opening and closing a Presentation –Types of slides - Slide Views - Formatting – Insertion of Objects and Charts in slides - Custom Animation and Transition (Preferably latest version of MS Power Point presentation - Libre Office Impress). Internet & Browsing: Services available on internet – WWW – ISP – Browsers. Multimedia: Application of multimedia – Images – Graphics-Audio and Video – IT security.

SUGGESTED READINGS:

1. Introduction to Computers: Peter Norton, McGraw Hill.
2. Fundamentals of Information Technology: Dr. NVN Chary, Kalyani Publishers.
3. Computer Fundamental: AnithaGoel, Pearson.
4. Information Technology Applications for Business: Dr. S. Sudalaimuthu, Himalaya
5. Introduction to Information Technology: ITL ESL, Pearson.
6. Introduction to Information Technology: V. Rajaraman, PHI.
7. Fundamental of Computers: Balaguruswamy, McGraw Hill.
8. PC Software under Windows: Puneet Kumar, Kalyani Publishers.
9. Information Technology and C language: Rajiv Khanna, New Age International.
10. Fundamentals of Information Technology: Alexis Leon, Vikas Publishing House.
11. Informational Technology: P. Mohan, Himalaya Publishing House.
12. Information Technology: R. Renuka, Vaagdevi Publishers.
13. OS-Linux Spoken Tutorials & Libre Office Spoken Tutorials by IIT Bombay.
14. Fundamentals of Information Technology: Rajiv Midha, Tax Mann Publications.

FINANCIAL ACCOUNTING-II

Paper: BCO201

PPW: 6 Hrs

Max. Marks: 50

Exam Duration: 3 Hrs

Objective: to acquire accounting knowledge of bills of exchange and other business accounting methods.

UNIT-I: BILLS OF EXCHANGE:

Bills of Exchange - Definition- Distinction between Promissory note and Bills of exchange- Accounting treatment of Trade bills: Books of Drawer and Acceptor- Honour and Dishonour of Bills- Renewal of bills- Retiring of bills under rebate- Accommodation bills.(Including problems)

UNIT-II: CONSIGNMENT ACCOUNTS:

Consignment – Meaning – Features– Proforma invoice - Account sales – Del credere commission- Accounting treatment in the books of the consignor and the consignee - Valuation of consignment stock –Treatment of Normal and abnormal Loss - Invoice of goods at a price higher than the cost price. (Including problems)

UNIT-III: JOINT VENTURE ACCOUNTS:

Joint Venture – Meaning –Features-Difference between Joint Venture and Consignment- Accounting Procedure-Methods of Keeping Records for Joint Venture Accounts-Method of Recording in co-ventures books-Separate Set of Books Method- Joint Bank Account-Memorandum Joint Venture Account (Including problems)

UNIT-IV: ACCOUNTS FROM INCOMPLETE RECORDS:

Single Entry System – Meaning -Features–Difference between Single Entry and Double Entry systems -Defects in Single Entry System - Books and accounts maintained - Ascertainment of Profit - Statement of Affairs and Conversion method (Including problems)

UNIT-V: ACCOUNTING FOR NON-PROFIT ORGANIZATIONS:

Non- Profit Organization – Meaning – Features – Receipts and Payments Account – Income and Expenditure Account – Balance Sheet(Including problems)

SUGGESTED READINGS:

1. Accountancy-I: Haneef and Mukherjee, Tata McGraw Hill Co.
- 2.Principles and Practice of Accounting: R.L. Gupta & V.K. Gupta,Sultan Chand & Sons.
3. Accountancy–I: Tulasian, Tata McGraw Hill Co.
4. Accountancy–I: S.P. Jain & K.L Narang, Kalyani.
5. Advanced Accountancy-I: S.N.Maheshwari&V.L.Maheswari, Vikas.
6. Advanced Accountancy: M Shrinivas& K Sreelatha Reddy, Himalaya Publishers.
7. Financial Accounting: M.N Arora, Tax Mann Publications.

MANAGERIAL ECONOMICS

Paper: BCO202

PPW: 6 Hrs

Max. Marks: 50

Exam Duration: 3Hrs

Objective: to impart conceptual and practical knowledge of managerial economics.

UNIT-I: NATURE AND SCOPE OF MANAGERIAL ECONOMICS:

Characteristics of managerial economics – Nature and scope of managerial economics - Importance of managerial economics- Basic economic tools in managerial economics- managerial economist role and responsibility

UNIT-II: DEMAND FORECASTING:

Demand estimations for major consumer durables and non-durable products – Demand forecasting techniques: Statistical and Non-Statistical techniques.

UNIT-III: MARKET ANALYSIS:

Definition of market – Market structure (Perfect competition, Imperfect competition) – Price determination -Firms equilibrium in perfect competition, monopoly, monopolistic, oligopoly and duopoly

UNIT-IV: MACRO-ECONOMICS FOR MANAGERS:

National income – Concepts – Methods - Measurement of national income – GDP and GVA— Business cycles- nature –Phases – Causes—Inflation - Causes and control – Deflation and stagflation.

UNIT-V: FISCAL AND MONETARY POLICY

Fiscal Policy- deficits-budgetary deficit-primary deficit-revenue deficit-fiscal deficit-Objectives of FRBM Act - Monetary Policy- Objectives – Repo Rate- Reverse Repo Rate- CRR- SLR- Finance Commission- role and objectives

SUGGESTED READINGS:

1. Managerial Economics: Craig H Peterson and Jain, Pearson education
2. Managerial Economics: Gupta, Tata McGraw Hill
3. Managerial Economics: Maheshwari and Gupta, Sultan Chand & Sons
4. Managerial Economics: Dr. P.C. Thomas, Kalyani Publishers
5. Managerial Economics: H.L. Ahuja, S. Chand and Company
6. Managerial Economics: Mithani, Himalaya Publications
7. Managerial Economics: R.L. Varshney and K.L. M Maheshwari, Sultan Chand
8. Managerial Economics: P. Venkataiah and Surya Prakash, Vaagdevi Publishers
9. Managerial Economics: P.L. Mehta, Tata McGraw Hill
10. Managerial Economics: R.N. Chopra, Kalyani Publishers
11. Managerial Economics: D.N. Dwivedi, Vikas Publishers
12. Managerial Economics: Thomas, Maurice, Sarkar, Tata McGraw Hill
13. Managerial Economics: YogeshMaheshwari, PHI Learning Pvt. Limited
14. Managerial Economics: P.K. Mehta, Tax Mann Pulications

PRINCIPLES OF MANAGEMENT

Paper: BCO203

PPW: 4 Hrs

Max. Marks: 50

Exam Duration: 3Hrs

Objective: To acquaint the students with the Principles, functions and practices of management

UNIT-I: INTRODUCTION

Management - Meaning - Characteristics - Administration Vs Management - Scope of Management - Importance of Management - Functions of Management - Levels of Management - Skills of Management -- Leader Vs. Manager - Scientific Management - Meaning - Definition - Objectives - Criticism – Fayol’s 14 Principles of Management .

UNIT-II: PLANNING

Meaning - Definition - Characteristics - Types of Plans - Advantages and Disadvantages – Approaches to Planning - Management by Objectives (MBO) - Steps in MBO - Benefits - Weaknesses

UNIT-III: ORGANIZING:

Organizing-Meaning, Definition – Organization Meaning, Definition - Process of Organizing - Principles of Organization - Types of Organization - Formal and Informal Organizations - Line, Staff Organizations - Line and Staff Conflicts - Functional Organization - - Span of Management - Meaning - Determining Span - Factors influencing the Span of Supervision

UNIT-IV : DELEGATION AND DECENTRALIZATION:

Authority – Meaning - Delegation - Definition - Characteristics: - Elements - Principles, Types of Delegation - Importance of Delegation : - Factors Influencing Degree of Delegation - Barriers - Guidelines for Making Delegation Effective - Centralization - Meaning – Decentralization- Meaning - Difference between Delegation and Decentralization.

UNIT-V: COORDINATION AND CONTROL:

Meaning - Definition - Principles of Coordination – Importance- Process of Coordination-techniques of Effective Coordination - Control - Meaning - Definition – relationship between planning and control- Steps in Control – Types (post, current and pre-control) - Requirements for effective control.

SUGGESTED READINGS:

1. Principles and Practice of Management: R. S. Gupta, B. D. Sharma, W.S. Bhalla, Kaylani
2. Management: Stephen P. Robbins, Person
3. Principles of Management: T Ramasamy, Himalaya Publication
4. Principles of Management Concept: Rajeshviwanathan, Himalaya Publication
5. Management Theory and Practices: P Subba Rao, Himalaya Publishing House
6. Essential of Management: Harold Kontz, McGraw Education
7. Principles of Management, Chandan JS, Vikas Publishers.
8. Fundamentals of Management, Dr. Pradeep Kumar, S. Chand
9. Principles of Management: Neeru Vasishth, Tax Mann Pulications.

Paper : (BC 207) : RELATIONAL DATABASE MANAGEMENT SYSTEMS

Paper: BC 207
THPW: 5 Hrs; Credits :5

Max. Marks: 50
Exam Duration: 3Hrs

Objective: to acquire basic conceptual background necessary to design and develop simple database system, Relational database mode, ER model and distributed databases, and to write good queries using a standard query language called SQL.

UNIT-I: BASIC CONCEPTS: Database Management System - File based system - Advantages of DBMS over file based system - Database Approach - Logical DBMS Architecture - Three level architecture of DBMS or logical DBMS architecture - Need for three level architecture - Physical DBMS Architecture - Database Administrator (DBA) Functions & Role - Data files indices and Data Dictionary - Types of Database. Relational and ER Models: Data Models - Relational Model – Domains - Tuple and Relation - Super keys - Candidate keys - Primary keys and foreign key for the Relations - Relational Constraints - Domain Constraint - Key Constraint - Integrity Constraint - Update Operations and Dealing with Constraint Violations - Relational Operations - Entity Relationship (ER) Model – Entities – Attributes – Relationships - More about Entities and Relationships - Defining Relationship for College Database - E-R Diagram - Conversion of E-R Diagram to Relational Database.

UNIT-II: DATABASE INTEGRITY AND NORMALISATION: Relational Database Integrity - The Keys - Referential Integrity - Entity Integrity - Redundancy and Associated Problems – Single Valued Dependencies – Normalisation - Rules of Data Normalisation - The First Normal Form -The Second Normal Form - The Third Normal Form - Boyce Codd Normal Form - Attribute Preservation - Lossless-join Decomposition - Dependency Preservation. File Organisation : Physical Database Design Issues - Storage of Database on Hard Disks - File Organisation and Its Types - Heap files (Unordered files) - Sequential File Organisation - Indexed (Indexed Sequential) File Organisation - Hashed File Organisation - Types of Indexes - Index and Tree Structure - Multi-key File Organisation - Need for Multiple Access Paths - Multi-list File Organisation - Inverted File Organisation.

UNIT-III: STRUCTURES QUERY LANGUAGE (SQL): Meaning – SQL commands - Data Definition Language - Data Manipulation Language - Data Control Language - Transaction Control Language - Queries using Order by – Where - Group by - Nested Queries. Joins – Views – Sequences - Indexes and Synonyms - Table Handling.

UNIT-IV : TRANSACTIONS AND CONCURRENCY MANAGEMENT: Transactions - Concurrent Transactions - Locking Protocol - Serialisable Schedules - Locks Two Phase Locking (2PL) - Deadlock and its Prevention - Optimistic Concurrency Control. Database Recovery and Security: Database Recovery meaning - Kinds of failures - Failure controlling methods - Database errors - Backup & Recovery Techniques - Security & Integrity - Database Security - Authorization.

UNIT-V: DISTRIBUTED AND CLIENT SERVER DATABASES: Need for Distributed Database Systems - Structure of Distributed Database - Advantages and Disadvantages of DDBMS - Advantages of Data Distribution - Disadvantages of Data Distribution - Data Replication - Data Fragmentation. Client Server Databases: Emergence of Client Server Architecture - Need for Client Server Computing - Structure of Client Server Systems & its advantages.

LAB: SQL QUERIES BASED ON VARIOUS COMMANDS.

SUGGESTED READINGS: 1) Database Systems: R.Elmasri & S.B. Navathe, Pearson.; 2) Introduction to Database Management System: ISRD Group, McGraw Hill.; 3) Database Management System: R.Ramakrishnan & J.Gehrke, McGraw Hill.; 4) Modern Database Management: J.A.Hoffer,V.Rames &H.Topi, Pearson.;5) Database System Concepts: Silberschatz, Korth & Sudarshan, McGraw Hill. 6) Simplified Approach to DBMS: Parteek Bhaia, Kalyani Publishers.7) Database Management System: Nirupma Pathak, Himalaya. 8) Database Management Systems: Pannerseivam, PHI.9) Relational Database Management System: Srivastava & Srivastava, New Age 10) PHPMySQL Spoken Tutorials by IIT Bombay. 11) Oracle Database: A Beginner’s Guide: I.Abramson, McGraw Hill.

B.Com (Computers)

(w.e.f. 2016–2017)

First Year Syllabus (CBCS)



**FACULTY OF COMMERCE, OSMANIA UNIVERSITY
HYDERABAD - 500 007 T.S.**

2016

DEPARTMENT OF COMMERCE, O.U.
Structure of B.Com (Computers) (CBCS) for Osmania University, Hyderabad.
(w.e.f. Academic Year 2016-17)

B.COM (Computers) PROGRAMME

FIRST YEAR:					
SEMESTER-I					
Sl.No.	Code	Course Title	Course Type	HPW	Credits
(1)	(2)	(3)	(4)	(5)	(6)
1.	BC101	A/B/C/D	AECC-1	2	2
2.	BC102	English	CC-1A	5	5
3.	BC103	Second Language	CC-2A	5	5
4.	BC104	Financial Accounting - I	DSC-1A	5	5
5.	BC105	Business Economics	DSC-2A	5	5
6.	BC106	Business Organization	DSC-3A	4	4
7.	BC107	Information Technology	DSC-4A	3T+2P	4
		Total		31	30
SEMESTER-II					
8.	BC201	A/B/C/D	AECC-2	2	2
9.	BC202	English	CC-1B	5	5
10.	BC203	Second Language	CC-2B	5	5
11.	BC204	Financial Accounting - II	DSC-1B	5	5
12.	BC205	Managerial Economics	DSC-2B	5	5
13.	BC206	Principles of Management	DSC-3B	4	4
14.	BC207	Management Information System	DSC-4B	3T+2P	4
		Total		30	30
SECOND YEAR:					
SEMESTER-III					
15.	BC301	Principles of Insurance Business	SEC-1	2	2
16.	BC302	English	CC-1C	5	5
17.	BC303	Second Language	CC-2C	5	5
18.	BC304	Advanced Accounting	DSC-1C	5	5
19.	BC305	Income Tax-I	DSC-2C	5	5
20.	BC306	Business Statistics-I	DSC-3C	4	4
21.	BC307	Programming with C	DSC-4C	3T+2P	4
		Total		31	30
SEMESTER-IV					
22.	BC401	Practice of Life Insurance	SEC-2	2	2
23.	BC402	English	CC -1D	5	5
24.	BC403	Second Language	CC-2D	5	5
25.	BC404	Corporate Accounting	DSC-1D	5	5
26.	BC405	Income Tax-II	DSC-2D	5	5
27.	BC406	Business Statistics-II	DSC-3D	4	4
28.	BC407	Objective Oriented Programming with C++	DSE-4D	4T+2P	4
		Total		30	30

THIRD YEAR:					
SEMESTER-V					
29.	BC501	Practice of General Insurance	SEC-3	2	2
30.	BC502		GE-1	2	2
31.	BC503	Cost Accounting	DSC-1E	4	4
32.	BC504	Business Law	DSC-2E	4	4
33.	BC505	Banking Theory & Practice	DSC-3E	4	4
34.	BC506	Auditing	DSC-4E	4	4
35.	BC507	Computerised Accounting	DSE-1A	4T+2P	5
36.	BC508	E-Commerce	DSE-2A	4T+2P	5
		Total		33	30
SEMESTER-VI					
37.	BC601	Regulation of Insurance Business	SEC-4	2	2
38.	BC602		GE-2	2	2
39.	BC603	Managerial Accounting	DSC-1F	4	4
40.	BC604	Company Law	DSC-2F	4	4
41.	BC605	Financial Institutions & Markets	DSC-3F	4	4
42.	BC606	Commerce Lab	DSC-4F	2T+4P	4
43.	BC607	Web Technologies	DSE-1B	4T+2P	5
44.	BC608	Relational Database Management Systems	DSE-2B	4T+2P	5
		Total		32	30
		GRAND TOTAL		187	180

AECC: Ability Enhancement Compulsory Course; **SEC:** Skill Enhancement Course; **DSC:** Discipline Specific Course; **DSE:** Discipline Specific Elective; **GE:** Generic Elective; **T=Theory; P=Practicals;**

SUMMARY OF CREDITS

Sl. No.	Course Category	No. of Courses	Credits Per Course	Credits
1	AECC	2	2	4
2	SEC	4	2	8
3	CC Language	8	5	40
	DSC	8	5	40
		16	4	64
4	DSE	4	5	20
5	GE	2	2	4
	TOTAL	44		180
	Commerce Total	28		124

SYLLABUS

Paper : (BC 104) : FINANCIAL ACCOUNTING - I

Paper: BC104

Max. Marks: 50

THPW: 5 Hrs

Exam Duration: 3 Hrs

Credits : 5

Objective: to acquire conceptual knowledge of basics of accounting and preparation of final accounts of sole trader.

UNIT-I: ACCOUNTING PROCESS:

Financial Accounting: Introduction – Definition – Evolution – Functions-Advantages and Limitations –Users of Accounting Information- Branches of Accounting – Accounting Principles: Concepts and Conventions- Accounting Standards– Meaning – Importance – List of Accounting Standards issued by ASB – Accounting System- Types of Accounts – Accounting Cycle- Journal- Ledger and Trial Balance. (Including problems)

UNIT-II: SUBSIDIARY BOOKS:

Meaning –Types - Purchases Book - Purchases Returns Book - Sales Book - - Sales Returns Book - Bills Receivable Book - Bills Payable Book – Cash Book - Single Column, Two Column, Three Column and Petty Cash Book - Journal Proper.(Including problems)

UNIT-III: BANK RECONCILIATION STATEMENT:

Meaning – Need - Reasons for differences between cash book and pass book balances – Favourable and over draft balances – Ascertainment of correct cash book balance (Amended Cash Book) - Preparation of Bank Reconciliation Statement. (Including problems)

UNIT-IV: RECTIFICATION OF ERRORS AND DEPRECIATION:

Capital and Revenue Expenditure – Capital and Revenue Receipts: Meaning and Differences - Differed Revenue Expenditure. Errors and their Rectification: Types of Errors - Suspense Account – Effect of Errors on Profit. (Including problems)

Depreciation (AS-6): Meaning – Causes – Difference between Depreciation, Amortization and Depletion - Objectives of providing for depreciation – Factors affecting depreciation – Accounting Treatment – Methods of depreciation: Straight Line Method - Diminishing Balance Method (Including problems)

UNIT-V: FINAL ACCOUNTS:

Final Accounts of Sole Trader: Meaning -Uses -Preparation of Manufacturing, Trading and Profit & Loss Account and Balance Sheet – Adjustments – Closing Entries.(Including problems)

SUGGESTED READINGS:

1. Accountancy-I: Haneef and Mukherjee, Tata McGraw Hill Company.
2. Principles & Practice of Accounting: R.L.Gupta&V.K.Gupta, Sultan Chand.
3. Accountancy-I: S.P. Jain & K.L Narang, Kalyani Publishers.
4. Accountancy–I: Tulasian, Tata McGraw Hill Co.
5. Introduction to Accountancy: T.S.Grewal, S.Chand and Co.
6. Advanced Accountancy-I: S.N.Maheshwari& V.L.Maheswari, Vikas.
7. Fundamentals of Financial Accounting: Deepak Sehgil, Tax Mann Publication.
8. Financial Accounting: Jawahar Lal, Himalaya Publishing House.

Paper : (BC 105) : BUSINESS ECONOMICS

Paper: BC105
THPW: 5 Hrs
Credits : 5

Max. Marks: 50
Exam Duration: 3Hrs

Objective: to acquire knowledge for application of economic principles and tools in business practices.

UNIT-I: INTRODUCTION:

Business Economics: Meaning - Nature – Characteristics - Importance and Role - Micro & Macro Economics - Scope - Objectives - Law of Diminishing marginal utility - Law of Equi-marginal utility.

UNIT- II: DEMAND ANALYSIS:

Meaning – Function - Factors influencing Demand -Types of Demand -Demand Curve - Law of Demand –Exceptions to the law of demand-Elasticity of Demand: Concept - Types of elasticity of demand-price, income and cross Elasticity of Demand –measurement of elasticity—arc and point methods—Importance of various Elasticity of Demand

UNIT-III: SUPPLY ANALYSIS:

Law of Supply - Factors influencing Supply - Market Equilibrium- Consumer Surplus - Theory of Consumer behavior - Utility and indifference curve analysis.

UNIT-IV: PRODUCTION ANALYSIS:

Concept of Production –production function-Total Production - Marginal Production - Average Production –returns to a factor- Law of Variable Proportions - Law of Returns to Scale - Isocost – Isoquants - Economies and Dis-economies of Scale.

UNIT-V: COST AND REVENUE ANALYSIS:

Theory of Cost - Concepts of Cost - Short run and Long run cost curves - Traditional and Modern Approaches -Revenue Curves—relationship between total marginal and average revenues- --Break Even Analysis—Meaning – Assumptions – Uses and Limitations.

SUGGESTED READINGS:

1. Business Economics: V. G. Mankar, Himalaya Publishing House
2. Managerial Economics: Vanith Agrawal, Pearson Education
3. Business Economics: H. L. Ahuja, S. Chand & Co. Ltd.
4. Business Economics : R. K. Lekhi, Kalyani Publishers
5. Business Economics: D. M. Mithani, Himalaya Publishing House
6. Business Economics: P. N. Chopra, Kalyani Publishers
7. Essential of Business Economics: D. N. Dwivedi, Vikas Publishers
8. Managerial Economics: Varshney and Maheswari, Sultan Chand
9. Business Economics: P. K. Mehta, Tax Mann Publication.

Paper : (BC 106) : BUSINESS ORGANISATION

Paper: BC106
THPW: 4 Hrs
Credits : 4

Max. Marks: 50
Exam Duration: 3Hrs

Objective: To acquaint the students with the basics of Commerce and Business concepts and functions and forms of Business Organization

UNIT-1: FUNDAMENTAL CONCEPTS:

Concepts of Business, Trade, Industry and Commerce - Classification - Relationship between Trade, Industry and Commerce - Nature of Business - Objectives of Business – Functions of Business- Social Responsibility of a business - Steps to Start an Enterprise

UNIT-II: BUSINESS ORGANIZATION:

Forms of Business Organization - Classification - Factors Influencing the Choice of Suitable Form of Organization - Sole Proprietorship – Meaning, Definition - Characteristics - Advantages and Disadvantages - Suitability of Sole Proprietorship - Partnership -Kinds of Partners - - Partnership Deed -- Meaning – Contents - Registration of Partnership Advantages and Disadvantages of Partnership - Suitability of Partnership - Limited liability partnership – Hindu Undivided Family - Meaning - Characteristics - Advantages and Disadvantages - Co-Operative Organization – Characteristics -Types of Co-Operative Societies - Limitations of Cooperatives.

UNIT-III: FORMATION OF JOINT STOCK COMPANY:

Joint Stock Company - Meaning - Definition - Characteristics - Advantages and Disadvantages - Kinds of Companies -Promotion - Stages of Promotion - Promoter - Characteristics - Kinds - Preparation of Important Documents - Memorandum of Association - Clauses - Articles of Association - Contents – Prospectus - Contents – Red herring Prospectus- Statement in lieu of Prospectus.

UNIT-IV: SOURCES OF FINANCE:

Industrial Finance - Long Term and Short Term Finance - Fixed and Working Capital Finance - Sources of Corporate Finance (A brief introduction to Shares and Debentures, Retained Earnings, Underwriting, Inter Company Investments and Venture Capital, Angel Investors, lease, hire purchase, franchising) .

UNIT V: STOCK EXCHANGE AND MUTUAL FUNDS:

Stock Exchange, Functions — Working of Stock Exchanges, Mutual Funds –Importance, Functions, Types — Role of SEBI in Regulating Stock Exchanges and Mutual Funds in India

SUGGESTED READINGS:

1. Business Organization & Management: Sharma Shashi K. Gupta, Kalyani Publishers
2. Business Organization: Sharma Shashi K. Gupta, Kalyani publishers.
3. Organization & Management: R. D. Agarwal, McGraw Hill.
4. Modern Business Organization: S.A. Sherlekar, V.S. Sherlekar, Himalaya Publishing House
5. Business Organization & Management: C.R. Basu, Tata McGraw Hill
6. Business Organization & Management: R. N. Gupta, S. Chand,
7. Organizational Behaviour Text & Cases: V.S.P. Rao, Himalaya Publishing House

8. Business Organization & Management: Uma Shekaram, Tata McGraw Hill
9. Business Organization & Management: Niranjana Reddy & Surya Prakash, Vaagdevi publishers.
10. Business Organisation and Management, Dr. Neeru Vasihth, Tax Mann Publications.

Paper : (BC 107) : INFORMATION TECHNOLOGY

Paper: BC 107

Max. Marks: 35T + 15P

THPW: 5 (3T & 2P)

Time: 3 Hrs.

Credits :4

Objective: to acquire basic knowledge in Information Technology and its applications in the areas of business.

UNIT-I: INTRODUCTION:

Introduction to computers - Generations of computers – An overview of computer system - Types of computers - Input & Output Devices.

Hardware: Basic components of a computer system - Control unit – ALU - Input/output functions - Memory – RAM – ROM – EPROM - PROM and Other types of memory.

UNIT-II: OPERATING SYSTEM (OS):

Meaning - Definition & Functions - Types of OS - Booting process - DOS – Commands (internal & external) - Wild card characters – Virus & Hackers – Cryptography & cryptology.

Windows: Using the Start Menu –Control Panel – Using multiple windows – Customizing the Desktop – Windows accessories (Preferably latest version of windows or Linux Ubuntu).

UNIT-III: WORD PROCESSING:

Application of word processing - Menus & Tool Bars - Word processor – Creating – Entering - Saving & printing the document - Editing & Formatting Text - Mail Merge and Macros (Preferably latest version of MS Word or Libre Office Writer).

UNIT-IV: SPREAD SHEET:

Application of work sheet/spread sheet - Menus & Tool bars - Creating a worksheet - Entering and editing of numbers - Cell reference - Worksheet to analyze data with graphs & Charts.

Advanced tools: Functions – Formulae – Formatting numbers - Macros – Sorting - Filtering - Validation & Consolidation of Data (Preferably latest version of MS Excel or Libre Office Calc).

UNIT-V: POWER POINT PRESENTATION:

Application of Power Point Presentation – Menus & Tool bars – Creating presentations – Adding - Editing and deleting slides - Templates and manually – Slide show – Saving - Opening and closing a Presentation –Types of slides - Slide Views - Formatting – Insertion of Objects and Charts in slides - Custom Animation and Transition (Preferably latest version of MS Power Point presentation - Libre Office Impress).

Internet & Browsing: Services available on internet – WWW – ISP – Browsers.

Multimedia: Application of multimedia – Images – Graphics - Audio and Video – IT security.

SUGGESTED READINGS:

1. Introduction to Computers: Peter Norton, McGraw Hill.
2. Fundamentals of Information Technology: Dr. NVN Chary, Kalyani Publishers.
3. Computer Fundamental: Anitha Goel, Pearson.
4. Information Technology Applications for Business: Dr. S. Sudalaimuthu, Himalaya
5. Introduction to Information Technology: ITL ESL, Pearson.
6. Introduction to Information Technology: V. Rajaraman, PHI.
7. Fundamental of Computers: Balaguruswamy, McGraw Hill.
8. PC Software under Windows: Puneet Kumar, Kalyani Publishers.
9. Information Technology and C language: Rajiv Khanna, New Age International.

10. Fundamentals of Information Technology: Alexis Leon, Vikas Publishing House.
11. Informational Technology: P. Mohan, Himalaya Publishing House.
12. Information Technology: R. Renuka, Vaagdevi Publishers.
13. OS-Linux Spoken Tutorials & Libre Office Spoken Tutorials by IIT Bombay.
14. Fundamentals of Information Technology: Rajiv Midha, Tax Mann Publications.

Paper : (BC 204) : FINANCIAL ACCOUNTING-II

Paper: BC204

THPW: 5Hrs

Credits : 5

Max. Marks: 50

Exam Duration: 3 Hrs

***Objective:** to acquire accounting knowledge of bills of exchange and other business accounting methods.*

UNIT-I: BILLS OF EXCHANGE:

Bills of Exchange - Definition- Distinction between Promissory note and Bills of exchange- Accounting treatment of Trade bills: Books of Drawer and Acceptor- Honour and Dishonour of Bills- Renewal of bills- Retiring of bills under rebate- Accommodation bills.(Including problems)

UNIT-II: CONSIGNMENT ACCOUNTS:

Consignment – Meaning – Features– Proforma invoice - Account sales – Del credere commission- Accounting treatment in the books of the consignor and the consignee - Valuation of consignment stock –Treatment of Normal and abnormal Loss - Invoice of goods at a price higher than the cost price. (Including problems)

UNIT-III: JOINT VENTURE ACCOUNTS:

Joint Venture – Meaning –Features-Difference between Joint Venture and Consignment- Accounting Procedure-Methods of Keeping Records for Joint Venture Accounts-Method of Recording in co-ventures books-Separate Set of Books Method- Joint Bank Account- Memorandum Joint Venture Account (Including problems)

UNIT-IV: ACCOUNTS FROM INCOMPLETE RECORDS:

Single Entry System – Meaning -Features–Difference between Single Entry and Double Entry systems -Defects in Single Entry System - Books and accounts maintained - Ascertainment of Profit - Statement of Affairs and Conversion method (Including problems)

UNIT-V: ACCOUNTING FOR NON-PROFIT ORGANIZATIONS:

Non- Profit Organization – Meaning – Features – Receipts and Payments Account – Income and Expenditure Account – Balance Sheet(Including problems)

SUGGESTED READINGS:

1. Accountancy-I: Haneef and Mukherjee, Tata McGraw Hill Co.
- 2.Principles and Practice of Accounting: R.L. Gupta & V.K. Gupta,Sultan Chand & Sons.
3. Accountancy–I: Tulasian, Tata McGraw Hill Co.
4. Accountancy–I: S.P. Jain & K.L Narang, Kalyani.
5. Advanced Accountancy-I: S.N.Maheshwari&V.L.Maheswari, Vikas.
6. Advanced Accountancy: M Shrinivas& K Sreelatha Reddy, Himalaya Publishers.
7. Financial Accounting: M.N Arora, Tax Mann Publications.

Paper : (BC 205) : MANAGERIAL ECONOMICS

Paper: BC205

THPW: 5 Hrs

Credits : 5

Max. Marks: 50

Exam Duration: 3Hrs

Objective: to impart conceptual and practical knowledge of managerial economics.

UNIT-I: NATURE AND SCOPE OF MANAGERIAL ECONOMICS:

Characteristics of managerial economics – Nature and scope of managerial economics - Importance of managerial economics- Basic economic tools in managerial economics- managerial economist role and responsibility

UNIT-II: DEMAND FORECASTING:

Demand estimations for major consumer durables and non-durable products – Demand forecasting techniques: Statistical and Non-Statistical techniques.

UNIT-III: MARKET ANALYSIS:

Definition of market – Market structure (Perfect competition, Imperfect competition) – Price determination -Firms equilibrium in perfect competition, monopoly, monopolistic, oligopoly and duopoly

UNIT-IV: MACRO-ECONOMICS FOR MANAGERS:

National income – Concepts – Methods - Measurement of national income – GDP and GVA— Business cycles- nature –Phases – Causes—Inflation - Causes and control – Deflation and stagflation.

UNIT-V: FISCAL AND MONETARY POLICY

Fiscal Policy- deficits-budgetary deficit-primary deficit-revenue deficit-fiscal deficit-Objectives of FRBM Act - Monetary Policy- Objectives – Repo Rate- Reverse Repo Rate- CRR- SLR- Finance Commission- role and objectives

SUGGESTED READINGS:

1. Managerial Economics: Craig H Peterson and Jain, Pearson education
2. Managerial Economics: Gupta, Tata McGraw Hill
3. Managerial Economics: Maheshwari and Gupta, Sultan Chand & Sons
4. Managerial Economics: Dr. P.C. Thomas, Kalyani Publishers
5. Managerial Economics: H.L. Ahuja, S. Chand and Company
6. Managerial Economics: Mithani, Himalaya Publications
7. Managerial Economics: R.L. Varshney and K.L. M Maheshwari, Sultan Chand
8. Managerial Economics: P. Venkataiah and Surya Prakash, Vaagdevi Publishers
9. Managerial Economics: P.L. Mehta, Tata McGraw Hill
10. Managerial Economics: R.N. Chopra, Kalyani Publishers
11. Managerial Economics: D.N. Dwivedi, Vikas Publishers
12. Managerial Economics: Thomas, Maurice, Sarkar, Tata McGraw Hill
13. Managerial Economics: Yogesh Maheshwari, PHI Learning Pvt. Limited
14. Managerial Economics: P.K. Mehta, Tax Mann Publications.

Paper : (BC 206) : PRINCIPLES OF MANAGEMENT

Paper: BC206

Max. Marks: 50

THPW: 4 Hrs

Exam Duration: 3Hrs

Credits : 4

Objective: To acquaint the students with the Principles, functions and practices of management

UNIT-I: INTRODUCTION

Management - Meaning - Characteristics - Administration Vs Management - Scope of Management - Importance of Management - Functions of Management - Levels of Management - Skills of Management -- Leader Vs. Manager - Scientific Management - Meaning - Definition - Objectives - Criticism – Fayol’s 14 Principles of Management .

UNIT-II: PLANNING

Meaning - Definition - Characteristics - Types of Plans - Advantages and Disadvantages – Approaches to Planning - Management by Objectives (MBO) - Steps in MBO - Benefits - Weaknesses

UNIT-III: ORGANIZING:

Organizing-Meaning, Definition – Organization Meaning, Definition - Process of Organizing - Principles of Organization - Types of Organization - Formal and Informal Organizations - Line, Staff Organizations - Line and Staff Conflicts - Functional Organization - - Span of Management - Meaning - Determining Span - Factors influencing the Span of Supervision

UNIT-IV: DELEGATION AND DECENTRALIZATION:

Authority – Meaning - Delegation - Definition - Characteristics: - Elements - Principles, Types of Delegation - Importance of Delegation: - Factors Influencing Degree of Delegation - Barriers - Guidelines for Making Delegation Effective - Centralization - Meaning – Decentralization- Meaning - Difference between Delegation and Decentralization.

UNIT-V: COORDINATION AND CONTROL:

Meaning - Definition - Principles of Coordination – Importance- Process of Coordination-techniques of Effective Coordination - Control - Meaning - Definition – relationship between planning and control- Steps in Control – Types (post, current and pre-control) - Requirements for effective control.

SUGGESTED READINGS:

1. Principles and Practice of Management: R. S. Gupta, B. D. Sharma, W.S. Bhalla, Kaylani
2. Management: Stephen P. Robbins, Person
3. Principles of Management: T Ramasamy, Himalaya Publication
4. Principles of Management Concept: Rajeshviwanathan, Himalaya Publication
5. Management Theory and Practices: P Subba Rao, Himalaya Publishing House
6. Essential of Management: Harold Kontz, McGraw Education
7. Principles of Management, Chandan JS, Vikas Publishers.
8. Fundamentals of Management, Dr. Pradeep Kumar, S. Chand
9. Principles of Management: Neeru Vasishth, Tax Mann Pulications.

Paper : (BC 207) : MANAGEMENT INFORMATION SYSTEM

Paper: BC 207

Max. Marks: 50

THPW: (3T+2P) 4 Hrs

Exam Duration: 3Hrs

Credits : 4

Objective: to equip the students with finer nuances of MIS.

UNIT-I: AN OVERVIEW OF MANAGEMENT INFORMATION SYSTEMS (MIS):

Concept & Definition of MIS - MIS Vs. Data Processing - MIS & Decision Support Systems - MIS & Information Resources Management - End User Computing – MIS Structure - Managerial View of IS – Functions of Management - Management Role - Levels of Management.

UNIT-II: FOUNDATION OF INFORMATION SYSTEMS:

Introduction to Information System in Business - Fundamentals of Information Systems - Solving Business Problems with Information Systems - Types of Information Systems, Effectiveness and Efficiency Criteria in Information System - Frame Work For IS - Sequence of Development of IS.

UNIT-III: CONCEPT OF PLANNING & CONTROL:

Concept of Organizational Planning - Planning Process - Computational Support for Planning - Characteristics of Control Process - Nature of Control in an Organization.
IS Planning – Determination of Information Requirements - Business Systems Planning - End Means Analysis - Organizing the Plan.

UNIT-IV: BUSINESS APPLICATIONS OF INFORMATION TECHNOLOGY:

Internet & Electronic Commerce – Intranet - Extranet & Enterprise Solutions - Information System for Business Operations - Information System for Managerial Decision Support - Information System for Strategic Advantage.

UNIT-V: ADVANCED CONCEPTS IN INFORMATION SYSTEMS:

Enterprise Resource Planning - Supply Chain Management - Customer Relationship Management and Procurement Management - Systems Analysis and Design – System Development Life Cycle – Prototyping – Sad - Project Management - Cost Benefit Analysis - Detailed Design - Implementation.

SUGGESTED READINGS:

1. Management Information System: O Brian, TMH.
2. Management Information System: Gordon B.Davis & Margrethe H.Olson, TMH.
3. Information System for Modern Management: Murdick, PHI.
4. Management Information System: Jawadekar, TMH.

B.Com (General)

(w.e.f. 2016–2017)

First Year Syllabus (CBCS)



**FACULTY OF COMMERCE, OSMANIA UNIVERSITY
HYDERABAD - 500 007 T.S.**

2016

DEPARTMENT OF COMMERCE, O.U.
Structure of B.Com (General) (CBCS) for Osmania University, Hyderabad.
(w.e.f. Academic Year 2016-17)

B.COM (General) PROGRAMME

FIRST YEAR:**SEMESTER-I:**

Sl.No.	Code	Course Title	Course Type	HPW	Credits
(1)	(2)	(3)	(4)	(5)	(6)
1.	BC101	A/B/C/D	AECC-1	2	2
2.	BC102	English	CC-1A	5	5
3.	BC103	Second Language	CC-2A	5	5
4.	BC104	Financial Accounting - I	DSC-1A	5	5
5.	BC105	Business Economics	DSC-2A	5	5
6.	BC106	Business Organization	DSC-3A	4	4
7.	BC107	Information Technology	DSC-4A	3T+2P	4
		Total		31	30

SEMESTER-II:

8.	BC201	A/B/C/D	AECC-2	2	2
9.	BC202	English	CC-1B	5	5
10.	BC203	Second Language	CC-2B	5	5
11.	BC204	Financial Accounting - II	DSC-1B	5	5
12.	BC205	Managerial Economics	DSC-2B	5	5
13.	BC206	Principles of Management	DSC-3B	4	4
14.	BC207	Foreign Trade	DSC-4B	4	4
		Total		30	30

SECOND YEAR:**SEMESTER-III:**

15.	BC301	Principles of Insurance	SEC-1	2	2
16.	BC302	English	CC-1C	5	5
17.	BC303	Second Language	CC-2C	5	5
18.	BC304	Advanced Accounting	DSC-1C	5	5
19.	BC305	Income Tax-I	DSC-2C	5	5
20.	BC306	Business Statistics-I	DSC-3C	4	4
21.	BC307	Entrepreneurial Development & Business Ethics	DSC-4C	4	4
		Total		30	30

SEMESTER-IV:

22.	BC401	Practice of Life Insurance	SEC-2	2	2
23.	BC402	English	CC -1D	5	5
24.	BC403	Second Language	CC-2D	5	5
25.	BC404	Corporate Accounting	DSC-1D	5	5
26.	BC405	Income Tax-II	DSC-2D	5	5
27.	BC406	Business Statistics-II	DSC-3D	4	4
28.	BC407	Financial Statement Analysis	DSC-4D	4	4
		Total		30	30

THIRD YEAR:					
SEMESTER-V					
29.	BC501	Practice of General Insurance	SEC-3	2	2
30.	BC502		GE-1	2	2
31.	BC503	Cost Accounting	DSC-1E	5	5
32.	BC504	Business Law	DSC-2E	4	4
33.	BC505	Banking Theory & Practice	DSC-3E	4	4
34.	BC506	Auditing	DSC-4E	4	4
35.	BC507	Computerised Accounting	DSE-1A	3T+2P	4
36.	BC508	Accounting Standards	DSE-2A	5	5
		Total		31	30
SEMESTER-VI					
37.	BC601	Regulation of Insurance Business	SEC-4	2	2
38.	BC602		GE-2	2	2
39.	BC603	Managerial Accounting	DSC-1F	4	4
40.	BC604	Company Law	DSC-2F	4	4
41.	BC605	Financial Institutions & Markets	DSC-3F	4	4
42.	BC606	Commerce Lab	DSC-4F	2T+4P	4
43.	BC607	Advanced Managerial Accounting	DSE-1B	5	5
44.	BC608	Advanced Corporate Accounting	DSE-2B	5	5
		Total		32	30
		GRAND TOTAL		184	180

AECC: Ability Enhancement Compulsory Course; SEC: Skill Enhancement Course; DSC: Discipline Specific Course; DSE: Discipline Specific Elective; GE: Generic Elective; T=Theory; P=Practicals;

SUMMARY OF CREDITS

Sl. No.	Course Category	No. of Courses	Credits Per Course	Credits
1	AECC	2	2	4
2	SEC	4	2	8
3	CC Language	8	5	40
	DSC	8	5	40
		16	4	64
4	DSE	4	5	20
5	GE	2	2	4
	TOTAL	44		180
	Commerce Total	28		124

SYLLABUS**Paper : (BC 104) : FINANCIAL ACCOUNTING - I**

Paper: BC104

Max. Marks: 50

THPW: 5 Hrs

Exam Duration: 3 Hrs

Credits : 5

Objective: to acquire conceptual knowledge of basics of accounting and preparation of final accounts of sole trader.

UNIT-I: ACCOUNTING PROCESS:

Financial Accounting: Introduction – Definition – Evolution – Functions-Advantages and Limitations –Users of Accounting Information- Branches of Accounting – Accounting Principles: Concepts and Conventions- Accounting Standards– Meaning – Importance – List of Accounting Standards issued by ASB – Accounting System- Types of Accounts – Accounting Cycle- Journal- Ledger and Trial Balance. (Including problems)

UNIT-II: SUBSIDIARY BOOKS:

Meaning –Types - Purchases Book - Purchases Returns Book - Sales Book - - Sales Returns Book - Bills Receivable Book - Bills Payable Book – Cash Book - Single Column, Two Column, Three Column and Petty Cash Book - Journal Proper.(Including problems)

UNIT-III: BANK RECONCILIATION STATEMENT:

Meaning – Need - Reasons for differences between cash book and pass book balances – Favourable and over draft balances – Ascertainment of correct cash book balance (Amended Cash Book) - Preparation of Bank Reconciliation Statement. (Including problems)

UNIT-IV: RECTIFICATION OF ERRORS AND DEPRECIATION:

Capital and Revenue Expenditure – Capital and Revenue Receipts: Meaning and Differences - Differed Revenue Expenditure. Errors and their Rectification: Types of Errors - Suspense Account – Effect of Errors on Profit. (Including problems)

Depreciation (AS-6): Meaning – Causes – Difference between Depreciation, Amortization and Depletion - Objectives of providing for depreciation – Factors affecting depreciation – Accounting Treatment – Methods of depreciation: Straight Line Method - Diminishing Balance Method (Including problems)

UNIT-V: FINAL ACCOUNTS:

Final Accounts of Sole Trader: Meaning -Uses -Preparation of Manufacturing, Trading and Profit & Loss Account and Balance Sheet – Adjustments – Closing Entries.(Including problems)

SUGGESTED READINGS:

1. Accountancy-I: Haneef and Mukherjee, Tata McGraw Hill Company.
2. Principles & Practice of Accounting: R.L.Gupta&V.K.Gupta, Sultan Chand.
3. Accountancy-I: S.P. Jain & K.L Narang, Kalyani Publishers.
4. Accountancy–I: Tulasian, Tata McGraw Hill Co.
5. Introduction to Accountancy: T.S.Grewal, S.Chand and Co.
6. Advanced Accountancy-I: S.N.Maheshwari& V.L.Maheswari, Vikas.
7. Fundamentals of Financial Accounting: Deepak Sehgil, Tax Mann Publication.
8. Financial Accounting: Jawahar Lal, Himalaya Publishing House.

Paper : (BC 105) : BUSINESS ECONOMICS

Paper: BC105
THPW: 5 Hrs
Credits : 5

Max. Marks: 50
Exam Duration: 3Hrs

Objective: to acquire knowledge for application of economic principles and tools in business practices.

UNIT-I: INTRODUCTION:

Business Economics: Meaning - Nature – Characteristics - Importance and Role - Micro & Macro Economics - Scope - Objectives - Law of Diminishing marginal utility - Law of Equi-marginal utility.

UNIT- II: DEMAND ANALYSIS:

Meaning – Function - Factors influencing Demand -Types of Demand -Demand Curve - Law of Demand –Exceptions to the law of demand-Elasticity of Demand: Concept - Types of elasticity of demand-price, income and cross Elasticity of Demand –measurement of elasticity—arc and point methods—Importance of various Elasticity of Demand

UNIT-III: SUPPLY ANALYSIS:

Law of Supply - Factors influencing Supply - Market Equilibrium- Consumer Surplus - Theory of Consumer behavior - Utility and indifference curve analysis.

UNIT-IV: PRODUCTION ANALYSIS:

Concept of Production –production function-Total Production - Marginal Production - Average Production –returns to a factor- Law of Variable Proportions - Law of Returns to Scale - Isocost – Isoquants - Economies and Dis-economies of Scale.

UNIT-V: COST AND REVENUE ANALYSIS:

Theory of Cost - Concepts of Cost - Short run and Long run cost curves - Traditional and Modern Approaches -Revenue Curves—relationship between total marginal and average revenues- --Break Even Analysis—Meaning – Assumptions – Uses and Limitations.

SUGGESTED READINGS:

1. Business Economics: V. G. Mankar, Himalaya Publishing House
2. Managerial Economics: Vanith Agrawal, Pearson Education
3. Business Economics: H. L. Ahuja, S. Chand & Co. Ltd.
4. Business Economics : R. K. Lekhi, Kalyani Publishers
5. Business Economics: D. M. Mithani, Himalaya Publishing House
6. Business Economics: P. N. Chopra, Kalyani Publishers
7. Essential of Business Economics: D. N. Dwivedi, Vikas Publishers
8. Managerial Economics: Varshney and Maheswari, Sultan Chand
9. Business Economics: P. K. Mehta, Tax Mann Publication.

Paper : (BC 106) : BUSINESS ORGANISATION

Paper: BC106

THPW: 4 Hrs

Credits : 4

Max. Marks: 50

Exam Duration: 3Hrs

Objective: To acquaint the students with the basics of Commerce and Business concepts and functions and forms of Business Organization

UNIT-1: FUNDAMENTAL CONCEPTS:

Concepts of Business, Trade, Industry and Commerce - Classification - Relationship between Trade, Industry and Commerce - Nature of Business - Objectives of Business – Functions of Business- Social Responsibility of a business - Steps to Start an Enterprise

UNIT-II: BUSINESS ORGANIZATION:

Forms of Business Organization - Classification - Factors Influencing the Choice of Suitable Form of Organization - Sole Proprietorship – Meaning, Definition - Characteristics - Advantages and Disadvantages - Suitability of Sole Proprietorship - Partnership -Kinds of Partners - - Partnership Deed -- Meaning – Contents - Registration of Partnership Advantages and Disadvantages of Partnership - Suitability of Partnership - Limited liability partnership – Hindu Undivided Family - Meaning - Characteristics - Advantages and Disadvantages - Co-Operative Organization – Characteristics -Types of Co-Operative Societies - Limitations of Cooperatives.

UNIT-III: FORMATION OF JOINT STOCK COMPANY:

Joint Stock Company - Meaning - Definition - Characteristics - Advantages and Disadvantages - Kinds of Companies -Promotion - Stages of Promotion - Promoter - Characteristics - Kinds - Preparation of Important Documents - Memorandum of Association - Clauses - Articles of Association - Contents – Prospectus - Contents – Red herring Prospectus- Statement in lieu of Prospectus.

UNIT-IV: SOURCES OF FINANCE:

Industrial Finance - Long Term and Short Term Finance - Fixed and Working Capital Finance - Sources of Corporate Finance (A brief introduction to Shares and Debentures, Retained Earnings, Underwriting, Inter Company Investments and Venture Capital, Angel Investors, lease, hire purchase, franchising) .

UNIT V: STOCK EXCHANGE AND MUTUAL FUNDS:

Stock Exchange, Functions — Working of Stock Exchanges, Mutual Funds –Importance, Functions, Types — Role of SEBI in Regulating Stock Exchanges and Mutual Funds in India

SUGGESTED READINGS:

1. Business Organization & Management: Sharma Shashi K. Gupta, Kalyani Publishers
2. Business Organization: Sharma Shashi K. Gupta, Kalyani publishers.
3. Organization & Management: R. D. Agarwal, McGraw Hill.
4. Modern Business Organization: S.A. Sherlekar, V.S. Sherlekar, Himalaya Publishing House
5. Business Organization & Management: C.R. Basu, Tata McGraw Hill
6. Business Organization & Management: R. N. Gupta, S. Chand,
7. Organizational Behaviour Text & Cases: V.S.P. Rao, Himalaya Publishing House
8. Business Organization & Management: Uma Shekaram, Tata McGraw Hill
9. Business Organization & Management: Niranjana Reddy & Surya Prakash, Vaagdevi publishers.
10. Business Organisation and Management, Dr. Neeru Vasihth, Tax Mann Publications.

Paper : (BC 107) : INFORMATION TECHNOLOGY

Paper: BC107
THPW: 5 (3T & 2P)
Credits : 4

Max. Marks: 35T + 15P
Time: 3 Hrs.

***Objective:** to acquire basic knowledge in Information Technology and its applications in the areas of business.*

UNIT-I: INTRODUCTION:

Introduction to computers - Generations of computers – An overview of computer system - Types of computers - Input & Output Devices.

Hardware: Basic components of a computer system - Control unit – ALU - Input/output functions - Memory – RAM – ROM – EPROM - PROM and Other types of memory.

UNIT-II: OPERATING SYSTEM (OS):

Meaning - Definition & Functions - Types of OS - Booting process - DOS – Commands (internal & external) - Wild card characters – Virus & Hackers – Cryptography & cryptology

Windows: Using the Start Menu –Control Panel – Using multiple windows – Customizing the Desktop – Windows accessories (Preferably latest version of windows or Linux Ubuntu).

UNIT-III: WORD PROCESSING:

Application of word processing - Menus & Tool Bars - Word processor – Creating – Entering - Saving & printing the document - Editing & Formatting Text - Mail Merge and Macros (Preferably latest version of MS Word or Libre Office Writer).

UNIT-IV: SPREAD SHEET:

Application of work sheet/spread sheet - Menus & Tool bars - Creating a worksheet - Entering and editing of numbers - Cell referencing - Worksheet to analyze data with graphs & Charts.

Advanced tools: Functions – Formulae – Formatting numbers - Macros – Sorting- Filtering - Validation & Consolidation of Data (Preferably latest version of MS Excel or Libre Office Calc)

UNIT-V: POWER POINT PRESENTATION:

Application of Power Point Presentation – Menus & Tool bars – Creating presentations – Adding - Editing and deleting slides - Templates and manually creating presentation– Slide show – Saving - Opening and closing a Presentation –Types of slides - Slide Views - Formatting – Insertion of Objects and Charts in slides - Custom Animation and Transition (Preferably latest version of MS Power Point presentation - Libre Office Impress). Internet & Browsing: Services available on internet – WWW – ISP – Browsers. Multimedia: Application of multimedia – Images – Graphics-Audio and Video – IT security.

SUGGESTED READINGS:

1. Introduction to Computers: Peter Norton, McGraw Hill.
2. Fundamentals of Information Technology: Dr. NVN Chary, Kalyani Publishers.
3. Computer Fundamental: AnithaGoel, Pearson.
4. Information Technology Applications for Business: Dr. S. Sudalaimuthu, Himalaya
5. Introduction to Information Technology: ITL ESL, Pearson.
6. Introduction to Information Technology: V. Rajaraman, PHI.
7. Fundamental of Computers: Balaguruswamy, McGraw Hill.
8. PC Software under Windows: Puneet Kumar, Kalyani Publishers.
9. Information Technology and C language: Rajiv Khanna, New Age International.
10. Fundamentals of Information Technology: Alexis Leon, Vikas Publishing House.
11. Informational Technology: P. Mohan, Himalaya Publishing House.
12. Information Technology: R. Renuka, Vaagdevi Publishers.
13. OS-Linux Spoken Tutorials & Libre Office Spoken Tutorials by IIT Bombay.
14. Fundamentals of Information Technology: Rajiv Midha, Tax Mann Publications.

Paper : (BC 204) : FINANCIAL ACCOUNTING-II

Paper: BC204

THPW: 5Hrs

Credits : 5

Max. Marks: 50

Exam Duration: 3 Hrs

Objective: to acquire accounting knowledge of bills of exchange and other business accounting methods.

UNIT-I: BILLS OF EXCHANGE:

Bills of Exchange - Definition- Distinction between Promissory note and Bills of exchange- Accounting treatment of Trade bills: Books of Drawer and Acceptor- Honour and Dishonour of Bills- Renewal of bills- Retiring of bills under rebate- Accommodation bills.(Including problems)

UNIT-II: CONSIGNMENT ACCOUNTS:

Consignment – Meaning – Features– Proforma invoice - Account sales – Del credere commission- Accounting treatment in the books of the consignor and the consignee - Valuation of consignment stock –Treatment of Normal and abnormal Loss - Invoice of goods at a price higher than the cost price. (Including problems)

UNIT-III: JOINT VENTURE ACCOUNTS:

Joint Venture – Meaning –Features-Difference between Joint Venture and Consignment- Accounting Procedure-Methods of Keeping Records for Joint Venture Accounts-Method of Recording in co-ventures books-Separate Set of Books Method- Joint Bank Account- Memorandum Joint Venture Account (Including problems)

UNIT-IV: ACCOUNTS FROM INCOMPLETE RECORDS:

Single Entry System – Meaning -Features–Difference between Single Entry and Double Entry systems -Defects in Single Entry System - Books and accounts maintained - Ascertainment of Profit - Statement of Affairs and Conversion method (Including problems)

UNIT-V: ACCOUNTING FOR NON-PROFIT ORGANIZATIONS:

Non- Profit Organization – Meaning – Features – Receipts and Payments Account – Income and Expenditure Account – Balance Sheet(Including problems)

SUGGESTED READINGS:

1. Accountancy-I: Haneef and Mukherjee, Tata McGraw Hill Co.
- 2.Principles and Practice of Accounting: R.L. Gupta & V.K. Gupta,Sultan Chand & Sons.
3. Accountancy–I: Tulasian, Tata McGraw Hill Co.
4. Accountancy–I: S.P. Jain & K.L Narang, Kalyani.
5. Advanced Accountancy-I: S.N.Maheshwari&V.L.Maheshwari, Vikas.
6. Advanced Accountancy: M Shrinivas& K Sreelatha Reddy, Himalaya Publishers.
7. Financial Accounting: M.N Arora, Tax Mann Publications.

Paper : (BC 205) : MANAGERIAL ECONOMICS

Paper: BC205

THPW: 5 Hrs

Credits : 5

Max. Marks: 50

Exam Duration: 3Hrs

Objective: to impart conceptual and practical knowledge of managerial economics.

UNIT-I: NATURE AND SCOPE OF MANAGERIAL ECONOMICS:

Characteristics of managerial economics – Nature and scope of managerial economics - Importance of managerial economics- Basic economic tools in managerial economics- managerial economist role and responsibility

UNIT-II: DEMAND FORECASTING:

Demand estimations for major consumer durables and non-durable products – Demand forecasting techniques: Statistical and Non-Statistical techniques.

UNIT-III: MARKET ANALYSIS:

Definition of market – Market structure (Perfect competition, Imperfect competition) – Price determination -Firms equilibrium in perfect competition, monopoly, monopolistic, oligopoly and duopoly

UNIT-IV: MACRO-ECONOMICS FOR MANAGERS:

National income – Concepts – Methods - Measurement of national income – GDP and GVA— Business cycles- nature –Phases – Causes—Inflation - Causes and control – Deflation and stagflation.

UNIT-V: FISCAL AND MONETARY POLICY

Fiscal Policy- deficits-budgetary deficit-primary deficit-revenue deficit-fiscal deficit-Objectives of FRBM Act - Monetary Policy- Objectives – Repo Rate- Reverse Repo Rate- CRR- SLR- Finance Commission- role and objectives

SUGGESTED READINGS:

1. Managerial Economics: Craig H Peterson and Jain, Pearson education
2. Managerial Economics: Gupta, Tata McGraw Hill
3. Managerial Economics: Maheshwari and Gupta, Sultan Chand & Sons
4. Managerial Economics: Dr. P.C. Thomas, Kalyani Publishers
5. Managerial Economics: H.L. Ahuja, S. Chand and Company
6. Managerial Economics: Mithani, Himalaya Publications
7. Managerial Economics: R.L. Varshney and K.L. M Maheshwari, Sultan Chand
8. Managerial Economics: P. Venkataiah and Surya Prakash, Vaagdevi Publishers
9. Managerial Economics: P.L. Mehta, Tata McGraw Hill
10. Managerial Economics: R.N. Chopra, Kalyani Publishers
11. Managerial Economics: D.N. Dwivedi, Vikas Publishers
12. Managerial Economics: Thomas, Maurice, Sarkar, Tata McGraw Hill
13. Managerial Economics: YogeshMaheshwari, PHI Learning Pvt. Limited
14. Managerial Economics: P.K. Mehta, Tax Mann Pulications.

Paper : (BC 206) : PRINCIPLES OF MANAGEMENT

Paper: BC206

Max. Marks: 50

THPW: 4 Hrs

Exam Duration: 3Hrs

Credits : 4

Objective: To acquaint the students with the Principles, functions and practices of management

UNIT-I: INTRODUCTION

Management - Meaning - Characteristics - Administration Vs Management - Scope of Management - Importance of Management - Functions of Management - Levels of Management - Skills of Management -- Leader Vs. Manager - Scientific Management - Meaning - Definition - Objectives - Criticism – Fayol’s 14 Principles of Management .

UNIT-II: PLANNING

Meaning - Definition - Characteristics - Types of Plans - Advantages and Disadvantages – Approaches to Planning - Management by Objectives (MBO) - Steps in MBO - Benefits - Weaknesses

UNIT-III: ORGANIZING:

Organizing-Meaning, Definition – Organization Meaning, Definition - Process of Organizing - Principles of Organization - Types of Organization - Formal and Informal Organizations - Line, Staff Organizations - Line and Staff Conflicts - Functional Organization - - Span of Management - Meaning - Determining Span - Factors influencing the Span of Supervision

UNIT-IV: DELEGATION AND DECENTRALIZATION:

Authority – Meaning - Delegation - Definition - Characteristics: - Elements - Principles, Types of Delegation - Importance of Delegation: - Factors Influencing Degree of Delegation - Barriers - Guidelines for Making Delegation Effective - Centralization - Meaning – Decentralization- Meaning - Difference between Delegation and Decentralization.

UNIT-V: COORDINATION AND CONTROL:

Meaning - Definition - Principles of Coordination – Importance- Process of Coordination-techniques of Effective Coordination - Control - Meaning - Definition – relationship between planning and control- Steps in Control – Types (post, current and pre-control) - Requirements for effective control.

SUGGESTED READINGS:

1. Principles and Practice of Management: R. S. Gupta, B. D. Sharma, W.S. Bhalla, Kaylani
2. Management: Stephen P. Robbins, Person
3. Principles of Management: T Ramasamy, Himalaya Publication
4. Principles of Management Concept: Rajeshviwanathan, Himalaya Publication
5. Management Theory and Practices: P Subba Rao, Himalaya Publishing House
6. Essential of Management: Harold Kontz, McGraw Education
7. Principles of Management, Chandan JS, Vikas Publishers.
8. Fundamentals of Management, Dr. Pradeep Kumar, S. Chand
9. Principles of Management: Neeru Vasishth, Tax Mann Pulications.

Paper : (BC 207) : FOREIGN TRADE

Paper: BC207

THPW: 4 Hrs

Credits : 4

Max. Marks: 50

Exam Duration: 3Hrs

Objective: to gain knowledge of India's foreign trade procedures policies, and international institutions.

UNIT-I: INTRODUCTION:

Foreign Trade: Meaning and Definition - Types – Documents used-Commercial Invoice – Bills of Lading / Airway Bill – Marine Insurance Policy and Certificate – Bills of Exchange – Consumer Invoice – Customs Invoice – Certificate of Origin – Inspection Certificate – Packing List.

UNIT-II: BALANCE OF TRADE AND BALANCE OF PAYMENTS:

Introduction – Meaning - Components of BOT & BOP - Concept of Disequilibrium – Causes - Remedies for Correcting Balance of Payments in International Trade.

UNIT-III: INDIAN TRADE POLICY:

Importance and its Implementation – Current Export Policy and Import Policy.

UNIT-IV: FOREIGN TRADE AND TRADE BLOCS:

Growth - Significance of Foreign Trade – Merits - Demerits – Trade Blocs : Types – Preferential Trade Area, Free Trade Area, Customs Unions, Common Markets, Economic Unions, Monetary Unions, Customs and Monetary Unions, and Economic and Monetary Unions.

UNIT-V: INTERNATIONAL ECONOMIC INSTITUTIONS:

IMF: Objectives - Functions - World Bank: Objectives – Functions - Subsidiaries of World Bank – IMF Vs. IBRD; New Development Bank (NDB) – Objective Functions – Features – Membership – Shareholding, Criticism, Asian Infrastructure Investment Bank (AIIB) – Objective Functions – Features – Membership – Shareholding, Criticism; Trans-Pacific Partnership (TPP) - Objective Functions – Features – Membership – Shareholding, Criticism; UNCTAD: Aims – Features; WTO - Aims - Features – Agreements.

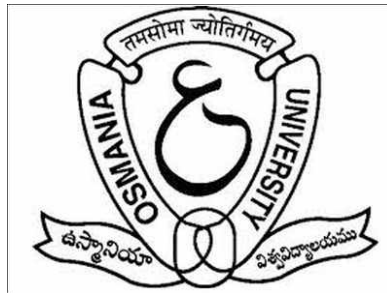
SUGGESTED READINGS:

1. International Marketing: Rathore & Jain, Himalaya Publishers.
2. International Marketing: Kushpat S. Jain & Rimi Mitra, Himalaya Publishers
3. International Economics: SSM Desai & Nirmal Bhalerao, Himalaya Publishers.
4. International Business Environment & Foreign Exchange Economies: Singh & S. Srivastava,
5. Foreign Trade and Foreign Exchange: O.P Agarwal & B.K. Chaudri, Himalaya Publishers
6. International Financial Markets & Foreign Exchange: Shashi.K.Gupta & Praneet Rangi, Kalyani
7. International Economics: Theory & Practice: Paul R. Krugman, Pearson Publishers.

B.Com (Computer Applications)

Syllabus (CBCS)

(w.e.f. 2019–2020)



**FACULTY OF COMMERCE
OSMANIA UNIVERSITY
HYDERABAD - 500 007 T.S.**

2019

B.COM (Computer Applications)**CBCS COURSE STRUCTURE**

w.e.f. 2019-'20

Sl.No. (1)	Code (2)	Course Title (3)	HPW (5)	Credits (6)	Exam Hrs (7)	Marks (8)
SEMESTER – I						
1.	ELS1	English (First Language)	4	4		
2.	SLS1	Second Language	4	4		
3.	AECC1	a) Environmental Science/ b) Basic Computer Skills	2	2	1 ½ hrs	40U+10I
4.	DSC101	Financial Accounting-I	5	5	3 hrs	80U+20I
5.	DSC102	Business Organization and Management	5	5	3 hrs	80U+20I
6.	DSC103	Fundamentals of Information Technology	3T+4P	5	1 ½ hrs	50T+35P + 15I
		Total	27	25		
SEMESTER – II						
7.	ELS2	English (First Language)	4	4		
8.	SLS2	Second Language	4	4		
9.	AECC2	a) Basic Computer Skills/ b) Environmental Science	2	2	1 ½ hrs	40U+10I
10.	DSC201	Financial Accounting-II	5	5	3 hrs	80U+20I
11.	DSC202	Business Laws	5	5	3 hrs	80U+20I
12.	DSC203	Programming with C & C++	3T+4P	5	1 ½ hrs	50T+35P + 15I
		Total	27	25		
SEMESTER – III						
13.	ELS3	English (First Language)	3	3		
14.	SLS3	Second Language	3	3		
15.	SEC1UGC Specified Course	Communication Skills Professional Skills	2	2	1 ½ hrs	40U+10I
16.	SEC2Dep t. Specified Course	a) Principles of Insurance/ b) Foundation of Digital Marketing & Web Design	2	2	1 ½ hrs	40U+10I
17.	DSC301	Advanced Accounting	5	5	3 hrs	80U+20I
18.	DSC302	Business Statistics-I	5	5	3 hrs	80U+20I
19.	DSC303	Relational Database Management System	3T+4P	5	1 ½ hrs	50T+35P + 15I
		Total	27	25		
SEMESTER – IV						
20.	ELS4	English (First Language)	3	3		
21.	SLS4	Second Language	3	3		
22.	SEC3 UGC Specified Course	Leadership & Management Skills Universal Human Values	2	2	1 ½ hrs	40U+10I
23.	SEC4Dep t. SpecifiedC	a) Practice of Life and General Insurance / b) Social Media Marketing Search Engine Optimization & Online Advertising	2	2	1 ½ hrs	40U+10I

Course					
24.	DSC401	Income Tax	5	5	3 hrs 80U+20I
25.	DSC402	Business Statistics-II	5	5	3 hrs 80U+20I
26.	DSC403	Web Technologies	3T+4P	5	1 ½ hrs 50T+35P+15I
		Total	27	25	
SEMESTER – V					
27.	ELS5	English (First Language)	3	3	
28.	SLS5	Second Language	3	3	
29.	GE	a) Business Economics / b) Advanced Aspects of Income Tax	4	4	3 hrs 80U+20I
30.	DSE501	a) Cost Accounting/ b) Financial Planning & Performance/ c) International Financial Reporting-I	5	5	3 hrs 80U+20I
31.	DSE502	a) Computerized Accounting/ b) Financial Decision Making-I/ c) International Tax & Regulation	3T+4P/ 5	5	3 hrs 50T+35P+15I/ 80U+20I
32.	DSE503	a) Management Information Systems/ b) Ecommerce/c) Mobile Applications	3T+4P	5	1 ½ hrs 50T+35P+15I
		Total	29/27	25	
SEMESTER - VI					
33.	ELS6	English (First Language)	3	3	
34.	SLS6	Second Language	3	3	
35.	PR	Research Methodology and Project Report	2T+4R	4	1 ½ hrs 40U+10I 35R+15VV
36.	DSE601	a) Cost Control and Management Accounting/ b) Financial control/ c) International Financial Reporting-II	5	5	3 hrs 80U+20I
37.	DSE602	a) Theory and Practice of GST/ b) Financial Decision Making-II / c) International Auditing	3T+4P/ 5	5	3 hrs 50T+35P+15I/ 80U+20I
38.	DSE603	a) Multimedia Systems/ b) Cyber Security/c) Data Analytics	3T+4P	5	1 ½ hrs 50T+35P+15I
		Total	31/29	25	
		GRAND TOTAL	168/164	150	

ELS: English Language Skill; SLS: Second Language Skill; AEC: Ability Enhancement Compulsory Course; SEC: Skill Enhancement Course; DSC: Discipline Specific Course; DSE: Discipline Specific Elective; GE: Generic Elective; T: Theory; P: Practical; I: Internal Exam U: University Exam; PR: Project Report; VV: Viva-Voce Examination.

Note: If a student should opt for "a" in SEC in III semester, the student has to opt for "a" only in IV semester and so is the case with "b" and "c". In the case of DSE also the rule applies.

SUMMARY OF CREDITS

Sl. No.	Course Category	No. of Courses	Credits Per Course	Credits
1	English Language	6	4/3	20
2	Second Language	6	4/3	20
3	AECC	2	2	4
4	SEC	4	2	8
5	GE	1	4	4
6	Project Report	1	4	4
7	DSC	12	5	60
8	DSE	6	5	30
	TOTAL	40		150
	Commerce	24		106
CREDITS UNDER NON-CGPA		NSS/NCC/Sports/Extra Curricular	Up to 6 (2 in each year)	
		Summer Internship	Up to 4 (2 in each after I & II years)	

Paper AEC1 (a): BASIC COMPUTER SKILLS**Hours Per Week:** 2**Credits:** 2**Exam Hours:** 1 ½**Marks:** 40U+10I**Objective:** to impart a basic level understanding of working of a computer and its usage.**UNIT I: UNDERSTANDING OF COMPUTER AND WORD PROCESSING:**

Knowing computer: What is Computer, Basic Applications of Computer; Components of Computer System, Central Processing Unit (CPU), VDU, Keyboard and Mouse, Other input/output Devices, Computer Memory, Concepts of Hardware and Software; Concept of Computing, Data and Information; Applications of IECT; Connecting keyboard, mouse, monitor and printer to CPU and checking power supply.

Operating Computer using GUI Based Operating System:What is an Operating System; Basics of Popular Operating Systems; The User Interface, Using Mouse; Using right Button of the Mouse and Moving Icons on the screen, Use of Common Icons, Status Bar, Using Menu and Menu-selection, Running an Application, Viewing of File, Folders and Directories, Creating and Renaming of files and folders, Opening and closing of different Windows; Using help; Creating Short cuts, Basics of O.S Setup; Common utilities.

Understanding Word Processing:Word Processing Basics; Opening and Closing of documents; Text creation and Manipulation; Formatting of text; Table handling; Spell check, language setting and thesaurus; Printing of word document.

UNIT II: SPREAD SHEET, PRESENTATION SOFTWARE & INTRODUCTION TO INTERNET, WWW AND WEB BROWSERS:

Using Spread Sheet:Basics of Spreadsheet; Manipulation of cells; Formulas and Functions; Editing of Spread Sheet, printing of Spread Sheet.

Basics of presentation software: Creating Presentation; Preparation and Presentation of Slides; Slide Show; Taking printouts of presentation / handouts.

Introduction to Internet, WWW and Web Browsers:

Introduction to Internet:Basic of Computer networks; LAN, WAN; Concept of Internet; Applications of Internet; connecting to internet; What is ISP; Knowing the Internet; Basics of internet connectivity related troubleshooting.

World Wide Web: Search Engines; Understanding URL; Domain name; IP Address; Using e-governance website.

Web Browsing: Software, Communications and collaboration: Basics of electronic mail; Getting an email account; Sending and receiving emails; Accessing sent emails; Using Emails; Document collaboration; Instant Messaging; Netiquettes.

SUGGESTED READINGS:

1. Introduction to Computers, Peter Norton, McGrawHill , 2012.
2. Using Information Technology, Brian K williams, StaceyC.Sawyer, Tata McGrawHill.

Web Resources:

1. <https://online.stanford.edu/courses/soe-yccscs101-sp-computer-science-101>
2. <https://www.extension.harvard.edu/open-learning-initiative/intensive-introduction-computer-science>.

Paper DSC 101: FINANCIAL ACCOUNTING - I

Objective: To acquire conceptual knowledge of basics of accounting and preparation of final accounts of sole trader.

UNIT-I: ACCOUNTING PROCESS:

Financial Accounting: Introduction – Definition – Evolution – Functions-Advantages and Limitations –Users of Accounting Information- Branches of Accounting – Accounting Principles: Concepts and Conventions- Accounting Standards– Meaning – Importance – List of Accounting Standards issued by ASB – Accounting System- Types of Accounts – Accounting Cycle- Journal- Ledger and Trial Balance. (Including problems)

UNIT-II: SUBSIDIARY BOOKS:

Meaning –Types - Purchases Book - Purchases Returns Book - Sales Book - - Sales Returns Book - Bills Receivable Book - Bills Payable Book – Cash Book - Single Column, Two Column, Three Column and Petty Cash Book - Journal Proper.(Including problems)

UNIT-III: BANK RECONCILIATION STATEMENT:

Meaning – Need - Reasons for differences between cash book and pass book balances – Favourable and over draft balances – Ascertainment of correct cash book balance (Amended Cash Book) - Preparation of Bank Reconciliation Statement. (Including problems)

UNIT-IV: RECTIFICATION OF ERRORS AND DEPRECIATION:

Capital and Revenue Expenditure – Capital and Revenue Receipts: Meaning and Differences - Differed Revenue Expenditure. Errors and their Rectification: Types of Errors - Suspense Account – Effect of Errors on Profit. (Including problems)

Depreciation (AS-6): Meaning – Causes – Difference between Depreciation, Amortization and Depletion - Objectives of providing for depreciation – Factors affecting depreciation – Accounting Treatment – Methods of depreciation: Straight Line Method - Diminishing Balance Method (Including problems)

UNIT-V: FINAL ACCOUNTS:

Final Accounts of Sole Trader: Meaning -Uses -Preparation of Manufacturing, Trading and Profit & Loss Account and Balance Sheet – Adjustments – Closing Entries.(Including problems)

SUGGESTED READINGS:

1. Accountancy-I: Haneef and Mukherjee, Tata McGraw Hill Company.
2. Principles & Practice of Accounting: R.L.Gupta&V.K.Gupta, Sultan Chand.
3. Accountancy-I: S.P. Jain & K.L Narang, Kalyani Publishers.
4. Accountancy–I: Tulasian, Tata McGraw Hill Co.
5. Introduction to Accountancy: T.S.Grewal, S.Chand and Co.
6. Advanced Accountancy-I: S.N.Maheshwari&V.L.Maheshwari, Vikas.
7. Fundamentals of Financial Accounting: Deepak Sehgil, Tax Mann Publication.
8. Financial Accounting: JawaharLal, Himalaya Publishing House.

Paper DSC 102: BUSINESS ORGANISATION AND MANAGEMENT

Objective: To acquaint the students with the basics of Commerce and Business concepts and functions, forms of Business Organization and functions of Management.

UNIT-I: INTRODUCTION AND FORMS OF BUSINESS ORGANISATIONS:

Concepts of Business, Trade, Industry and Commerce - Objectives and functions of Business –Social Responsibility of a business - Forms of Business Organization - Meaning, Characteristics, Advantages and Disadvantages of Sole Proprietorship – Meaning, Characteristics, Advantages and Disadvantages of Partnership - Kinds of Partners - Partnership Deed -Concept of Limited liability partnership – Meaning, Characteristics, Advantages and Disadvantages of Hindu Undivided Family – Meaning, Advantages and Disadvantages of Co-Operative Organization.

UNIT-II: JOINT STOCK COMPANY:

Joint Stock Company - Meaning - Definition - Characteristics - Advantages and Disadvantages - Kinds of Companies - Promotion - Stages of Promotion - Promoter - Characteristics - Kinds - Preparation of Important Documents - Memorandum of Association - Clauses - Articles of Association - Contents – Prospectus - Contents – Red herring Prospectus- Statement in lieu of Prospectus (As per Companies Act. 2013).

UNIT-III: INTRODUCTION TO FUNCTIONS OF MANAGEMENT:

Management - Meaning - Characteristics - Functions of Management - Levels of Management – Skills of Management- Scientific Management - Meaning - Definition - Objectives - Criticism – Fayol’s 14 Principles of Management .

UNIT-IV: PLANNING AND ORGANISING: Meaning - Definition - Characteristics - Types of Plans - Advantages and Disadvantages – Approaches to Planning - Management by Objectives (MBO) - Steps in MBO - Benefits –Weaknesses—Definition of Organizing-Organization-Process of Organizing - Principles of Organization - Formal and Informal Organizations - Line, Staff Organizations - Line and Staff Conflicts - Functional Organization - Span of Management - Meaning - Determining Span - Factors influencing the Span of Supervision.

UNIT-V: AUTHORITY, COORDINATION AND CONTROL:

Meaning of Authority, Power, responsibility and accountability - Delegation of Authority - Decentralization of Authority - Definition, importance, process, and principles of Coordination-techniques of Effective Coordination - Control - Meaning - Definition – Relationship between planning and control -Steps in Control – Types (post, current and pre-control) - Requirements for effective control.

SUGGESTED READINGS:

1. Business Organization & Management: Sharma Shashi K. Gupta, Kalyani Publishers
2. Business Organisation & Management: Patrick Anthony, Himalaya Publishing House
3. Business Organization & Management: Dr. Manish Gupta, PBP.
4. Organization & Management: R. D. Agarwal, McGraw Hill.
5. Modern Business Organization: S.A. Sherlekar, V.S. Sherlekar, Himalaya Publishing House
6. Business Organization & Management: C.R. Basu, Tata McGraw Hill
7. Business Organization & Management: M.C. Shukla S. Chand,
8. Business Organisation and Management: D.S. Vittal, S. Chand
9. Organizational Behaviour Text & Cases: V.S.P. Rao, Himalaya Publishing House
10. Business Organization & Management: Uma Shekaram, Tata McGraw Hill
11. Business Organization & Management: Niranjan Reddy & Surya Prakash, Vaagdevi publishers
12. Business Organisation and Management, Dr. Neeru Vasihth, Tax Mann Publications.
- 13.

Paper DSC 103: FUNDAMENTALS OF INFORMATION TECHNOLOGY**Hours Per Week: 6 (4T+2P)****Credits: 5****Exam Hours: 1 ½****Marks: 50U+35P+15I**

Objective: To understand the basic concepts and terminology of information technology and to identify issues related to information security.

UNIT-I: INTRODUCTION TO COMPUTERS:

Introduction, Definition, Characteristics of computer, Evolution of Computer, Block Diagram of a computer, Generations of Computer, Classification Of Computers, Applications of Computer, Capabilities and limitations of computer.

Role of I/O devices in a computer system. **Input Units:** Keyboard, Terminals and its types. Pointing Devices, Scanners and its types, Voice Recognition Systems, Vision Input System, Touch Screen, **Output Units:** Monitors and its types. Printers: Impact Printers and its types. Non-Impact Printers and its types, Plotters, types of plotters, Sound cards, Speakers.

UNIT -II: COMPUTER ARITHMETIC & STORAGE FUNDAMENTALS:

Binary, Binary Arithmetic, Number System: Positional & Non Positional, Binary, Octal, Decimal, Hexadecimal, Converting from one number system to another.

Primary Vs Secondary Storage, Data storage & retrieval methods. **Primary Storage:** RAM ROM, PROM, EPROM, EEPROM. **Secondary Storage:** Magnetic Tapes, Magnetic Disks. Cartridge tape, hard disks, Floppy disks Optical Disks, Compact Disks, Zip Drive, Flash Drives.

UNIT-III: SOFTWARE:

Software and its needs, Types of S/W. **System Software:** Operating System, Utility Programs Programming Language: Machine Language, Assembly Language, High Level Language their advantages & disadvantages. **Application S/W** and its types: Word Processing, Spread Sheets Presentation, Graphics, DBMS s/w.

UNIT-IV: OPERATING SYSTEM:

Functions, Measuring System Performance, Assemblers, Compilers and Interpreters. Batch Processing, Multiprogramming, Multi Tasking, Multiprocessing, Time Sharing, DOS, Windows, Unix/Linux.

UNIT-V: DATA COMMUNICATION:

Data, Communication, Basic Networking Devices, Communication Process, Data Transmission speed, Communication Types (modes), Data Transmission Media, Modem and its working, characteristics, Types of Networks, LAN Topologies, Computer Protocols, Concepts relating to networking.

SUGGESTED READINGS:

Computer Fundamentals: P.K. Sinha

Paper DSC 201: FINANCIAL ACCOUNTING-II

Objective: To acquire accounting knowledge of bills of exchange and other business accounting methods.

UNIT-I: BILLS OF EXCHANGE:

Bills of Exchange - Definition- Distinction between Promissory note and Bills of exchange- Accounting treatment of Trade bills: Books of Drawer and Acceptor- Honour and Dishonour of Bills- Renewal of bills- Retiring of bills under rebate- Accommodation bills.(Including problems)

UNIT-II: CONSIGNMENT ACCOUNTS:

Consignment – Meaning – Features– Proforma invoice - Account sales – Del credere commission-Accounting treatment in the books of the consignor and the consignee - Valuation of consignment stock –Treatment of Normal and abnormal Loss - Invoice of goods at a price higher than the cost price. (Including problems)

UNIT-III: JOINT VENTURE ACCOUNTS:

Joint Venture – Meaning –Features-Difference between Joint Venture and Consignment-Accounting Procedure-Methods of Keeping Records for Joint Venture Accounts-Method of Recording in co-ventures books-Separate Set of Books Method- Joint Bank Account-Memorandum Joint Venture Account (Including problems)

UNIT-IV: ACCOUNTS FROM INCOMPLETE RECORDS:

Single Entry System – Meaning -Features–Difference between Single Entry and Double Entry systems -Defects in Single Entry System - Books and accounts maintained - Ascertainment of Profit - Statement of Affairs and Conversion method (Including problems)

UNIT-V: ACCOUNTING FOR NON-PROFIT ORGANIZATIONS:

Non- Profit Organization – Meaning – Features – Receipts and Payments Account – Income and Expenditure Account – Balance Sheet(Including problems)

SUGGESTED READINGS:

1. Accountancy-I: Haneef and Mukherjee, Tata McGraw Hill Co.
2. Principles and Practice of Accounting: R.L. Gupta & V.K. Gupta, Sultan Chand & Sons.
3. Accountancy–I: Tulasian, Tata McGraw Hill Co.
4. Accountancy–I: S.P. Jain & K.L Narang, Kalyani.
5. Advanced Accountancy-I: S.N.Maheshwari&V.L.Maheswari, Vikas.
6. Advanced Accountancy: M Shrinivas& K Sreelatha Reddy, Himalaya Publishers.
7. Financial Accounting: M.N Arora, Tax Mann Publications.

Paper DSC 202: BUSINESS LAWS

Objective: To understand basics of contract act, sales of goods act, IPRs and legal provisions applicable for establishment, management and winding up of companies in India.

UNIT-I: INDIAN CONTRACT ACT:

Agreement and contract - Essentials of a valid contract - Types of contracts - Offer and Acceptance - Essentials of valid offer and acceptance - Communication and revocation of offer and acceptance – Consideration definition - Essentials of valid consideration -Modes of Discharge of a contract - Performance of Contracts - Breach of Contract - Remedies for Breach - Significance of Information Technology Act.

UNIT-II: SALE OF GOODS ACT AND CONSUMER PROTECTION ACT:

Contract of Sale: Essentials of Valid Sale - Sale and Agreement to Sell – Definition and Types of Goods - Conditions and Warranties - Caveat Emptor - Exceptions - Unpaid Seller - Rights of Unpaid Seller. Consumer Protection Act 1986: Definitions of Consumer – Person – Goods - Service -Consumer Dispute - Consumer Protection Councils - Consumer Dispute Redressal Agencies - Appeals.

UNIT-III: INTELLECTUAL PROPERTY RIGHTS:

Trade Marks: Definition - Registration of Trade Marks - Patents: Definition - Kinds of Patents - Transfer of the Patent Rights - Rights of the Patentee - Copy Rights: Definition -- Rights of the Copyright Owner - Terms of Copy Right - Copy Rights Infringement - Other Intellectual Property Rights: Trade Secrets - Geographical Indications.

UNIT-IV: MANAGEMENT OF COMPANIES AND MEETINGS:

Director: Qualification - Disqualification - Position - Appointment - Removal – Duties and Liabilities – Loans – Remuneration – Managing Director – Corporate Social Responsibility – Corporate Governance. Meeting: Meaning – Requisites - Notice – Proxy - Agenda – Quorum – Resolutions – Minutes – Kinds – Shareholder Meetings - Statutory Meeting - Annual General Body Meeting – Extraordinary General Body Meeting – Board Meetings.

UNIT-V: WINDING UP:

Meaning – Modes of Winding Up –Winding Up by tribunal – Voluntary Winding Up – Compulsory Winding Up – Consequences of Winding Up – Removal of name of the company from Registrar of Companies – Insolvency and Bankruptcy code - 2016.

SUGGESTED READINGS:

- 1) Company Law: ND Kapoor, Sultan Chand and Co.
- 2) Company Law: Rajashree. – HPH
- 3) Business Law - Kavitha Krishna, Himalaya Publishing House
- 4) Business Laws – Dr. B. K. Hussain, Nagalakshmi - PBP
- 5) Company Law: Prof. G. Krishna Murthy, G. Kavitha, PBP
- 6) Company Law and Practice: GK Kapoor & Sanjay Dhamija, Taxmann Publication.
- 7) Company Law: Revised as per Companies Act- 2013: KC Garg et al, Kalyani Publication.
- 8) Corporate Law: PPS Gogna, S Chand.
- 9) Business Law: D.S. Vital, S Chand
- 10) Company Law: Bagrial AK, Vikas Publishing House.

Paper DSC 203:PROGRAMMING WITH C & C++

Hours Per Week: 7 (3T+4P)

Credits: 5

Exam Hours: 1 ½

Marks: 50U+35P+15I

Objective: To understand the fundamental concepts of programming in C and Object Oriented Programming using C++.

UNIT-I: INTRODUCTION TO C LANGUAGE, VARIABLES, DATA TYPES AND OPERATORS

Introduction: Types of Languages- History of C language – Basic Structure –Programming Rules – Flow charts-algorithms–Commonly used library functions - Executing the C Program - Pre-processors in “C”- Keywords & Identifiers – Constants – **Variables:** Rules for defining variables - Scope and Life of a Variable– **Data types** - Type Conversion - Formatted Input and Output operations. **Operators:** Introduction – Arithmetic – Relational – Logical – Assignment - Conditional - Special - Bitwise - Increment / Decrement operator.

UNIT-II: WORKING WITH CONTROL STATEMENTS, LOOPS

Conditional statements: Introduction - If statements - If-else statements – nested if-else – break statement-continue statement-go to statement-Switch statements. **Looping statements:** Introduction- While statements – Do-while statements - For Statements-nested loop statements.

UNIT-III: FUNCTIONS, ARRAYS AND STRINGS

Functions: Definition and declaration of functions- Function proto type-return statement- types of functions-formatted and unformatted functions. **Built in functions:** Mathematical functions - String functions - Character functions - Date functions.**User defined functions:** Introduction - Need for user defined functions - Elements of functions – Function call – call by value and call by reference - Recursive functions.**Arrays:** Introduction - Defining an array - Initializing an array –characteristics of an array- One dimensional array – Two dimensional array – Multi dimensional array. **Strings:** Introduction - Declaring and initializing string - Reading and Writing strings - String standard functions.

UNIT-IV: POINTERS, STRUCTURES AND UNIONS

Pointers: Features of pointers- Declaration of Pointers-arithmetic operations with pointers

Structures: Features of Structures - Declaring and initialization of Structures –Structure within Structure- Array of Structures- Enumerated data type-**Unions**-Definition and advantages of Unions comparison between Structure & Unions.

UNIT-V: OBJECT ORIENTED CONCEPTS USING C++

Object Oriented Programming: Introduction to Object Oriented Programming - Structure of C++ – Simple program of C++– Storage Classes-Similarities and Differences between C & C++ - Data Members-Member Functions - Object Oriented Concepts-Class-Object-Inheritance-Polymorphism-Encapsulation-Abstraction.

SUGGESTED READINGS:

1. Programming with C& C++ :IndrakantiSekhar, V.V.R.Raman&V.N.Battu, Himalaya Publishers.
2. Programming in ANSI C: Balagurusamy, McGraw Hill.
3. Mastering C: K.R. Venugopal, McGraw Hill.
4. C: The Complete Reference: H.Schildt, McGraw Hill.
5. Let Us C: Y.Kanetkar, BPB.
6. Objected Oriented Programming with C++: E. Balagurusamy, McGraw Hill.
7. Mastering C++: KR.Venugopal&R.Buyya, McGraw Hill.
8. Schaum’s Outlines: Programming with C++: by John R Hubbard.
9. Let Us C++: Y.Kanetkar, BPB.

Paper SEC - 2 (a): PRINCIPLES OF INSURANCE

Objectives: To make Students to learn Principles of Insurance.

UNIT I: RISK MANAGEMENT AND INSURANCE & INSURANCE TERMINOLOGY:

Risk Management -Types of Risks - Actual and Consequential Losses - Management of Risks - Risk of Dying Early - Risk of Living too Long - Different Classes of Insurance - Importance of Insurance - Management of Risk by Individuals and Insurers - Fixing of Premiums – Reinsurance - Role of Insurance in Economic Development and Social Security - Constituents of Insurance Market - Operations of Insurance Companies - Operations of Intermediaries - Specialist Insurance Companies - Role of Regulators - Common and specific terms in Life and Non-Life Insurance - Understanding Insurance Customers - Customer Behavior at Purchase Point - Customer Behavior when Claim Occurs - Importance of Ethical Behavior

UNIT II: INSURANCE CONTRACT AND INSURANCE PRODUCTS:

Insurance Contract Terms - Principles of Insurance: Principle of Insurable Interest, Principle of Indemnity, Principle of Subrogation, Principle of Contribution, Relevant Information Disclosure, Principle of utmost Good Faith, Relevance of Proximate Cause - **Life Insurance Products:** Term Plans - Pure Endowment Plans - Combinations of Plans - Traditional Products - Linked Policies - Features of Annuities and Group Policies - **General Insurance Products:** Risks faced by Owner of Assets - Exposure to Perils - Features of Products Covering Fire and Allied Perils - Products covering Marine and Transit Risks - Products covering Financial Losses due to Accidents - Products covering Financial Losses due to Hospitalization - Products Covering Miscellaneous Risks

SUGGESTED READINGS:

1. Principles of Risk Management and Insurance: George E Rejda (13th Edition) 2. Risk Management and Insurance: Trieschman ,Gustavson and Hoyt . South Western College Publishing, 3. Principles of Insurance: A Publication of the Insurance Institute of India 4. Principles of Insurance: Telugu Academy, Hyderabad 5. Guide to Risk Management: SagarSanyal6. Principles of Insurance: Dr V Padmavathi,Dr V Jayalakshmi - PBP 7. Insurance and Risk Management : P.K. Gupta 8. Insurance Theory and Practice :Tripathi PHI 9. Principles of Insurance Management: Neelam C Gulati, Excel Books 10. Life and Health Insurance: Black, JR KENNETH & Harold Skipper, Pearson, Cincinnati,Ohio Suggested Websites: 1) www.irda.gov.in 2) www.policyholder.gov.in 3) www.irdaindia.org.in

Paper SEC - 2 (b): FOUNDATION OF DIGITAL MARKETING & WEB DESIGN

Objective:

- i. To make students to understand Foundation of digital marketing.
- ii. To make students to understand the Fundamentals of Web design and Analytics.

UNIT I: DIGITAL MARKETING FOUNDATIONS& CONTENT MARKETING:

Digital Marketing Strategy - Exploring Digital Marketing - Starting with the Website - Foundations of Analytics - Search Engine Optimization - Search and Display Marketing - Social Media Marketing - Video Marketing.

Email marketing tools and setup - Email marketing segmentation, personalization and mobile friendly design

Content marketing foundations - Blogs for content marketing - Content marketing for staying relevant - Newsletters for content marketing - Mobile marketing foundations

UNIT II: WEB DESIGN AND GOOGLE ANALYTICS:

Exploring and learning web design – Understanding Conversion rate optimization (CRO) – Setting CRO – Understanding target audience – Optimization champion

Getting started with Google Analytics – Core concepts – Additional interface features – Using reports – Audience reports – Acquisition reports – Social reports – Behavior reports – Track events – Conversion reports – Additional features

SUGGESTED READINGS:

1. The Art of Digital Marketing: The Definitive Guide to Creating Strategic, Targeted, and Measurable Online Campaigns by Ian Dodson, Wiley
2. Fundamentals of Digital Marketing by Puneet Singh Bhatia, Pearson
3. Digital Marketing by Vandana Ahuja, Oxford
4. Digital Marketing by Seema Gupta, McGraw Hill
5. Digital Marketing For Dummies by Ryan Deiss and Russ Henneberry
6. Don't Make Me Think Revisited: A Common Sense Approach to Web Usability By Steve Krug
7. Web Analytics 2.0 – Avinash Kaushik
8. Successful Analytics by Brian Clifton
9. Math and Stats for Web Analytics and Conversion Optimization by Himanshu Sharma

Paper DSC 301: ADVANCED ACCOUNTING

Objective: To acquire accounting knowledge of partnership firms and joint stock companies

UNIT-I: PARTNERSHIP ACCOUNTS-I:

Meaning – Partnership Deed - Capital Accounts (Fixed and Fluctuating) – Admission of a Partner – Retirement and Death of a Partner (Excluding Joint Life Policy)(Including problems)

UNIT-II: PARTNERSHIP ACCOUNTS–II:

Dissolution of Partnership – Insolvency of a Partner (excluding Insolvency of all partners) – Sale to a Company (Including problems)

UNIT-III: ISSUE OF SHARES, DEBENTURES, UNDERWRITING AND BONUS SHARES:

Issue of Shares at par, premium and discount – Pro-rata allotment – Forfeiture and Re-issue of Shares – Issue of Debentures with Conditions of Redemption – Underwriting: Meaning – Conditions- Bonus Shares: Meaning – SEBI Guidelines for Issue of Bonus Shares – Accounting of Bonus Shares(Including problems)

UNIT-IV: COMPANY FINAL ACCOUNTS AND PROFIT PRIOR TO INCORPORATION:

Companies Act 2013: Structure – General Instructions for preparation of Balance Sheet and Statement of Profit and Loss – Part-I: Form of Balance Sheet – Part-II: Statement of Profit and Loss – Preparation of Final Accounts of Companies - Profits Prior to Incorporation- Accounting treatment. (Including problems)

UNIT-V: VALUATION OF GOODWILL AND SHARES:

Valuation of Goodwill: Need – Methods: Average Profits, Super Profits and Capitalization Methods -Valuation of Shares: Need –Net Assets, Yield and Fair Value Methods. (Including problems)

SUGGESTED READINGS:

1. Principles and Practice of Accounting: R.L. Gupta & V.K. Gupta, Sultan Chand & Sons.
2. Advanced Accountancy: Shukla and Grewal, S.Chand & Co.
3. Advanced Accountancy: R.L.Gupta & Radhaswamy, Sultan Chand & Sons.
4. Advanced Accountancy (Vol-II): S.N.Maheshwari & V.L.Maheshwari, Vikas.
5. Advanced Accountancy: Dr. G. Yogeshwaran, Julia Allen - PBP
6. Accountancy–III: Tulasian, Tata McGraw Hill Co.
7. Advanced Accountancy: Arulanandam; Himalaya.
8. Accountancy–III: S.P. Jain & K.L Narang, Kalyani Publishers.
9. Guidance Note on the Revised Schedule VI to the Companies Act, 1956, The Institute of Chartered Accounts of India.
10. Advanced Accounting (IPCC): D. G. Sharma, Tax Mann Publications.

Paper DSC 302: BUSINESS STATISTICS -I

Objective: to inculcate analytical and computational ability among the students.

UNIT-I: INTRODUCTION:

Origin and Development of Statistics – Definition - Importance and Scope - Limitations of Statistics - Distrust of Statistics.

Statistical Investigation: Planning of statistical investigation - Census and Sampling methods - Collection of primary and secondary data - Statistical errors and approximation - classification and Tabulation of data - Frequency distribution.

UNIT – II: DIAGRAMMATIC AND GRAPHIC PRESENTATION:

Diagrammatic presentation: One Dimensional and Two Dimensional Diagrams – Pictograms – Cartograms Graphic presentation: Technique of Construction of Graphs - Graphs of Frequency Distribution - Graphs of Time Series or Histograms.

UNIT-III: MEASURES OF CENTRAL TENDENCY:

Introduction –Significance -Arithmetic Mean- Geometric Mean - Harmonic Mean - Mode – Median - Quartiles and Percentiles - Simple and Weighted Averages - Uses and Limitations of different Averages.

UNIT-IV: MEASURES OF DISPERSION, SKEWNESS AND KURTOSIS:

Measures of Dispersion: Significance - Characteristics - Absolute and Relative Measures - Range - Quartile Deviation - Mean Deviation- Standard Deviation - Coefficient of Variation.

Measures of Skewness - Karl Pearson's Coefficient of Skewness - Bowley's Coefficient of Skewness - Kelly's Measure of Skewness – Kurtosis: Mesokurtosis, Platykurtosis and Leptokurtosis.

UNIT-V: CORRELATION:

Meaning -Types - Correlation and Causation – Methods: Scatter Diagram - Karl Person's Coefficient of Correlation - Probable Error and Interpretation of Coefficient of Correlation - Rank Correlation - Concurrent Deviation Method.

SUGGESTED READINGS:

1. Statistics for Management: Levin & Rubin, Pearson
2. Fundamentals of Statistics: Gupta S.C, Himalaya
3. Statistics: E. Narayanan Nadar, PHI Learning
4. Business Statistics –I: Dr. Obul Reddy, Dr. D. Shridevi - PBP
5. Business Statistics: Dr. J. K. Thukral, Taxmann Publications
6. Business Statistics: K. Alagar, Tata McGraw Hill
7. Fundamentals of Statistical: S. P Gupta, Sultan Chand
8. Business Statistics: J. K. Sharma, Vikas Publishers
9. Business Statistics: S. L Aggarwal, S. L. Bhardwaj, Kalyani Publications
10. Statistics-Problems and Solutions: Kapoor V.K, S. Chand
11. Statistics - Theory, Methods and Applications: Sancheti D.C. &Kapoor V.K
12. Business Statistics: S. K. Chakravarty, New Age International Publishers
13. Statistics: Andasn,Sweenly,Williams,Cingage.

Paper DSC 303: RELATIONAL DATABASE MANAGEMENT SYSTEM

Hours Per Week: 7 (3T+4P)

Credits: 5

Exam Hours: 1 ½

Marks: 50U+35P+15I

Objective: to acquire basic conceptual background necessary to design and develop simple database system, Relational database mode, ER model and distributed databases, and to write good queries using a standard query language called SQL.

UNIT-I: BASIC CONCEPTS: Database Management System - File based system - Advantages of DBMS over file based system - Database Approach - Logical DBMS Architecture - Three level architecture of DBMS or logical DBMS architecture - Need for three level architecture - Physical DBMS Architecture - Database Administrator (DBA) Functions & Role - Data files indices and Data Dictionary - Types of Database. Relational and ER Models: Data Models - Relational Model – Domains - Tuple and Relation - Super keys - Candidate keys - Primary keys and foreign key for the Relations - Relational Constraints - Domain Constraint - Key Constraint - Integrity Constraint - Update Operations and Dealing with Constraint Violations - Relational Operations - Entity Relationship (ER) Model – Entities – Attributes – Relationships - More about Entities and Relationships - Defining Relationship for College Database - E-R Diagram - Conversion of E-R Diagram to Relational Database.

UNIT-II: DATABASE INTEGRITY AND NORMALISATION: Relational Database Integrity - The Keys - Referential Integrity - Entity Integrity - Redundancy and Associated Problems – Single Valued Dependencies – Normalisation - Rules of Data Normalisation - The First Normal Form - The Second Normal Form - The Third Normal Form - Boyce Codd Normal Form - Attribute Preservation - Lossless-join Decomposition - Dependency Preservation. File Organisation : Physical Database Design Issues - Storage of Database on Hard Disks - File Organisation and Its Types - Heap files (Unordered files) - Sequential File Organisation - Indexed (Indexed Sequential) File Organisation - Hashed File Organisation - Types of Indexes - Index and Tree Structure - Multi-key File Organisation - Need for Multiple Access Paths - Multi-list File Organisation - Inverted File Organisation.

UNIT-III: STRUCTURES QUERY LANGUAGE (SQL): Meaning – SQL commands - Data Definition Language - Data Manipulation Language - Data Control Language - Transaction Control Language - Queries using Order by – Where - Group by - Nested Queries. Joins – Views – Sequences - Indexes and Synonyms - Table Handling.

UNIT-IV: TRANSACTIONS AND CONCURRENCY MANAGEMENT: Transactions - Concurrent Transactions - Locking Protocol - Serialisable Schedules - Locks Two Phase Locking (2PL) - Deadlock and its Prevention - Optimistic Concurrency Control. Database Recovery and Security: Database Recovery meaning - Kinds of failures - Failure controlling methods - Database errors - Backup & Recovery Techniques - Security & Integrity - Database Security - Authorization.

UNIT-V: DISTRIBUTED AND CLIENT SERVER DATABASES: Need for Distributed Database Systems - Structure of Distributed Database - Advantages and Disadvantages of DDBMS - Advantages of Data Distribution - Disadvantages of Data Distribution - Data Replication - Data Fragmentation. Client Server Databases: Emergence of Client Server Architecture - Need for Client Server Computing - Structure of Client Server Systems & its advantages.

ADVANCED TOPICS: Overview: Parallel Database - Multimedia Database - Mobile Database - Web Database - Multidimensional Database. Data Warehouse - OLTP Vs OLAP - NoSQL Database.

LAB: SQL QUERIES BASED ON VARIOUS COMMANDS.

SUGGESTED READINGS: 1) Database Systems: R. Elmasri & S.B. Navathe, Pearson.; 2) Introduction to Database Management System: ISRD Group, McGraw Hill.; 3) Database Management System: R. Ramakrishnan & J. Gehrke, McGraw Hill.; 4) Modern Database Management: J.A. Hoffer, V. Ramesh & H. Topi, Pearson.; 5) Database System Concepts: Silberschatz, Korth & Sudarshan, McGraw Hill. 6) Simplified Approach to DBMS: Parteek Bhaia Kalyani Publishers. 7) Database Management System: Nirupma Pathak, Himalaya. 8) Database Management Systems: Pannerselvam, PHI. 9) Relational Database Management System: Srivastava & Srivastava, New Age 10) PHP MySQL Spoken Tutorials by IIT Bombay. 11) Oracle Database: A Beginner's Guide: I. Abramson, McGraw Hill.

Paper SEC - 4 (a): PRACTICE OF LIFE AND GENERAL INSURANCE
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Objective: To make students to learn Practice of Life and General Insurance

UNIT-I: PREMIUM CALCULATION AND POLICY DOCUMENTS:

Meaning of Premium, its calculation- Rebates – Mode of Rebates – Large sum assured Rebates – Premium Loading – Rider Premiums – Computation of Benefits – Surrender value – Paid up value -General Insurance Policy Documents and Forms - Rating and Premiums - concept of soft and hard markets

UNIT-II: SETTLEMENT OF CLAIMS RISK & UNDERWRITINGS AND FINANCIAL PLANNING & TAX SAVING:

Life Insurance: Settlement of claims: Intimation Procedure, documents and settlement procedures - Underwriting: The need for underwriting – Guiding principles of Underwriting – Factors affecting Insurability – Methods of Life Classification – Laws affecting Underwriting - Financial Planning and taxation: Savings – Insurance vis-à-vis- Investment in the Units Mutual Funds, Capital Markets – Life Insurance in Individual Financial Planning – Implications in IT treatment.

General Insurance: Concept of Underwriting—Underwriting Process—Risk sharing and its methods—risk management and steps involved in it—Concept of Claim—understanding the process of claim management—claims fraud and fraud prevention—Insurance reserves and accounting—different types of reserves of insurance companies—reserving process followed by insurance companies—Insurance accounting.

SUGGESTED READINGS: 1. Practice of Life Insurance&General Insurance: Insurance Institute of India, Mumbai. 2. Insurance and Risk Management: P.K.Gupta, Himalaya Publishing House, Mumbai. 3. Fundamentals of Life Insurance Theories and Applications: Kanika Mishra, Prentice Hall 4. Principles of Life Insurance & Practice of General Insurance– Dr. V. Padmavathi, Dr. V. Jayalakshmi - PBP 5. Managing Life Insurance: Kutty, S.K., Prentice Hall of India: New Delhi 6. Life and Health Insurance: Black, Jr. Kenneth and Harold Skipper Jr., Prentice Hall, Inc., England. 7. Life Insurance: Principles and Practice: K.C. Mishra and C.S. Kumar, Cengage Learning, New Delhi. 8. Life Insurance in India: Sadhak, Respose Books, New Delhi. 9. Practice of General Insurance – D.S. Vittal-HPH, 10.Principles & Practice of Insurance- Dr. P. Periasamy – HPH. 11. Risk Management: A Publication of the Insurance Institute of India. 12. Insurance Theory and Practice: Tripathi PHI 13. Risk Management and Insurance: Trieschman, Gustavson and Hoyt 9. South Western College Publishing Cincinnati, Ohio.

Paper SEC - 4 (b): SOCIAL MEDIA MARKETING, SEARCH ENGINE OPTIMIZATION & ONLINE ADVERTISING

Objective:

- I. To make students to understand the Social Media marketing.
- II. To make students to understand the Search engine optimization and online advertising.

UNIT I: SOCIAL MEDIA MARKETING:

Building an online community – Understanding Social Media Marketing – Marketing and building presence on Facebook – Marketing and building presence on Twitter – Employer branding on LinkedIn

Facebook advertising overview – How Facebook ads work – How to create Facebook ads – Additional advertising options and best practices for Facebook advertising – Marketing and monetizing on YouTube – Customize your YouTube Channel – Video optimization on YouTube – YouTube Analytics

UNIT II: SEO FOUNDATION & STRATEGIES:

Understanding SEO — Content optimization – Long-term content planning

Keyword strategy – Linkbuilding strategies – Measuring SEO effectiveness – SEO for Ecommerce – Local search – Mobile SEO UNIT

Pay-Per-Click Advertising – Getting started with Google Adwords – Advertising tracking – Key Google Adwords strategies – Remarketing with Google – Budget and ROI tips – B2B Remarketing Campaigns

SUGGESTED READINGS:

1. The Art of Digital Marketing: The Definitive Guide to Creating Strategic, Targeted, and Measurable Online Campaigns by Ian Dodson, Wiley
2. Fundamentals of Digital Marketing by Puneet Singh Bhatia, Pearson
3. Digital Marketing by Vandana Ahuja, Oxford
4. Tuten: Social Media Marketing, Sage
5. Digital Marketing by Seema Gupta, McGraw Hill
6. Social Media Marketing All-In-One for Dummies By Jan Zimmerman and Deborah Ng
7. Facebook Growth Hacking: How to Correctly Set Up and Maintain Your Facebook Presence and Gain Massive Amounts of Fans (Social Media Marketing) by Jeff Abston
8. Youtube Influencer: How To Become a Youtube Influencer, Why Influencer Marketing Matters, and How To Monetize Your Channel by Jeff Abston
9. SEO Fitness Workbook: 2018 Edition: The Seven Steps to Search Engine Optimization Success on Google By Jason McDonald
10. The Art of SEO: Mastering Search Engine Optimization By Eric Enge, Stephan Spencer and Jessie Stricchiola
11. Google Adwords for Beginners: A Do-It-Yourself Guide to PPC Advertising By Cory Rabazinsky, 2015

Paper DSC 401: INCOME TAX

Objective: To acquire conceptual and legal knowledge about Income Tax provisions relating to computation of Income from different heads with reference to an Individual Assessee.

UNIT-I: INTRODUCTION:

Direct and Indirect Taxes – Canons of Taxation - Features and History of Income Tax in India – Definitions and Basic Concepts of Income Tax: Assessee – Deemed Assessee – Assessee-in-default – Assessment Year – Previous Year - Person – Agricultural Income – Heads of Income – Gross Total Income – Total Income — Incomes Exempt from Tax. Residential Status and Scope of Total Income: Meaning of Residential Status – Conditions applicable to an Individual Assessee – Incidence of Tax – Types of Incomes. (Theory only)

UNIT-II: INCOME FROM SALARIES:

Definition of ‘Salary’ – Characteristics of Salary – Computation of Salary Income: Salary u/s 17(1) – Annual Accretion – Allowances – Perquisites – Profits in lieu of Salary – Deductions u/s. 16 – Problems on computation of Income from Salary.

UNIT-III: INCOME FROM HOUSE PROPERTY:

Definition of ‘House Property’ – Exempted House Property incomes– Annual Value – Determination of Annual Value for Let-out House and Self-occupied House – Deductions u/s.24 – Problems on computation of Income from House Property.

UNIT-IV: PROFITS AND GAINS OF BUSINESS OR PROFESSION:

Definition of ‘Business and Profession’ – Procedure for computation of Income from Business – Revenue and Capital nature of Incomes and Expenses – Allowable Expenses u/s. 30 to 37 – Expenses expressly disallowed – Deemed Profits – Miscellaneous provisions u/s 44. Depreciation: Meaning – Conditions for charge of depreciation – Problems on computation of Income from Business. Income from Profession: Rules– procedure – problems on computation of Income from Profession.

UNIT-V: CAPITAL GAINS AND INCOME FROM OTHER SOURCES:

Introduction - Meaning – Scope of charge – Basis of charge – Short term and Long term Capital Assets – Transfer of Capital Asset – Deemed Transfer –Determination of Cost of Acquisition – Procedure for computation of Long-term and Short-term Capital Gains/Losses – Exemptions in respect of certain Capital Gains u/s. 54 – Problems on computation of capital gains - General Incomes u/s. 56(1) – Specific Incomes u/s. 56(2) – Dividends u/s. 2(22) – Winnings from lotteries Puzzles, crown world puzzles, Races – Interest on Securities – Gifts received by an Individual – Casual Income – Family Pension – Rent received on let out of Furniture- Plant and Machinery with/without Building – Deductions u/s. 57. (Theory only)

SUGGESTED READINGS:

1. Income Tax Law and Practice: V.P. Gaur & D.B Narang, Kalyani Publishers.
2. Taxation: Dr. M.N. Ravi, PBP.
3. Direct Taxes Law & Practice: Dr. Vinod K. Singhania & Dr. Kapil Singhania, Taxmann
4. Income Tax: B.B. Lal, Pearson Education.
5. Taxation: R.G. Saha, Himalaya Publishing House Pvt. Ltd.
6. Income Tax: Johar, McGrawHill Education.
7. Taxation Law and Practice: Balachandran & Thothadri, PHI Learning.
8. Direct Tax Law and Practice : Ahuja Girish
9. Income Tax: Dr. P.V. Ramana Rao & Dr. A. Sudhakar, National Publishing Co.

Paper DSC 402: BUSINESS STATISTICS - II

Objective: To inculcate analytical and computational ability among the students.

UNIT-I: REGRESSION:

Introduction - Linear and Non Linear Regression – Correlation Vs. Regression - Lines of Regression - Derivation of Line of Regression of Y on X - Line of Regression of X on Y - Using Regression Lines for Prediction.

UNIT-II: INDEX NUMBERS:

Introduction - Uses - Types - Problems in the Construction of Index Numbers - Methods of Constructing Index Numbers - Simple and Weighted Index Number (Laspeyre - Paasche, Marshall – Edgeworth) - Tests of Consistency of Index Number: Unit Test - Time Reversal Test - Factor Reversal Test - Circular Test - Base Shifting - Splicing and Deflating of Index Numbers.

UNIT-III: TIME SERIES:

Introduction - Components – Methods-Semi Averages - Moving Averages – Least Square Method - Deseasonalisation of Data – Uses and Limitations of Time Series.

UNIT-IV: PROBABILITY:

Probability – Meaning - Experiment – Event - Mutually Exclusive Events - Collectively Exhaustive Events - Independent Events - Simple and Compound Events - Basics of Set Theory – Permutation – Combination - Approaches to Probability: Classical – Empirical – Subjective - Axiomatic - Theorems of Probability: Addition – Multiplication - Baye’s Theorem.

UNIT-V: THEORITCAL DISTRIBUTIONS:

Binomial Distribution: Importance – Conditions – Constants - Fitting of Binomial Distribution.
Poisson Distribution: – Importance – Conditions – Constants - Fitting of Poisson Distribution.
Normal Distribution: – Importance - Central Limit Theorem - Characteristics – Fitting a Normal Distribution (Areas Method Only).

SUGGESTED READINGS:

1. Statistics for Management: Levin & Rubin, Pearson,
2. Fundamentals of Statistics: Gupta S.C, Himalaya
3. Business Statistics: Theory & Application, P. N. Jani, PHI Learning
4. Business Statics – II: Dr. OBul Reddy, Dr. D. Shridevi - PBP
5. Business Statistics: Dr. J. K. Thukral, Taxmann Publications
6. Business Statistics: K. Alagar, Tata McGraw Hill
7. Fundamentals of Statistical: S. P Gupta , Sultan Chand
8. Business Statistics: J. K. Sharma, Vikas Publishers
9. Business Statistics: Vora, Tata McGraw Hill
10. Statistics-Problems and Solutions: Kapoor V.K, S. Chand
11. Statistics-Teory, Methods and Applications: SanchetiD.C. &Kapoor V.K
12. Business Statistics: S. K. Chakravarty, New Age International Publishers
13. Business Statistics-G.Laxman, Vasudeva Reddy, K.Goud, TaxmannPublications,Hyderabad.

Paper DSC 403: WEB TECHNOLOGIES

Hours Per Week:7(3T+4P)
Exam Hours:1½

Credits: 5
Marks: 50U+35P+15I

Objective:*To gain skills of usage of Web Technologies to design Web pages.*

UNIT-I: INTRODUCTION:

Introduction to web technology – HTML – types of HTML tags-basic Structure of HTML – Web design principles – HTML attributes – styles – Hypertext - Formatting text – Forms & formulating instructions & formulation elements – Commenting code – Back grounds – Images- Hyperlinks – Lists – Tables – Frames

UNIT-II: AN OVER VIEW OF DYNAMIC WEB PAGES & DYNAMIC WEB PAGE:

An over view of dynamic web pages – technologies: Introduction to Dynamic HTML programming - Cascading style sheets (CSS) – types and advantages of CSS – CSS basic syntax and structure - Changing Text and Attributes - Dynamically changing style - Text Graphics and placements - Creating multimedia effects with filters and Transactions.

UNIT-III: JAVA SCRIPT&:

Java Script: Introduction - Client side Java script - Server side Java script - Core features - Data types and variables – Operators - Expressions and statements – Functions – Objects – Array - Date and math related objects - Document object model - Event handling.

UNIT-IV: EVENTS AND EVENT HANDLERS:

Events And Event Handlers: General information about Events – Event – OnAbort – OnClick - Ondbl click - On drag drop – Onerror - Onfocus - Onkey Press – Onkey Up – Onload - Onmouse Down – Onmouse Move - Onmouse Out – Onmouse Over - Onmove - Onrest – Onresize - Onselect - Onsubmit - Onunload.

UNIT-V: EXTENSIBLE MARKUP LANGUAGE (XML):

Extensible Markup Language (XML): Introduction - Creating XML Documents - XML style Sheet – Hyperlinks in XML Document Object Model - XML Query Language.

LAB WORK: CREATING A WEBSITE WITH DYNAMIC FUNCTIONALITY USING CLIENT- SIDE AND SERVER SIDE SCRIPTING.

SUGGESTED READINGS:

1. Web Technology: IndrakantiSekhar, V.N. Battu, Himalaya Publishers.
2. Internet & World Wide Web How to Program: Deitel&Deitel, Pearson.
3. Web programming: ChrisBates.
4. HTML & XML An Introduction NIIT, PHI.
5. HTML for the WWW with XHTML & CSS: Wlizabeth Castro, Pearson
6. Internet and Web Technologies: Raj Kamal, McGrawHill.
7. Web Technology: A Developer's Perspective: Gopalan&Sivaselvan, PHI.
8. Internet Technology and Web Page Design: R.Singh&M.Sonia, Kalyani.
9. Web Technology and Design by Xavier, New Age International Pub.

Paper GE: a) BUSINESS ECONOMICS

Objective: To acquire knowledge for application of economic principles and tools in business practices.

UNIT-I: INTRODUCTION:

Business Economics: Meaning - Nature – Characteristics - Importance and Role - Micro & Macro Economics - Scope - Objectives - Law of Diminishing marginal utility - Law of Equi-marginal utility.

UNIT- II: DEMAND ANALYSIS:

Meaning – Function - Factors influencing Demand -Types of Demand -Demand Curve - Law of Demand –Exceptions to the law of demand-Elasticity of Demand: Concept - Types of elasticity of demand-price, income and cross Elasticity of Demand –measurement of elasticity—arc and point methods—Importance of various Elasticity of Demand

UNIT-III: SUPPLY ANALYSIS:

Law of Supply - Factors influencing Supply - Market Equilibrium- Consumer Surplus - Theory of Consumer behavior - Utility and indifference curve analysis.

UNIT-IV: PRODUCTION ANALYSIS:

Concept of Production –production function-Total Production - Marginal Production - Average Production –returns to a factor- Law of Variable Proportions - Law of Returns to Scale – Isocost – Isoquants - Economies and Dis-economies of Scale.

UNIT-V: COST AND REVENUE ANALYSIS:

Theory of Cost - Concepts of Cost - Short run and Long run cost curves - Traditional and Modern Approaches -Revenue Curves–relationship between total marginal and average revenues- --Break Even Analysis—Meaning – Assumptions – Uses and Limitations.

SUGGESTED READINGS:

1. Business Economics: V. G. Mankar, Himalaya Publishing House
2. Managerial Economics: VanithAgrawal, Pearson Education
3. Business Economics: H. L. Ahuja, S. Chand & Co. Ltd.
4. Business Economics : R. K. Lekhi, Kalyani Publishers
5. Business Economics: D. M. Mithani, Himalaya Publishing House
6. Business Economics: P. N. Chopra, Kalyani Publishers
7. Essential of Business Economics: D. N. Dwivedi, Vikas Publishers
8. Managerial Economics: Varshney and Maheswari, Sultan Chand
9. Business Economics: P. K. Mehta, Tax Mann Publication.

Paper GE: b) ADVANCED ASPECTS OF INCOME TAX

Objective: To acquire conceptual and legal knowledge about Income Tax provisions relating to computation of Income from certain heads and other provisions relating to clubbing, aggregation of income and assessment procedure.

UNIT-I: PROFITS AND GAINS OF BUSINESS OR PROFESSION:

Valuation of Stock Depreciation: Meaning – Assets used for Business – Block of Assets – Rates of Depreciation – Miscellaneous Provisions about depreciation – Computation of Depreciation.

UNIT-II: INCOME FROM OTHER SOURCES:

Winnings from lotteries Puzzles, crown world puzzles, Races Problems on computation on Income from Other Sources. Treatment of Agricultural Income. Heads of income: Gross Total Income – Taxable Income – Income Tax Rates. Problems on computation of Total Income of an Individual based on Residential Status.

UNIT-III: CLUBBING AND AGGREGATION OF INCOME:

Income of other persons included in the total income of Assesse – Income from Firm and AOP – Clubbing Provisions – Deemed Incomes – Provisions of set-off and Carry forward of losses – computation of Gross Total Income – Deductions from GTI u/s 80C to 80U – Problems on Computation of Taxable Income.

UNIT-IV: ASSESSMENT OF INDIVIDUALS:

Computation of Tax Liability – Applicability of Alternate Minimum Tax on Individual u/s 115JC – Problems on Computation of tax liability.

UNIT-V: ASSESSMENT PROCEDURE:

Income tax returns – Types of returns – Filing of e-return – Assessment – Types of assessment: Self-assessment – Provisional assessment – Regular assessment – Best judgement assessment – Reassessment – Rectification of mistakes – Notice on demand.

SUGGESTED READINGS:

1. Income Tax Law and Practice: V.P. Gaur & D.B Narang, Kalyani Publishers.
2. Direct Taxes Law & Practice: Dr. Vinod K. Singhanian & Dr. Kapil Singhanian, Taxmann
3. Income Tax: M. Jeevarathinam & C. Vijay Vishnu Kumar, SCITECH Publications.
4. Taxation: R.G. Saha, Himalaya Publishing House Pvt. Ltd.
5. Income Tax: B. Lal, Pearson Education.
6. Income Tax: Johar, McGrawHill Education.
7. Taxation Law and Practice: Balachandran & Thothadri, PHI Learnin

Paper DSE 501 (a) : COST ACCOUNTING

Objective: To make the students acquire the knowledge of cost accounting methods.

UNIT-I: INTRODUCTION:

Cost Accounting: Definition – Features – Objectives – Functions – Scope – Advantages and Limitations - Essentials of a good cost accounting system- Difference between Cost Accounting and Financial Accounting – Cost concepts – Cost Classification.

UNIT-II: MATERIAL:

Direct and Indirect Material cost – Inventory Control Techniques – Stock Levels – EOQ – ABC Analysis – JIT - VED - FSND - Issue of Materials to Production – Pricing methods: FIFO - LIFO with Base Stock and Simple and Weighted Average methods.

UNIT-III: LABOUR AND OVERHEADS:

Labour: Direct and Indirect Labour Cost – Methods of Payment of Wages (only Incentive Plans): Halsey, Rowan, Taylor Piece Rate and Merrick Multiple Piece Rate Methods.
Overheads: Classification - Methods of Allocation - Apportionment and Absorption of overheads.

UNIT-IV: UNIT AND JOB COSTING:

Unit Costing: Features - Cost Sheet – Tender and Estimated Cost Sheet.
Job Costing: Features - Objectives – Procedure - Preparation of Job Cost Sheet.

UNIT-V: CONTRACT AND PROCESS COSTING:

Contract Costing: Features – Advantages - Procedure of Contract Costing – Guidelines to Assess profit on incomplete Contracts.
Process Costing: Meaning – Features – Preparation of Process Account – Normal and Abnormal Losses.

SUGGESTED READINGS:

1. Cost Accounting: Jain and Narang, Kalyani
2. Cost Accounting: Srihari Krishna Rao, Himalaya
3. Cost and Management Accounting: PrashantaAthma, Himalaya
4. Cost Accounting: Dr. G. Yogeshweran, PBP.
4. Cost Accounting: Jawaharlal, Tata Mcgraw Hill
5. Cost Accounting: Theory and Practice: Banerjee, PHI
6. Introduction to Cost Accounting: Tulsian, S.Chand
7. Cost Accounting: Horngren, Pearson
8. Cost Accounting: Ravi M. Kishore, Tax Mann Publications.

Paper DSE 501 (b) : FINANCIAL PLANNING & PERFORMANCE

Objective: To make students to understand the Financial planning & Performance.

UNIT I: STRATEGIC PLANNING:

Strategic planning: Analysis of external and internal factors affecting strategy - Long-term mission and goals - Alignment of tactics with long-term strategic goals - Strategic planning models and analytical techniques - Characteristics of successful strategic planning process - Annual profit plan and supporting schedules: Operational budgets - Financial budgets - Capital budgets - Top-level planning and analysis: Pro forma income - Financial statement projections - Cash flow projections.

UNIT II: BUDGETING AND FORECASTING:

Budgeting Concepts: Operations and performance goals - Characteristics of a successful budget process - Resource allocation - Forecasting techniques: Regression analysis - Learning curve analysis - Expected value - Budgeting Methodologies: Annual business plans (master budgets) - Project budgeting - Activity-based budgeting - Zero-based budgeting - Continuous (rolling) budgets - Flexible budgeting

UNIT III: COST AND VARIANCE ANALYSIS:

Cost and Variance Analysis: Comparison of actual to planned results - Use of flexible budgets to analyze performance - Management by exception - Standard Cost System: Use of standard cost systems - Analysis of variation from standard cost expectations

UNIT IV: PERFORMANCE MEASURES:

Performance Measures: Product profitability analysis - Business unit profitability analysis - Customer profitability analysis - Return on investment - Residual income - Investment base issues - Key performance indicators (KPIs) - Balanced scorecard - Responsibility Centers and Reporting Segments: Types of responsibility centers - Transfer pricing - Reporting of organizational segments

UNIT V: TECHNOLOGY AND ANALYTICS:

Information Systems: Accounting information systems - Enterprise resource planning systems - Enterprise performance management systems - Data Governance: Data policies and procedures - Life cycle of data - Controls against security breaches - Technology-enabled finance transformation: System Development Life Cycle - Process automation - Innovative applications
Data analytics: Business intelligence - Data mining - Analytic tools - Data visualization

SUGGESTED READINGS:

1. Wiley CMAexcel Learning System, Part 1: Planning, Performance & Analytics
2. Strategic Management and Business Policy: Globalization, Innovation and Sustainability, 15th edition; Wheelen, Thomas L., et. al.; Prentice Hall
3. Cost Management: A Strategic Emphasis, 6th edition; Blocher, Edward, J., Stout, David E., Juras, Paul E., and Cokins, Gary; McGraw Hill
4. Horngreen's Cost Accounting: A Managerial Emphasis, 16th edition; Charles T., Datar, Srikant, and Rajan, Madhav; Pearson
5. Quantitative Methods for Business, 13th Edition; Anderson, David, R., Sweeney, Dennis J., Williams, Thomas A., Camm, Jeff, and Martin, R. Kipp; Cengage Learning
6. Management Accounting: An Integrative Approach; McNair-Connolly, C.J., Merchant, Kenneth A.; IMA.

Paper DSE 501 (c): INTERNATIONAL FINANCIAL REPORTING -I

Objective: To make students to understand the International Financial Reporting.

UNIT I: GENERAL PURPOSE OF FINANCIAL ACCOUNTING AND REPORTING AS PER US GAAP AND IFRS:

Conceptual framework: Standard Setting Bodies & Hierarchy - Elements of F/S - Primary objectives of financial reporting - Qualitative Characteristics of F/S - Fundamental Assumptions & Principles - Accounting Cycle & Preparation of F/S - General-purpose financial statements: Balance sheet - Income statement - Statement of comprehensive income - Statement of changes in equity - Statement of changes cash flows - Public company reporting requirements: SEC Reporting Requirements - Interim Financial Reporting - Segment Reporting - Revenue recognition: 5-Step approach to Revenue Recognition - Certain Customer's Rights & Obligations - Specific Arrangements - Long Term Construction Contracts

UNIT II: CURRENT ASSETS AND CURRENT LIABILITIES (AS PER US GAAP AND IFRS):

Monetary Current Assets & Current Liabilities: Cash & Cash Equivalents - Accounts Receivable - Notes Receivable - Transfers & Servicing of Financial Assets - Accounts Payable - Employee-related Expenses Payable - Inventory: Determining Inventory & Cost of Goods Sold - Inventory Valuation - Inventory Estimation Methods

UNIT III: FINANCIAL INVESTMENTS AND FIXED ASSETS (AS PER US GAAP AND IFRS):

Financial Investments: Investments in Equity Securities - Investment in Debt Securities - Financial Instruments - Tangible Fixed Assets: Acquisition of Fixed Assets - Capitalization of Interest - Costs Incurred After Acquisition - Depreciation - Impairment - Asset Retirement Obligation - Disposal & Involuntary Conversions - Intangible Assets: Knowledge-based intangibles (R&D, software) - Legal rights based intangibles (patent, copyright, trademark, franchise, license, leasehold improvements) - Goodwill

UNIT IV: FINANCIAL LIABILITIES (AS PER US GAAP AND IFRS):

Bonds Payable: Types of Bonds - Convertible bonds vs. Bonds with detachable warrants - Bond Retirement - Fair Value Option & Fair Value Election - Debt Restructuring: Settlement - Modification of terms

UNIT V: SELECT TRANSACTIONS (AS PER US GAAP AND IFRS):

Fair value measurements: Valuation techniques - Fair value hierarchy - Fair value concepts - Accounting changes and error correction: Changes in accounting estimate - Changes in accounting principle - Changes in reporting entity - Correction of an error - Contingencies: Possibility of occurrence (remote, reasonably possible or probable) - Disclosure vs. Recognition
Derivatives and Hedge Accounting: Speculation (non-hedge) - Fair value hedge - Cash flow hedge - Non-monetary exchanges: Exchanges with commercial substance - Exchanges without commercial substance - Leases: Operating lease - Finance lease - Sale leaseback

SUGGESTED READINGS:

1. Miles CPA Review Concept Book: Financial Accounting & Reporting, Miles Education
2. Wiley CPA Excel Exam Review Course Study Guide: Financial Accounting and Reporting, Wiley
3. IFRS & US GAAP Best Practices in Accounting World: GAAP Analysis, Rajesh Dhawan
4. Transparency in Financial Reporting: A concise comparison of IFRS and US GAAP 1st Edition, Ruth Ann McEwen, Harriman House Ltd.
5. IFRS and US GAAP: A Comprehensive Comparison, Steven E. Shamrock, Wiley
6. Wiley GAAP: Interpretation and Application of Generally Accepted Principles, Barry J. Epstein and Ralph Nach, Wiley
7. IFRS Simplified with Practical Illustration Part 1 & 2, Mr RammohanBhave and Dr Mrs Anjali RammohanBhave, CNBC TV 18.

Paper DSE 502 (a) : COMPUTERIZED ACCOUNTING

Objective: To make the students to acquire the knowledge of computer software

UNIT I: MAINTAINING CHART OF ACCOUNTS IN ERP:

Introduction-Getting Started with ERP - Mouse/Keyboard Conventions-Company Creation-Shut a Company-Select a Company-Alter Company Details-Company Features and Configurations-F11: Company Features-F12: Configuration-Chart of Accounts-Ledger-Group-Ledger Creation-Single Ledger Creation-Multi Ledger Creation-Altering and Displaying Ledgers-Group Creation-Single Group Creation-Multiple Group Creation-Displaying Groups and Ledgers-Displaying Groups-Display of Ledgers-Deletion of Groups and Ledgers – P2P procure to page.

UNIT II: MAINTAINING STOCK KEEPING UNITS (SKU):

Introduction-Inventory Masters in ERP - Creating Inventory Masters-Creation of Stock Group-Creation of Units of Measure-Creation of Stock Item-Creation of Godown-Defining of Stock Opening Balance in ERP Stock Category-Reports.

UNIT III: RECORDING DAY-TO-DAY TRANSACTIONS IN ERP:

Introduction-Business Transactions-Source Document for Voucher-Recording Transactions in ERP - Accounting Vouchers-Receipt Voucher (F6)-Contra Voucher (F4)-Payment Voucher (F5)-Purchase Voucher (F9)-Sales Voucher (F8)-Debit Note Voucher-Credit Note (Ctrl+F8)-Journal Voucher (F7).

UNIT IV: ACCOUNTS RECEIVABLE AND PAYABLE MANAGEMENT:

Introduction-Accounts Payables and Receivables-Maintaining Bill-wise Details-Activation of Maintain Bill-wise Details Feature-New Reference-Against Reference-Advance-On Account-Stock Category Report-Changing the Financial Year in ERP.

UNIT V: MIS REPORTS:

Introduction-Advantages of Management Information Systems-MIS Reports in ERP - Trial Balance - Balance Sheet-Profit and Loss Account-Cash Flow Statement-Ratio Analysis-Books and Reports - Day Book-Receipts and Payments-Purchase Register-Sales Register-Bills Receivable and Bills Payable.

SUGGESTED READINGS:

1. Computerised Accounting: GarimaAgarwal, Himalaya
2. Computerised Accounting: A. Murali Krishna, Vaagdevi publications
3. Computerised Accounting: Dr. G. Yogeshweran, PBP.
4. Aakash Business Tools: Spoken Tutorial Project IIT Bombay
5. Mastering Tally: Dinesh Maidasani, Firewal Media
6. Implementing Tally ERP 9: A.K Nadhani and K.K Nadhani, BPB Publications
7. Computerised Accounting and Business Systems: Kalyani Publications
8. Manuals of Respective Accounting Packages
9. Tally ERP 9: J.S. Arora, Kalyani Publications.

Paper DSE 502 (b): FINANCIAL DECISION MAKING - I

Objective: To make students to understand the Financial Decision Making.

UNIT I: FINANCIAL STATEMENT ANALYSIS

Basic Financial Statement Analysis: Common size financial statements - Common base year financial statements - Financial Ratios: Liquidity - Leverage - Activity - Profitability - Market Profitability analysis: Income measurement analysis - Revenue analysis - Cost of sales analysis - Expense analysis - Variation analysis - Special issues: Impact of foreign operations - Effects of changing prices and inflation - Off-balance sheet financing - Impact of changes in accounting treatment - Accounting and economic concepts of value and income - Earnings quality

UNIT II: FINANCIAL MANAGEMENT

Risk & Return: Calculating return - Types of risk - Relationship between risk and return
Long-term Financial Management: Term structure of interest rates - Types of financial instruments - Cost of capital - Valuation of financial instruments

UNIT III: RAISING CAPITAL

Raising Capital: Financial markets and regulation - Market efficiency - Financial institutions - Initial and secondary public offerings - Dividend policy and share repurchases - Lease financing

UNIT IV: WORKING CAPITAL MANAGEMENT

Managing working capital: Cash management - Marketable securities management - Accounts receivable management - Inventory management - Short-term Credit: Types of short-term credit - Short-term credit management

UNIT V: CORPORATE RESTRUCTURING AND INTERNATIONAL FINANCE

Corporate Restructuring: Mergers and acquisitions - Bankruptcy - Other forms of restructuring
International Finance: Fixed, flexible, and floating exchange rates - Managing transaction exposure - Financing international trade - Tax implications of transfer pricing

SUGGESTED READINGS:

1. Wiley CMAexcel Learning System, Part 2: Strategic Financial Management
2. Interpretation and Application of International Financial Reporting Standards; Mackenzie, Bruce, Coetsee, Danie, Njikizana, Tapiwa, Chamboko, Raymond, Colyvas, Blaise, and Hanekom, Brandon; Wiley
3. Financial Reporting & Analysis, 13th edition; Gibson, Charles H.; South-Western Cengage Learning
4. Financial Statement Analysis, 10th edition; Subramanyam, K.R., and Wild, John L.; McGraw Hill
5. Principles of Corporate Finance, 11th edition; Brealey, Richard, A., Myers, Stewart C., and Allen, Franklin; McGraw Hill
6. Fundamentals of Financial Management, 13th edition; Van Horn, James, C., and Wachowicz, John M. Jr.; FT / Prentice Hall

Paper DSE 502 (c) : INTERNATIONAL TAX & REGULATION

Objective: To make students to understand the International Tax & Regulation.

UNIT I: TAXATION OF INDIVIDUALS:

Individual Income Tax Return: Filing Status - Cash basis and Accrual basis

Gross Income: Wages, Salaries, Bonus, Commission, Fees & Tips - Interest & Dividend Income - Business Income - Capital Gains & Losses - Passive Income - Farming Income - Deductions: Adjustments - Deductions from AGI - Calculating Tax: Tax Credits - Alternative Minimum Taxes - Other Taxes - Estimated Tax penalty

UNIT II: PROPERTY TRANSACTIONS & DEPRECIATION:

Capital Gains & Losses - Gains & Losses from Sale of Long-term Business Property - Depreciation & Amortization

UNIT III: TAXATION OF CORPORATIONS:

C-Corporations: Formation - Income Tax Return - Income - Deductions - Reconciliation of Taxable Income with books - Calculating Tax - Corporate Earnings & Distributions - Corporate Liquidation & Reorganizations - S-Corporations: Eligibility criteria - Income Tax Return - Shareholder basis - Earnings and Distribution - Termination of Election

UNIT IV: TAXATION OF OTHER ENTITIES:

Partnerships: Formation - Income Tax Return - Partner basis - Partnership Distributions - Sale of Partnership Interest by a Partner - Termination of Partnership - Estate, Trust & Gift Taxation: Estate and Trust Fiduciary Income Tax Return - Estate Tax Return - Gift Tax Return - Generation-skipping transfer Tax - Tax Exempt Organizations: Formation - Income Tax Return

UNIT V: STATUTORY REGULATIONS, ACCOUNTANT RESPONSIBILITIES, BUSINESS STRUCTURES:

Federal Security Regulations: Securities Act of 1933 - Securities Exchange Act of 1934 - Other federal security regulations - Professional & Legal Responsibilities: Accountant Common Law Liabilities - Accountant Statutory Liabilities - Accountant Liabilities for Privileged Information - Accountant Criminal Liabilities - Employment Regulations - Environmental Regulations - Antitrust Regulations - Business Structures: Sole Proprietorships - Partnerships - Corporations

SUGGESTED READINGS:

1. Miles CPA Review Concept Book: Regulation, Miles Education
2. Wiley CPA Excel Exam Review Course Study Guide: Regulation, Wiley
3. Internal Revenue Code: Income, Estate, Gift, Employment and Excise Taxes, CCH Tax Law Editors
4. Federal Income Tax: Code and Regulations--Selected Sections, Martin B. Dickinson, Wolters Kluwer
5. Federal Income Taxation by Katherine Pratt and Thomas D. Griffith, Wolters Kluwer
6. Federal Income Taxation (Concepts and Insights), Marvin Chirelstein and Lawrence Zelenak, Foundation Press

Paper DSE 503 (a) :MANAGEMENT INFORMATION SYSTEMS**Hours Per Week:** 7 (3T+4P)**Credits:** 5**Exam Hours:** 1 ½**Marks:** 50U+35P+15I

Objective: To equip the students with finer nuances of MIS.

UNIT-I: INTRODUCTION TO MIS:

The Technical and Business Perspective, Organization Structure, Evaluation of MIS through Information System, The Decision Making Process , System Approach to Problem Solving, The Structure of Management Information System, MIS Organization within the Company.

UNIT-II: INFORMATION SYSTEMS FOR DECISION MAKING:

Evolution of an Information System, Basic Information Systems, Decision Making and MIS, Decision Assisting Information System, Concepts of Balanced MIS Effectiveness and Efficiency Criteria.

UNIT-III: DEVELOPMENT OF MIS:

Methodology and Tools/Techniques for Systematic Identification, Evaluation and Modification of MIS. *Enterprise Resource Planning:* Introduction, Basics of ERP, Evolution of ERP, Enterprise Systems in Large Organizations, Benefits and Challenges of Enterprise Systems, *E-Enterprise System* : Introduction: Managing the E-enterprise, Organisation of Business in an E-enterprise, E-business, E-commerce, E-communication, E-collaboration.

UNIT-IV: ADVANCED MIS:

Concepts, Needs and Problems in Achieving Advanced MIS, DSS., Business intelligence + process management, systems development, and security.

UNIT-V: COLLABORATION, IMPACT & PITFALLS IN MIS:

Collaboration processes and information systems, Impact of Web 2.0 and social media on business process, Pitfalls in MIS Development: Fundamental Weakness, Soft Spots in Planning and Design Problems.

SUGGESTED READINGS:

1. Murdic, Rose and Clagett- Information Systems for Modern Management, PHI, New Delhi.
2. Process, Systems, and Information, David M. Kroenke,
3. MIS Cases Decision Making with Application Software, 4th Edition, Lisa Miller
4. Laudon-Laudon- Management Information Systems, Pearson Education, New Delhi.

Paper DSE 503 (b) :E-COMMERCE

Hours Per Week: 7 (3T+4P)**Credits:** 5**Exam Hours:** 1 ½**Marks:** 50U+35P+15I*Objective: to acquire conceptual and application knowledge of ecommerce.***UNIT-I: INTRODUCTION:**

E-Commerce: Meaning - Advantages & Limitations - E-Business: Traditional & Contemporary Model, Impact of E-Commerce on Business Models - Classification of E-Commerce: B2B - B2C - C2B - C2C - B2E - Applications of Ecommerce: E-Commerce Organization Applications - E-Marketing - E-Advertising - E-Banking - Mobile Commerce - E-Trading - E-Learning - E-Shopping.

UNIT-II:FRAMEWORK OF E-COMMERCE:

Framework of E-Commerce: Application Services - Interface Layers - Secure Messaging - Middleware Services and Network Infrastructure - Site Security - Firewalls & Network Security - TCP/IP – HTTP - Secured HTTP – SMTP - SSL.

Data Encryption: Cryptography – Encryption – Decryption - Public Key - Private Key - Digital Signatures - Digital Certificates.

UNIT-III:CONSUMER ORIENTED E-COMMERCE APPLICATIONS:

Introduction - Mercantile Process Model: Consumers Perspective and Merchant's Perspective - Electronic Payment Systems: Legal Issues & Digital Currency - E-Cash & E-Cheque - Electronic Fund Transfer (EFT) - Advantages and Risks - Digital Token-Based E-Payment System - Smart Cards.

UNIT-IV:ELECTRONIC DATA INTERCHANGE:

Introduction - EDI Standards - Types of EDI - EDI Applications in Business – Legal - Security and Privacy issues if EDI - EDI and E-Commerce - EDI Software Implementation.

UNIT-V: E-MARKETING TECHNIQUES:

Introduction - New Age of Information - Based Marketing - Influence on Marketing - Search Engines & Directory Services - Charting the On-Line Marketing Process - Chain Letters - Applications of 5P's (Product, Price, Place, Promotion, People) E-Advertisement - Virtual Reality & Consumer Experience - Role of Digital Marketing.

Lab work: Using Microsoft Front Page Editor and HTML in Designing a Static Webpage/Website.

SUGGESTED READINGS:

1. Frontiers of Electronic Commerce: Ravi Kalakota, Andrew B Whinston, Pearson
2. E-Commerce: Tulasi Ram Kandula, HPH.
3. E-Commerce: An Indian Perspective: P.T. Joseph, S.J, PHI
4. Electronic Commerce, Framework Technologies & Applications: Bharat Bhasker, McGraw Hill
5. Introduction To E-Commerce: Jeffrey F Rayport, Bernard J. Jaworski: Tata McGraw Hill
6. Electronic Commerce, A Managers' Guide: Ravi Kalakota, Andrew B Whinston
7. E-Commerce & Computerized Accounting: Rajinder Singh, Er. KaisarRasheed, Kalyani
8. E-Commerce & Mobile Commerce Technologies: Pandey, SaurabhShukla, S. Chand
9. E-Business 2.0, Roadmap For Success: Ravi Kalakota, Marcia Robinson, Pearson
10. Electronic Commerce: Pete Loshin / John Vacca, Firewall Media
11. E-Commerce, Strategy, Technologies And Applications : David Whiteley, Tata Mcgraw Hill

Paper DSE 503 (c) :MOBILE APPLICATIONS**Hours Per Week:** 7 (3T+4P)**Credits:** 5**Exam Hours:** 1 ½**Marks:** 50U+35P+15I

Objective: To understand and apply the mobile applicatios.

UNIT-I: INTRODUCTION:

What is Android, Android versions and its feature set The various Android devices on the market, The Android Market application store ,Android Development Environment - System Requirements, Android SDK, Installing Java, and ADT bundle - Eclipse Integrated Development Environment (IDE), Creating Android Virtual Devices (AVDs), the Android Software Stack, The Linux Kernel, Android Runtime - Dalvik Virtual Machine, Android Runtime – Core Libraries, Dalvik VM Specific Libraries, Java Interoperability Libraries, Android Libraries, Application Framework, Creating a New Android Project ,Defining the Project Name and SDK Settings, Project Configuration Settings, Configuring the Launcher Icon, Creating an Activity, Running the Application in the AVD, Stopping a Running Application, Modifying the Example Application, Reviewing the Layout and Resource Files,

UNIT-II: MOBILE SOFTWARE:

Understanding Java SE and the Dalvik Virtual Machine, The Directory Structure of an Android Project , Common Default Resources Folders, The Values Folder, Leveraging Android XML, Screen Sizes, Launching Your Application: The AndroidManifest.xml File, Creating Your First Android Application, Android Application Components, Android Activities: Defining the UI, Android Services: Processing in the Background, Broadcast Receivers: Announcements and Notifications Content Providers: Data Management, Android Intent Objects: Messaging for Components.

Android Manifest XML: Declaring Your Components, Designing for Different Android Devices, Views and View Groups, Android Layout Managers, The View Hierarchy, Designing an Android User Interface using the Graphical Layout Tool.

UNIT-III: MOBILE DISPLAY:

Displaying Text with TextView, Retrieving Data from Users, Using Buttons, Check Boxes and Radio Groups, Getting Dates and Times from Users, Using Indicators to Display Data to Users, Adjusting Progress with SeekBar, Working with Menus using views, Gallery, ImageSwitcher, GridView, and ImageView views to display images, Creating Animation, Saving and Loading Files, SQLite Databases, Android Database Design, Exposing Access to a Data Source through a Content Provider, Content Provider Registration, Native Content Providers

UNIT-IV: MOBILE APPLICATIONS:

Intent Overview, Implicit Intents, Creating the Implicit Intent Example Project, Explicit Intents, Creating the Explicit Intent Example Application, Intents with Activities, Intents with Broadcast Receivers, An Overview of Threads, The Application Main Thread, Thread Handlers, A Basic Threading Example, Creating a New Thread, Implementing a Thread Handler, Passing a Message to the Handler. Sending SMS Messages Programmatically, Getting Feedback after Sending the Message Sending SMS Messages Using Intent Receiving, sending email, Introduction to location-based service, configuring the Android Emulator for Location-Based Services, Geocoding and Map-Based Activities,Playing Audio and Video, Recording Audio and Video, Using the Camera to Take and Process Pictures

UNIT-V: MOBILE APP DEVELOPMENT & INSTALLATION:

Introduction to Windows Phone App Development, Installing the Windows Phone SDK, Creating Your First XAML for Windows Phone App. Understanding the Role of XAP Files, the Windows Phone Capabilities Model, the Threading Model for XAML-Based Graphics and Animation in Windows Phone, Understanding the Frame Rate Counter, The Windows Phone Application Analysis Tool, Reading Device Information, Applying the Model-View-ViewModel Pattern to a Windows Phone App, Property Change Notification, Using Commands

SUGGESTED READINGS:

1. Erik Hellman, “Android Programming – Pushing the Limits”, 1st Edition, Wiley India Pvt Ltd, 2014.
2. Dawn Griffiths and David Griffiths, “Head First Android Development”, 1st Edition, O’Reilly SPD Publishers, 2015
3. J F DiMarzio, “Beginning Android Programming with Android Studio”, 4th Edition, Wiley India Pvt Ltd, 2016. ISBN-13: 978-8126565580
4. AnubhavPradhan, Anil V Deshpande, “ Composing Mobile Apps” using Android, Wiley 2014, ISBN: 978-81-265-4660-2

Web Resource :

Google Developer Training, "Android Developer Fundamentals Course – Concept Reference”, Google Developer Training Team, 2017. <https://www.gitbook.com/book/google-developer-training/android-developerfundamentals-course-concepts/details> (Download pdf file from the above link)

Paper PR : RESEARCH METHODOLOGY & PROJECT REPORT

Objective: To introduce the basics of conducting research in social sciences.

UNIT-I: INTRODUCTION, MEASUREMENT AND HYPOTHESIS TESTING:

Meaning of Research-Steps involved- Identification of Problem- Steps involved in the selection of problem-Research Design-Meaning and Types- Measurement Levels/Scales - Scaling Techniques-Hypothesis-Meaning - Types – Testing Procedure.

UNIT-II:PARAMETRIC AND NON PARAMETRIC TESTS AND RESEARCH REPORT:

Introduction - t-Test - F-Test - Chi Square Test - Anova (One-Way Anova, Two-Way Anova).concepts only Contents of a Research Report.

SUGGESTED READINGS:

1. Research Methodology: Himalaya Publications.
2. Methodology of Research in Social Sciences: Krishna Swamy,
3. Research Methodology: Kothari &Garg, New Age Publication
4. Research Methodology: Paneerselvam R, PHI
5. Research Methodology: Dr Vijay Upagade& Dr ArvindShende, S. Chand Publications
6. Research Methodology: Ranjit Kumar, Pearson Publication
7. Reading in Research Methodology in Commerce & Business Management: Achalpathi KV,
8. Research Methodology: Sashi.K Gupta, PraneethRangi, Kalyani Publishers.

GUIDELINES FOR PROJECT WORK

- 1) Project work is a part of the prescribed curriculum to B. Com students.
- 2) Project work is allotted to a group of 4 students.
- 3) During the IV semester, students are expected to undergo internship at a business firm/ Government Department /Software organization/Voluntary organization as per the guidance of teacher concerned.
- 4) Students should get a certificate from the organization.
- 5) At the end of Semester-VI, the project reports would be evaluated by the external examiner designated by the Controller of Examinations, from the panel submitted by the Board of Studies in Commerce. The Examiner would evaluate the project reports for a maximum of 35 marks and conduct Viva-Voce examination for 15 marks. The award lists duly signed would be sent the Controller of Examinations.
- 6) Examiners will examine the following in the project report: i) Survey/Analysis on the topic chosen; ii) Method of data collection; iii) Presentation: Style, Comprehensiveness, graphs, charts etc.; iv) Analysis and inference and implications of the study; v) Bibliography.
- 7) Students must ensure that they maintain **regular contact with their supervisor** and also that they provide the supervisor with drafts of their work at regular intervals.
- 8) Students are required to submit a project report on a topic related/connected with trade, industry & commerce. Project can be done by taking the information from the select organization focusing on areas like marketing, finance, human resource, operations, general management etc.

- 9) Project should be a practical, in-depth study of a problem, issue, opportunity, technique or procedure or some combination of these aspects of business. The Students are required to define an area of investigation, assemble relevant data, analyse the data, draw conclusions and make recommendations.

ORGANISATION OF PROJECT REPORT

1) Project report should be presented in the following sequence:

i) Title page; ii) Student's declaration; iii) Supervisor's certificate; iv) Internship certificate; v) Abstract; vi) Acknowledgements; vii) Table of contents; viii) List of tables; ix) List of figures; x) List of appendices.

2) Chapter Design should be as follows:

Chapter-I: Introduction: this chapter includes the research problem, need for study/significance of the project, objectives, methodology (hypotheses, statistical tools, data source, scope, sample, chapter design).

Chapter-II: Company Profile: this chapter should contain a brief historical retrospect about the entity of your study.

Chapter-III: Data Analysis and interpretation: this chapter should present the data analysis and inferences.

Chapter-IV: Summary and Conclusions: This Chapter should give an overview of the project, conclusions, implications, recommendations and scope for further research.

Bibliography: lists the books, articles, and websites that are referred and used for research on the topic of the specific project. Follow Harvard style of referencing.

Appendices: the data, used to prepare the tables for analysis, may not be feasible to incorporate as part of chapters, may given as appendices.

TECHNICAL SPECIFICATIONS OF THE PROJECT

1) Project should be typed on **A4 white paper**, and be **1.5 spaced**.

2) All pages should be **numbered**, and numbers should be placed at the centre of the bottom of the page.

3) **All tables, figures and appendices** should be consecutively numbered or lettered, and suitably labeled.

4) **3 bound copies&a soft-copy** should be handed in to the **principal/director of your college/institute** at the time of submission.

5) **bibliography and referencing:** **Referencing** is necessary to avoid plagiarism, to verify quotations and to enable readers to follow-up and read more fully the cited author's arguments. Reference is given within the text of the project as well as at the end of the project. The basic difference between citation and a reference list (bibliography) is that the latter contains full details of all the in-text citations.

- **Citation** provides brief details of the author and date of publication for referencing the work in the body of the text.
- **Reference list** is given at the end of the text and is a list of all references used with additional details provided to help identify each source.

Proper referencing is as crucial aspect of your project. You are therefore strongly advised to talk to your supervisor about this, in order to make sure that your project report follows the appropriate referencing system.

Paper DSE 601 (a) : COST CONTROL AND MANAGEMENT ACCOUNTING

Objective: To be acquaint with Cost Control techniques, Managerial Accounting decision-making techniques and reporting methods.

UNIT-I: INTRODUCTION TO MANAGEMENT ACCOUNTING & MARGINAL COSTING:

Meaning and Importance of Management Accounting – Marginal Cost Equation – Difference between Marginal Costing and Absorption Costing – Application of Marginal Costing – CVP Analysis – Break Even Analysis: Meaning – Assumptions – Importance - Limitations. Marginal Costing for Decision Making-Make or Buy – Add or Drop Products – Sell or Process Further – Operate or Shut-down – Special Order Pricing – Replace or Retain.

UNIT-II: BUDGETARY CONTROL AND STANDARD COSTING:

Budget: Meaning – Objectives – Advantages and Limitations – Essentials of Budgets - Budgetary Control - Classification of Budgets - Preparation of Fixed and Flexible Budgets. Standard Costing: Meaning – Importance – Standard Costing and Historical Costing - Steps involved in Standard Costing. Variance Analysis: Material variance - Labour variance - Overhead variance .

UNIT-III: TECHNIQUES OF FINANCIAL STATEMENT ANALYSIS:

Meaning – Objectives - Techniques: Comparative Statement, Common Size Statement, Trend Analysis. Ratios- Meaning , Objectives and Classification—Computation of Activity, Liquidity, Solvency and Profitability Ratios.

UNIT-IV: FUNDS FLOW ANALYSIS:

Concept of Funds – Meaning and Importance – Limitations – Statement of Changes in Working Capital – Statement of Sources and Application of Funds.

UNIT-V: CASH FLOW ANALYSIS (AS-3):

Meaning – Importance – Differences between Funds Flow and Cash Flow Statements – Procedure for preparation of Cash Flow Statement.

SUGGESTED READINGS:

1. Management Accounting- Principles & Practice: Sharma RK & Shashi K. Gupta, Kalyani
2. Advanced Managerial Accounting: Srihari Krishna Rao, Himalaya
3. Advanced Managerial Accounting: Dr. Sundaram, PBP
3. Advanced Management Accounting: Robert S. Kaplan & Anthony A. Atkinson, Prentice-Hall
4. Management Accounting: Rustagi R.P, Galgotia
5. Managerial Accounting: Ronald W. Hilton, TMH

Paper DSE 601 (b) : FINANCIAL CONTROL

Objective: To make students to understand the Financial Control.

UNIT I: EXTERNAL FINANCIAL REPORTING DECISIONS (AS PER US GAAP & IFRS):

Financial Statements: Balance sheet - Income statement - Statement of Comprehensive Income - Statement of changes in equity - Statement of cash flows - Integrated reporting

UNIT II: RECOGNITION, MEASUREMENT, VALUATION, AND DISCLOSURE (AS PER US GAAP & IFRS) :

Assets, Liabilities & Equity: Asset valuation - Valuation of liabilities - Equity transactions - Income: Revenue recognition - Income measurement - Major differences between U.S. GAAP and IFRS

UNIT III: COST MANAGEMENT:

Measurement concepts: Cost behavior and cost objects - Actual and normal costs - Standard costs - Absorption (full) costing - Variable (direct) costing - Joint and by-product costing - Costing Systems: Joint and by-product costing - Job order costing - Process costing - Activity-based costing - Life-cycle costing -Overhead costs: Fixed and variable overhead expenses - Plant-wide versus departmental overhead -Determination of allocation base - Allocation of service department costs

UNIT IV: SUPPLY CHAIN MANAGEMENT AND BUSINESS PROCESS IMPROVEMENT:

Supply chain management: Lean resource management techniques - Enterprise resource planning (ERP) - Theory of constraints - Capacity management and analysis - Business Process Improvement: Value chain analysis - Value-added concepts - Process analysis, redesign, and standardization - Activity-based management - Continuous improvement concepts - Best practice analysis - Cost of quality analysis - Efficient accounting processes

UNIT V: INTERNAL CONTROLS:

Governance, Risk & Compliance: Internal control structure and management philosophy - Internal control policies for safeguarding and assurance - Internal control risk - Corporate governance - External audit requirements - System Controls & Security Measures: General accounting system controls - Application and transaction controls - Network controls - Backup controls - Business continuity planning

SUGGESTED READINGS:

1. Wiley CMAexcel Learning System, Part 1: Planning, Performance & Analytics
2. Intermediate Accounting, 17th edition; Kieso, Donald E., Weygandt, Jerry J., and Warfield, Terry D.; Wiley
3. Intermediate Accounting, 11th edition; Nikolai, Loren A., Bazley John D., and Jones, Jefferson P., South-Western Cengage Learning
4. Cost Management: A Strategic Emphasis, 6th edition; Blocher, Edward, J., Stout, David E., Juras, Paul E., and Cokins, Gary; McGraw Hill
5. Horngreen's Cost Accounting: A Managerial Emphasis, 16th edition; Charles T., Datar, Srikant, and Rajan, Madhav; Pearson
6. Management Accounting: An Integrative Approach; McNair-Connolly, C.J., Merchant, Kenneth A.; IMA

Paper DSE 601(c) :INTERNATIONALFINANCIAL REPORTING - II

Objective: To make students to understand the International Financial Reporting.

UNIT I: PENSIONS & POST-EMPLOYMENT BENEFITS (AS PER US GAAP & IFRS):

Defined contribution pension plans - Defined benefit pension plans: Pension obligations - Pension plan assets - Net pension expense - Other Post-retirement benefits

UNIT II: INCOME TAXES (AS PER US GAAP & IFRS):

Income tax expense: Current income tax expense - Deferred income tax expense - Deferred taxes on balance sheet: Deferred tax assets - Deferred tax liabilities - Specific accounting - considerations: Net Operating Losses (NOL) - Investee's undistributed dividends

UNIT III: EQUITY (AS PER US GAAP & IFRS):

Equity accounts: Common Stock - Preferred Stock - Additional Paid-In Capital - Retained Earnings - Accumulated Other Comprehensive Income - Treasury Stock - Specific accounting considerations: Share-based Payments to Employees - Equity Securities Classified as Debt
Presentation of Equity: On Balance sheet - On Statement of Changes in Equity - Earnings per Share (EPS): Basic EPS - Diluted EPS

UNIT IV: SELECT TRANSACTIONS (AS PER US GAAP & IFRS):

Business Combinations and Consolidations: Acquisitions - Non-controlling Interest - Intercompany Transactions - Variable Interest Entities (VIE) - Foreign currency: Remeasurement - Translation

UNIT V: NOT-FOR-PROFIT AND GOVERNMENTAL ACCOUNTING AND REPORTING (AS PER US GAAP):

Not-for-Profit (NFP) Entities: NFP Financial Statements - Contribution Revenue - Specific Accounting Considerations - Colleges and Universities - Voluntary Health and Welfare Organizations - Health Care Organizations - Governmental Entities: Fund types (Governmental funds, Proprietary funds, Fiduciary funds) - Modified Accrual Accounting - Inter-fund transactions - Government Financial Reporting

SUGGESTED READINGS:

1. Miles CPA Review Concept Book: Financial Accounting & Reporting, Miles Education
2. Wiley CPA Excel Exam Review Course Study Guide: Financial Accounting and Reporting, Wiley
3. IFRS & US GAAP Best Practices in Accounting World: GAAP Analysis, Rajesh Dhawan
4. Transparency in Financial Reporting: A concise comparison of IFRS and US GAAP 1st Edition, Ruth Ann McEwen, Harriman House Ltd.
5. IFRS and US GAAP: A Comprehensive Comparison, Steven E. Shamrock, Wiley
6. Wiley GAAP: Interpretation and Application of Generally Accepted Principles, Barry J. Epstein and Ralph Nach, Wiley
7. IFRS Simplified with Practical Illustration Part 1 & 2, Mr RammohanBhave and Dr Mrs Anjali RammohanBhave, CNBC TV 18

Paper DSE 602(a) : THEORY AND PRACTICE OF GST

Objective: To equip the students with the knowledge regarding Theory and Practice of GST.

UNIT I: INTRODUCTION TO GST:

Introduction – GST - Taxes Subsumed under GST -Determination of Tax - Registration -Process of Registration - Cancellation and renovation of registration - Supply of Goods and Services - Transition to GST - Registered Business -Availed Input Tax Credit -Unavailed CENVAT credit and Input VAT on capital goods-Availing the input credit held in closing stock -Invoicing -Tax Invoice -Bill of Supply - Credit Note, Debit Note and Supplementary Invoice-Transportation of goods without issue of Invoice - Input Credit Mechanism - Input Tax - GST Returns - Payment of Tax.

UNIT II: GETTING STARTED WITH GST:

Introduction - Enabling GST and Defining Tax Details-Transferring Input Tax credit to GST -Intrastate Supply of Goods-Intrastate Inward Supply -Intrastate Outward Supply -Interstate -Interstate Outward Supply - Return of Goods -Purchase Returns -Sales Returns -Supplies Inclusive of Tax -Defining Tax Rates at Master and Transaction Levels - Defining GST Rates at Stock Group Level-Defining GST Rate at Transaction Level -Hierarchy of Applying Tax Rate Details –Reports.

UNIT III: RECORDING ADVANCED ENTRIES, GST ADJUSTMENT AND RETURN FILING:

Introduction -Accounting of GST Transactions -Purchases from Composition Dealer -Purchases from Unregistered Dealers-Exports -Imports -Exempted Goods -SEZ Sales -Advance Receipts and payments - Mixed Supply and Composite Supply under GST -Mixed Supply of Goods -Composite Supply of Goods -GST Reports - Generating GSTR- Report in ERP -Input Tax Credit Set Off -GST Tax Payment -Time line for payment of GST tax -Modes of Payment -Challan Reconciliation -Exporting GSTR- return and uploading in GST portal.

UNIT IV: GETTING STARTED WITH GST (SERVICES):

Introduction -Determination of supply of services -Determining the Place of Supply of Services -Enabling GST and Defining Tax Details-Transferring Input Tax credit to GST -Intrastate Supply of Goods - Intrastate Inward Supply-Intrastate Outward Supply -Interstate Supply -Interstate Outward Supply - Interstate Inward Supply -Interstate Outward Supply of Services -Cancellation of Services -Cancellation of Inward Supplies -Cancellation of Outward Supply of Services -Defining Tax Rates at Master and Transaction Levels.

UNIT V: RECORDING ADVANCED ENTRIES AND MIGRATION TO ERP:

Introduction - Accounting Multiple Services in a Single Supply - Recording Partial Payment to Suppliers -Outward Supplies - Recording Outward Supply with Additional Expenses - Supply of services -Business to consumers - Time of Supply of Services - Place of Supply of Services - Determining place of supply of services - Exempt Supply of Services under GST -Export Supply of Services - Reverse Charge on Services under GST - Advance Receipts from Customers under GST - Advance Receipt and issuing Invoice on same month -Advance Receipt and issuing Invoice on different month - Reversal of GST on account of cancellation of advance receipt - Generating GSTR- Report in ERP - Input Tax Credit Set Off - Migration to ERP - Activate Goods and Services Tax (GST) in ERP - Set up GST rates - Update Masters - Update party GSTIN/UIN - Creation of GST Duty ledgers.

SUGGESTED READINGS:

1. Taxmann's Basics of GST
2. Taxmann's GST: A practical Approach
3. Theory & Practice of GST, Srivathsala, HPH
4. Theory & Practice of GST: Dr. Ravi M.N, PBP.
- 5.Theory and Practice of GST: Prof. A. Sudhakar, Dr. O. Bhavani& Dr. N. Moses, National Publishing Co.

Paper DSE 602(b) : FINANCIAL DECISION MAKING - II

Objective: To make students to understand the Financial Decision Making.

UNIT I: DECISION ANALYSIS:

Cost/volume/profit analysis: Breakeven analysis - Profit performance and alternative operating levels - Analysis of multiple products - Marginal Analysis: Sunk costs, opportunity costs and other related concepts - Marginal costs and marginal revenue - Special orders and pricing - Make versus buy - Sell or process further - Add or drop a segment - Capacity considerations

UNIT II: PRICING:

Pricing decisions: Pricing methodologies - Target costing - Elasticity of demand - Product life cycle considerations - Marketstructure considerations

UNIT III: RISK MANAGEMENT:

Enterprise Risk: Types of risk - Risk identification and assessment - Risk mitigation strategies - Managing risk

UNIT IV: INVESTMENT DECISIONS:

Capital budgeting process: Stages of capital budgeting - Incremental cash flows - Income tax considerations - Evaluating uncertainty - Capital investment method analysis: Net present value - Internal rate of return - Payback - Comparison of investment analysis methods

UNIT V: PROFESSIONAL ETHICS:

Business ethics: Moral philosophies and values - Ethical decision making - Ethical considerations for management accounting and financial management professionals: IMA's Statement of Ethical Professional Practice - Fraud triangle - Evaluation and resolution of ethical issues - Ethical considerations for the organization: Organizational factors and ethical culture - IMA's Statement on Management Accounting, "Values and Ethics: From Inception to Practice" - Ethical leadership - Legal compliance - Responsibility for ethical conduct - Sustainability and social responsibility.

SUGGESTED READINGS:

1. Wiley CMAexcel Learning System, Part 2: Strategic Financial Management
2. Cost Management: A Strategic Emphasis, 6th edition; Blocher, Edward, J., Stout, David E., Juras, Paul E., and Cokins, Gary; McGraw Hill
3. Horngreen's Cost Accounting: A Managerial Emphasis, 16th edition; Charles T., Datar, Srikant, and Rajan, Madhav; Pearson
4. Principles of Corporate Finance, 11th edition; Brealey, Richard, A., Myers, Stewart C., and Allen, Franklin; McGraw Hill
5. Fundamentals of Financial Management, 13th edition; Van Horn, James, C., and Wachowicz, John M. Jr.; FT / Prentice Hall
6. Enterprise Risk Management - Integrated Framework; COSO, The Committee of Sponsoring Organizations of the Treadway Commission, 2017

Paper DSE 602 (c) : INTERNATIONAL AUDITING

Objective: To make students to understand the International Auditing.

UNIT I: ETHICS, PROFESSIONAL RESPONSIBILITIES AND GENERAL AUDITING**PRINCIPLES:**

Introduction to Auditing: Generally Accepted Auditing Standards (GAAS) - International Standards of Auditing (ISA) - Ethics, independence and professional conduct: AICPA Code of Professional Conduct - Sarbanes-Oxley Act (SOX), 2002 - Public Company Accounting Oversight Board (PCAOB) - Securities & Exchange Commission (SEC) - International Standards - Engagement Understanding and Acceptance: Pre-Engagement Acceptance Activities - Engagement Letter - Auditor's communication with those charged with governance

Quality Control: Statements on Quality Control Standards (SQCS) - Elements of a System of Quality control

UNIT II: ASSESSING AUDIT RISK AND DEVELOPING A PLANNED RESPONSE:

Audit Risk: Inherent Risk - Control Risk - Detection Risk - Fraud Risk: Fraudulent financial reporting - Misappropriation of assets - Fraud risk factors - Auditor's consideration of fraud

Planning the Audit: Audit Strategy - Audit Plan - Internal Controls: Auditor's Consideration of Internal Control - Operating Cycles - Internal Control Reports and Communications

UNIT III: PERFORMING FURTHER PROCEDURES AND OBTAINING AUDIT EVIDENCE:

Audit Evidence: Management's Assertions - Sufficient & Appropriate Audit Evidence - Audit Evidence determined by Risk of Material Misstatement (RMM) - Substantive Procedures: Revenue cycle - Expenditure cycle - Production cycle - Payroll cycle - Investing cycle - Financing cycle - Opening Balances - Illegal Acts - Related Parties - Contingencies - Estimates & Fair Value Measurements - Subsequent Events - Omitted Procedures & Subsequent Discovery of Facts - Using the Work of Others - Evaluating Audit Findings - Audit Documentation - Management Representation Letter - Audit Sampling: Sampling Risks - Attributes Sampling - Classical Variables Sampling - Probability Proportional to Size (PPS) Sampling

UNIT IV: AUDIT REPORTING:

Audit Reports: Unmodified opinion - Unmodified Opinion with Emphasis-of-matter and/or Other-matter paragraph - Qualified Opinion - Adverse Opinion - Disclaimer of Opinion - Audit Reporting Considerations: Audit of Comparative financial statements - Supplementary Information - Audit of Group financial statements - Audit of Single financial statements & Specific financial statement elements, accounts or items - Audit of Special Purpose financial statements - Audit of financial statements prepared using financial reporting framework of another country

UNIT V: OTHER ENGAGEMENTS:

Accounting & Review Services: Preparation of financial statements - Compilation engagement - Review engagement - Attestation Engagements: Examination - Review - Agreed-upon Procedures - Governmental Auditing: Governmental Auditing Standards - Single Audit Act

SUGGESTED READINGS:

1. Miles CPA Review Concept Book: Auditing and Attestation, Miles Education
2. Wiley CPA Excel Exam Review Course Study Guide: Auditing and Attestation, Wiley
3. Wiley Practitioner's Guide to GAAS: Covering all SAS, SSAE's , SSARS, PCAOB, Auditing Standards, and Interpretations, Joanne M. Flood, Wiley
4. Auditing: A Risk Based-Approach to Conducting a Quality Audit, Karla M Johnstone, Audrey A. Gramling and Larry E. Rittenberg, Cengage Learning
5. Principles of Auditing & Other Assurance Services, Ray Whittington and Kurt Pany, McGraw Hill
6. Auditing & Assurance Services: A Systematic Approach, William F Messier Jr, Steven M. Glover and Douglas F. Prawitt, McGraw Hill.

Paper DSE 603(a) :MULTIMEDIA SYSTEMS**Hours Per Week:** 7 (3T+4P)**Credits:** 5**Exam Hours:** 1 ½**Marks:** 50U+35P+15I

Objective: To acquire the knowledge of multimedia systems.

UNIT-I: MEDIA AND DATA STREAMS:

Properties of multimedia systems, Data streams characteristics: Digital representation of audio, numeric instruments digital interface Bark concepts, Devices, Messages, Timing Standards Speech generation, analysis and transmission.

UNIT-II: DIGITAL IMAGE&ANIMATIONS:

Digital Image: Analysis, recognition, transmission, **Video:** Representation, Digitalization, transmission.

Animations: Basic concepts, animation languages, animations control transmission.

UNIT-III: DATA COMPRESSION STANDARDS&STORAGE:

Data Compression Standards: JPEG, H-261, MPEG DVI

Optical storage devices and Standards: WORHS, CDDA, CDROM, CDWO, CDMO.

Real Time Multimedia, Multimedia file System.

UNIT-IV: MULTIMEDIA COMMUNICATION SYSTEM, DATABASES&SYNCHRONIZATION:

Multimedia Communication System: Collaborative computing session management, transport subsystem, QOS, resource management.

Multimedia Databases: Characteristics, data structures, operation, integration in a database model.

Synchronization: Issues, presentation requirements, reference to multimedia synchronization, MHEG.

UNIT-V: MULTIMEDIA APPLICATION:

Media preparation, Composition, integration communication, consumption, entertainment.

SUGGESTED READINGS:

1. Ralf Steninmetz, KlaraHahrstedt, *Multimedia: Computing, Communication and Applications*, PHI PTR Innovative Technology Series.
2. John F.KoegelBufford, *Multimedia System*, Addison Wesley, 1994.
3. Mark Elsom – Cook, *Principles of Interactive Multimedia*, Tata Mc-Graw Hill, 2001.
4. Judith Jefcoate, *Multimedia in Practice: Technology and Application*, PHI 1998.

Paper DSE 603(b) :CYBER SECURITY**Hours Per Week:** 7 (3T+4P)**Credits:** 5**Exam Hours:** 1 ½**Marks:** 50U+35P+15I

Objective: to understand the cyber security, detection, network security, the law and cyber forensic.

UNIT-I: INTRODUCTION TO CYBER SECURITY, CYBER SECURITY VULNERABILITIES AND CYBER SECURITY SAFEGUARDS:

Introduction to Cyber Security: Overview of Cyber Security, Internet Governance – Challenges and Constraints, Cyber Threats:- Cyber Warfare-Cyber Crime-Cyber terrorism-Cyber Espionage, Need for a Comprehensive Cyber Security Policy, Need for a Nodal Authority, Need for an International convention on Cyberspace.

Cyber Security Vulnerabilities: Overview, vulnerabilities in software, System administration, Complex Network Architectures, Open Access to Organizational Data, Weak Authentication, Unprotected Broadband communications, Poor Cyber Security Awareness.

Cyber Security Safeguards: Overview, Access control, Audit, Authentication, Biometrics, Cryptography, Deception, Denial of Service Filters, Ethical Hacking, Firewalls, Intrusion Detection Systems, Response, Scanning, Security policy, Threat Management.

UNIT-II: SECURING WEB APPLICATION, SERVICES AND SERVERS:

Introduction, Basic security for HTTP Applications and Services, Basic Security for SOAP Services, Identity Management and Web Services, Authorization Patterns, Security Considerations, Challenges.

UNIT-III: INTRUSION DETECTION AND PREVENTION:

Intrusion, Physical Theft, Abuse of Privileges, Unauthorized Access by Outsider, Malware infection, Intrusion detection and Prevention Techniques, Anti-Malware software, Network based Intrusion detection Systems, Network based Intrusion Prevention Systems, Host based Intrusion prevention Systems, Security Information Management, Network Session Analysis, System Integrity Validation.

UNIT-IV: CRYPTOGRAPHY AND NETWORK SECURITY:

Introduction to Cryptography, Symmetric key Cryptography, Asymmetric key Cryptography, Message Authentication, Digital Signatures, Applications of Cryptography. Overview of Firewalls- Types of Firewalls, User Management, VPN Security Security Protocols: - security at the Application Layer- PGP and S/MIME, Security at Transport Layer- SSL and TLS, Security at Network Layer-IPSec.

UNIT-V: CYBERSPACE AND THE LAW, CYBER FORENSICS:

Cyberspace and The Law: Introduction, Cyber Security Regulations, Roles of International Law, the state and Private Sector in Cyberspace, Cyber Security Standards. The INDIAN Cyberspace, National Cyber Security Policy 2013.

Cyber Forensics: Introduction to Cyber Forensics, Handling Preliminary Investigations, Controlling an Investigation, Conducting disk-based analysis, Investigating Information-hiding, Scrutinizing E-mail, Validating E-mail header information, Tracing Internet access, Tracing memory in real-time.

SUGGESTED READINGS:

1. Ramandeepkaur, Cyber laws and Intellectual Property Rights, Kalyani Publishers, 7e,
2. Nina Godbole&SunitBelapureCyber Security, Wiley India Pvt Ltd, 2012.
3. Gerald. R. Ferrera, Reder and lichtenstein, Cyber laws – Text and Cases,3e, Cengage learning
4. FaiyazAhamed, Cyber Law and Information Security, DreamTech Press, 2013
5. PankajAgarwal, Information Security and Cyber Laws, Acme Learning, 2013
6. Manjotkaur, Essentials of E-Business and Cyber laws, Kalyani Publishers.

Paper DSE 603(c) :DATA ANALYTICS**Hours Per Week:** 7 (3T+4P)**Credits:** 5**Exam Hours:** 1 ½**Marks:** 50U+35P+15I

Objective: To learn the different ways of data Analysis, data streams, mining and clustering and visualization.

UNIT-I: INTRODUCTION TO BIG DATA:

Introduction to Big Data Platform – Challenges of conventional systems – Web data – Evolution of Analytic scalability, analytic processes and tools, Analysis vs reporting – Modern data analytic tools, Stastical concepts: Sampling distributions, resampling, statistical inference, prediction error.

UNIT-II: DATA ANALYSIS:

Regression modeling, Multivariate analysis, Bayesian modeling, inference and Bayesian networks, Support vector and kernel methods, Analysis of time series: linear systems analysis, nonlinear dynamics – Rule induction – Neural networks: learning and generalization, competitive learning, principal component analysis and neural networks; Fuzzy logic: extracting fuzzy models from data, fuzzy decision trees, Stochastic search methods.

UNIT-III: MINING DATA STREAMS:

Introduction to Streams Concepts – Stream data model and architecture – Stream Computing, Sampling data in a stream – Filtering streams – Counting distinct elements in a stream – Estimating moments – Counting oneness in a window – Decaying window – Realtime Analytics Platform(RTAP) applications – case studies – real time sentiment analysis, stock market predictions.

UNIT-IV: FREQUENT ITEMSETS AND CLUSTERING:

Mining Frequent item sets – Market based model – Apriori Algorithm – Handling large data sets in Main memory – Limited Pass algorithm – Counting frequent itemsets in a stream – Clustering Techniques – Hierarchical – K- Means – Clustering high dimensional data – CLIQUE and PROCLUS – Frequent pattern based clustering methods – Clustering in non-euclidean space – Clustering for streams and Parallelism.

UNIT-V: FRAMEWORKS AND VISUALIZATION:

MapReduce – Hadoop, Hive, MapR – Sharding – NoSQL Databases – S3 – Hadoop Distributed file systems – Visualizations – Visual data analysis techniques, interaction techniques; Systems and applications:

SUGGESTED READINGS:

- 1) Michael Berthold, David J. Hand, Intelligent Data Analysis, Springer, 2007.
- 2) AnandRajaraman and Jeffrey David Ullman, Mining of Massive Datasets,Cambridge University Press, 2012.
- 3) Bill Franks, Taming the Big Data Tidal Wave: Finding Opportunities in Huge Data Streams with advanced analystics, John Wiley & sons, 2012.
- 4) Glenn J. Myatt, Making Sense of Data, John Wiley & Sons, 2007 Pete Warden, Big Data Glossary, O□Reilly, 2011.
- 5) Jiawei Han, MichelineKamber “Data Mining Concepts and Techniques”, Second Edition, Elsevier, Reprinted 2008.

B.Com.

Syllabus (CBCS)

(w.e.f. 2019–2020)



**FACULTY OF COMMERCE
OSMANIA UNIVERSITY
HYDERABAD - 500 007 T.S.**

2019

B.COM
CBCS COURSE STRUCTURE
w.e.f. 2019-'20

Sl.No.	Code	Course Title	HPW	Credits	Exam Hrs	Marks
(1)	(2)	(3)	(5)	(6)	(7)	(8)
SEMESTER – I						
1.	ELS1	English (First Language)	4	4		
2.	SLS1	Second Language	4	4		
3.	AECC1	a)Environmental Science/ b)Basic Computer Skills	2	2		
4.	DSC101	Financial Accounting-I	5	5	3 hrs	80U+20I
5.	DSC102	Business Organization and Management	5	5	3 hrs	80U+20I
6.	DSC103	Foreign Trade	5	5	3 hrs	80U+20I
		Total	25	25		
SEMESTER – II						
7.	ELS2	English (First Language)	4	4		
8.	SLS2	Second Language	4	4		
9.	AECC2	a)Basic Computer Skills/ b)Environmental Science	2	2		
10.	DSC201	Financial Accounting-II	5	5	3 hrs	80U+20I
11.	DSC202	Business Laws	5	5	3 hrs	80U+20I
12.	DSC203	Banking and Financial Services	5	5	3 hrs	80U+20I
		Total	25	25		
SEMESTER – III						
13.	ELS3	English (First Language)	3	3		
14.	SLS3	Second Language	3	3		
15.	SEC1 UGC Specified Course	Communication Skills Professional Skills	2	2	1 ½ hrs	40U+10I
16.	SEC2Dep t. Specified Course	a)Principles of Insurance/ b)Foundation of Digital Marketing & Web Design	2	2	1 ½ hrs	40U+10I
17.	DSC301	Advanced Accounting	5	5	3 hrs	80U+20I
18.	DSC302	Business Statistics-I	5	5	3 hrs	80U+20I
19.	DSC303	Financial Institutions and Markets	5	5	3 hrs	80U+20I
		Total	25	25		
SEMESTER – IV						
20.	ELS4	English (First Language)	3	3		
21.	SLS4	Second Language	3	3		
22.	SEC3 UGC Specified Course	Leadership & Management Skills Universal Human Values	2	2	1 ½ hrs	40U+10I
23.	SEC4Dept . Specified Course	a)Practice of Life and General Insurance / b)Social Media Marketing Search Engine Optimization & Online Advertising	2	2	1 ½ hrs	40U+10I
24.	DSC401	Income Tax	5	5	3 hrs	80U+20I
25.	DSC402	Business Statistics-II	5	5	3 hrs	80U+20I
26.	DSC403	Corporate Accounting	5	5	3 hrs	80U+20I
		Total	25	25		
SEMESTER – V						
27.	ELS5	English (First Language)	3	3		

Faculty of Commerce

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28.	SLS5	Second Language	3	3		
29.	GE	a) Business Economics/ b) Advanced Aspects of Income Tax	4	4	3 hrs	80U+20I
30.	DSE501	a) Cost Accounting/ b) Financial Planning & Performance/ c) International Financial Reporting-I	5	5	3 hrs	80U+20I
31.	DSE502	a) Computerized Accounting/ b) Financial Decision Making-I/ c) International Tax & Regulation	3T+4P/5	5	3 hrs	50T+35P + 15I/ 80U+20I
32.	DSE503	a) Auditing/ b) Advanced Corporate Accounting/ c) Financial Management	5	5	3 hrs	80U+20I
		Total	27/25	25		
		SEMESTER – VI				
33.	ELS6	English (First Language)	3	3		
34.	SLS6	Second Language	3	3		
35.	PR	Research Methodology and Project Report	2T+4R	4	1 ½ hrs	40U+10I 35R+15V V
36.	DSE601	a) Cost Control and Management Accounting/ b) Financial control/ c) International Financial Reporting-II	5	5	3 hrs	80U+20I
37.	DSE602	a) Theory and Practice of GST/ b) Financial Decision Making-II / c) International Auditing	3T+4P/5	5	3 hrs	50T+35P + 15I/ 80U+20I
38.	DSE603	a) Accounting Standards/ b) Corporate Governance/ c) Investment Management	5	5	3 hrs	80U+20I
		Total	29/27	25		
		GRAND TOTAL	156/152	150		

ELS: English Language Skill; **SLS:** Second Language Skill; **AEC:** Ability Enhancement Compulsory Course; **SEC:** Skill Enhancement Course; **DSC:** Discipline Specific Course; **DSE:** Discipline Specific Elective; **GE:** Generic Elective; **T:** Theory; **P:** Practical; **I:** Internal Exam **U:** University Exam; **PR:** Project Report; **VV:** Viva-Voce Examination.

Note: If a student should opt for “a” in SEC in III semester, the student has to opt for “a” only in IV semester and so is the case with “b” and “c”. In the case of DSE also the rule applies.

SUMMARY OF CREDITS

Sl. No.	Course Category	No. of Courses	Credits Per Course	Credits
1	English Language	6	4/3	20
2	Second Language	6	4/3	20
3	AECC	2	2	4
4	SEC	4	2	8
5	GE	1	4	4
6	Project Report	1	4	4
7	DSC	12	5	60
8	DSE	6	5	30
	TOTAL	38		150
	Commerce	24		106
CREDITS UNDER NON-CGPA		NSS/NCC/Sports/Extra Curricular	Up to 6 (2 in each year)	
		Summer Internship	Up to 4 (2 in each after I & II years)	

Paper DSC 101: FINANCIAL ACCOUNTING - I

Objective: To acquire conceptual knowledge of basics of Accounting and preparation of final accounts of sole trader.

UNIT-I: ACCOUNTING PROCESS:

Financial Accounting: Introduction – Definition – Evolution – Functions-Advantages and Limitations –Users of Accounting Information- Branches of Accounting – Accounting Principles: Concepts and Conventions- Accounting Standards– Meaning – Importance – List of Accounting Standards issued by ASB - Accounting System- Types of Accounts – Accounting Cycle – Journal- Ledger and Trial Balance (Including problems)

UNIT-II: SUBSIDIARY BOOKS:

Meaning –Types: Purchases Book - Purchases Returns Book - Sales Book - Sales Returns Book - Bills Receivable Book - Bills Payable Book – Cash Book: Single Column, Two Column, Three Column and Petty Cash Book - Journal Proper(Including problems)

UNIT-III: BANK RECONCILIATION STATEMENT:

Meaning - Need - Reasons for differences between cash book and pass book balances – Favourable and over draft balances – Ascertainment of correct cash book balance (Amended Cash Book) - Preparation of Bank Reconciliation Statement (Including problems)

UNIT-IV: RECTIFICATION OF ERRORS AND DEPRECIATION:

Capital and Revenue Expenditure – Capital and Revenue Receipts: Meaning and Differences - Differed Revenue Expenditure. Errors and their Rectification: Types of Errors - Suspense Account – Effect of Errors on Profit (Including problems)

Depreciation (AS-6): Meaning – Causes – Difference between Depreciation, Amortization and Depletion - Objectives of providing for depreciation – Factors affecting depreciation – Accounting Treatment – Methods of depreciation: Straight Line Method - Diminishing Balance Method (Including problems)

UNIT-V: FINAL ACCOUNTS:

Final Accounts of Sole Trader: Meaning -Uses -Preparation of Manufacturing, Trading and Profit & Loss Account and Balance Sheet – Adjustments – Closing Entries(Including problems)

SUGGESTED READINGS:

1. Accountancy-I: Haneef and Mukherjee, Tata McGraw Hill Company.
2. Principles & Practice of Accounting: R.L.Gupta&V.K.Gupta, Sultan Chand.
3. Accountancy-I: S.P. Jain & K.L Narang, Kalyani Publishers.
4. Accountancy–I: Tulasian, Tata McGraw Hill Co.
5. Introduction to Accountancy: T.S.Grewal, S.Chand and Co.
6. Advanced Accountancy-I: S.N.Maheshwari&V.L.Maheshwari, Vikas.
7. Fundamentals of Financial Accounting: Deepak Sehgil, Tax Mann Publication.
8. Financial Accounting: JawaharLal, Himalaya Publishing House.

Paper DSC 102: BUSINESS ORGANISATION AND MANAGEMENT

Objective: To acquaint the students with the basics of Commerce and Business concepts and functions, forms of Business Organization and functions of Management.

UNIT-I: INTRODUCTION AND FORMS OF BUSINESS ORGANISATIONS:

Concepts of Business, Trade, Industry and Commerce - Objectives and Functions of Business- Social Responsibility of a Business - Forms of Business Organization - Meaning, Characteristics, Advantages and Disadvantages of Sole Proprietorship - Meaning, Characteristics, Advantages and Disadvantages of Partnership - Kinds of Partners - Partnership Deed - Concept of Limited Liability Partnership - Meaning, Characteristics, Advantages and Disadvantages of Hindu Undivided Family - Meaning, Advantages and Disadvantages of Co-Operative Organization

UNIT-II: JOINT STOCK COMPANY:

Joint Stock Company - Meaning - Definition - Characteristics - Advantages and Disadvantages - Kinds of Companies - Promotion - Stages of Promotion - Promoter - Characteristics - Kinds - Preparation of Important Documents - Memorandum of Association - Clauses - Articles of Association - Contents - Prospectus - Contents - Red herring Prospectus - Statement in lieu of Prospectus (As per Companies Act, 2013)

UNIT-III: INTRODUCTION TO FUNCTIONS OF MANAGEMENT:

Management - Meaning - Characteristics - Functions of Management - Levels of Management - Skills of Management - Scientific Management - Meaning - Definition - Objectives - Criticism - Fayol's 14 Principles of Management

UNIT-IV: PLANNING AND ORGANISING: Meaning - Definition - Characteristics - Types of Plans - Advantages and Disadvantages - Approaches to Planning - Management by Objectives (MBO) - Steps in MBO - Benefits - Weaknesses - Definition of Organizing - Organization-Process of Organizing - Principles of Organization - Formal and Informal Organizations - Line, Staff Organizations - Line and Staff Conflicts - Functional Organization - Span of Management - Meaning - Determining Span - Factors influencing the Span of Supervision

UNIT-V: AUTHORITY, COORDINATION AND CONTROL:

Meaning of Authority, Power, responsibility and accountability - Delegation of Authority - Decentralization of Authority - Definition, importance, process, and principles of Coordination- techniques of Effective Coordination - Control - Meaning - Definition - Relationship between planning and control - Steps in Control - Types (post, current and pre-control) - Requirements for effective control

SUGGESTED READINGS:

1. Business Organization & Management: Sharma Shashi K. Gupta, Kalyani Publishers
2. Business Organisation & Management: Patrick Anthony, Himalaya Publishing House
3. Business Organization & Management: Dr. Manish Gupta, PBP.
4. Organization & Management: R. D. Agarwal, McGraw Hill.
5. Modern Business Organization: S.A. Sherlekar, V.S. Sherlekar, Himalaya Publishing House
6. Business Organization & Management: C.R. Basu, Tata McGraw Hill
7. Business Organization & Management: M.C. Shukla S. Chand,
8. Business Organisation and Management: D.S. Vittal, S. Chand
9. Organizational Behaviour Text & Cases: V.S.P. Rao, Himalaya Publishing House
10. Business Organization & Management: Uma Shekaram, Tata McGraw Hill
11. Business Organization & Management: Niranjana Reddy & Surya Prakash, Vaagdevi publishers
12. Business Organisation and Management, Dr. Neeru Vasihth, Tax Mann Publications.

Paper DSC 103: FOREIGN TRADE

Objective: To gain knowledge of India's foreign trade procedures policies, and international institutions.

UNIT-I: INTRODUCTION:

Foreign Trade: Meaning and Definition - Types - Documents used-Commercial Invoice - Bills of Lading / Airway Bill - Marine Insurance Policy and Certificate - Bills of Exchange - Consumer Invoice - Customs Invoice - Certificate of Origin - Inspection Certificate – Packing List

UNIT-II: BALANCE OF TRADE AND BALANCE OF PAYMENTS:

Introduction - Meaning - Components of BOT & BOP - Concept of Disequilibrium – Causes - Remedies for Correcting Balance of Payments in International Trade

UNIT-III: INDIAN TRADE POLICY:

Importance and its Implementation - Current Export Policy and Import Policy.

UNIT-IV: FOREIGN TRADE AND TRADE BLOCS:

Growth - Significance of Foreign Trade - Merits - Demerits - Trade Blocs: Types - Preferential Trade Area, Free Trade Area, Customs Unions, Common Markets, Economic Unions, Monetary Unions, Customs and Monetary Unions, and Economic and Monetary Unions

UNIT-V: INTERNATIONAL ECONOMIC INSTITUTIONS:

IMF: Objectives - Functions - World Bank: Objectives - Functions - Subsidiaries of World Bank - IMF Vs. IBRD; New Development Bank (NDB) - Objective Functions - Features - Membership - Shareholding, Criticism, Asian Infrastructure Investment Bank (AIIB) - Objective Functions - Features - Membership - Shareholding, Criticism; Trans-Pacific Partnership (TPP) - Objective Functions - Features - Membership - Shareholding, Criticism; UNCTAD: Aims - Features; WTO - Aims - Features - Agreements

SUGGESTED READINGS:

1. International Marketing: Rathore & Jain, Himalaya Publishers.
2. International Marketing: Kushpat S. Jain & Rimi Mitra, Himalaya Publishers
3. Foreign Trade –Dr Srinivasa Narayana, Jyoti Mehra– PBP
4. International Economics: SSMDesai & Nirmal Bhalerao, Himalaya Publishers.
5. International Business Environment & Foreign Exchange Economies: Singh & S. Srivastava,
6. Foreign Trade and Foreign Exchange: O.P. Agarwal & B.K. Chaudri, Himalaya Publishers
7. International Financial Markets & Foreign Exchange: Shashi K. Gupta & Praneet Rangi, Kalyani
8. International Economics: Theory & Practice: Paul R. Krugman, Pearson Publishers.

Paper DSC 201:FINANCIAL ACCOUNTING-II

Objective: To acquire Accounting knowledge of bills of exchange and other business accounting methods.

UNIT-I: BILLS OF EXCHANGE:

Bills of Exchange – Definition- Distinction between Promissory note and Bills of exchange- Accounting treatment of Trade bills: Books of Drawer and Acceptor- Honour and Dishonour of Bills- Renewal of bills- Retiring of bills under rebate- Accommodation bills(Including problems)

UNIT-II: CONSIGNMENT ACCOUNTS:

Consignment - Meaning – Features -Proforma invoice - Account sales - Del credere commission- Accounting treatment in the books of the consignor and the consignee - Valuation of consignment stock -Treatment of Normal and abnormal Loss - Invoice of goods at a price higher than the cost price (Including problems)

UNIT-III: JOINT VENTURE ACCOUNTS:

Joint Venture - Meaning – Features-Difference between Joint Venture and Consignment- Accounting Procedure-Methods of Keeping Records for Joint Venture Accounts-Method of Recording in co-ventures books-Separate Set of Books Method- Joint Bank Account-Memorandum Joint Venture Account (Including problems)

UNIT-IV: ACCOUNTS FROM INCOMPLETE RECORDS:

Single Entry System -Meaning – Features - Difference between Single Entry and Double Entry systems - Defects in Single Entry System - Books and accounts maintained - Ascertainment of Profit - Statement of Affairs and Conversion method (Including problems)

UNIT-V: ACCOUNTING FOR NON-PROFIT ORGANIZATIONS:

Non- Profit Organization - Meaning - Features - Receipts and Payments Account - Income and Expenditure Account - Balance Sheet(Including problems)

SUGGESTED READINGS:

1. Accountancy-I: Haneef and Mukherjee, Tata McGraw Hill Co.
2. Principles and Practice of Accounting: R.L. Gupta & V.K. Gupta, Sultan Chand & Sons.
3. Accountancy-I: Tulasian, Tata McGraw Hill Co.
4. Accountancy-I: S.P. Jain & K.L. Narang, Kalyani.
5. Advanced Accountancy-I: S.N. Maheshwari & V.L. Maheswari, Vikas.
6. Advanced Accountancy: M Shrinivas & K Sreelatha Reddy, Himalaya Publishers.
7. Financial Accounting: M.N Arora, Tax Mann Publications.

Paper DSC 202: BUSINESS LAWS

Objective: To understand basics of contract act, sales of goods act, IPRs and legal provisions applicable for establishment, management and winding up of companies in India.

UNIT-I: INDIAN CONTRACT ACT:

Agreement and Contract - Essentials of a valid contract - Types of contracts - Offer and Acceptance - Essentials of valid offer and acceptance - Communication and revocation of offer and acceptance - Consideration - definition - Essentials of valid consideration - Modes of Discharge of a contract - Performance of Contracts - Breach of Contract - Remedies for Breach- Significance of Information Technology Act

UNIT-II: SALE OF GOODS ACT AND CONSUMER PROTECTION ACT:

Contract of Sale: Essentials of Valid Sale - Sale and Agreement to Sell – Definition and Types of Goods - Conditions and Warranties - Caveat Emptor - Exceptions - Unpaid Seller - Rights of Unpaid Seller. Consumer Protection Act 1986: Definition of Consumer - Person - Goods - Service - Consumer Dispute - Consumer Protection Councils - Consumer Dispute Redressal Agencies - Appeals

UNIT-III: INTELLECTUAL PROPERTY RIGHTS:

Trade Marks: Definition - Registration of Trade Marks - Patents: Definition - Kinds of Patents - Transfer of the Patent Rights - Rights of the Patentee - Copy Rights: Definition - Rights of the Copyright Owner - Terms of Copy Right - Copy Rights Infringement - Other Intellectual Property Rights: Trade Secrets - Geographical Indications

UNIT-IV: MANAGEMENT OF COMPANIES AND MEETINGS:

Director: Qualification - Disqualification - Position - Appointment - Removal - Duties and Liabilities - Loans - Remuneration - Managing Director - Corporate Social Responsibility - Corporate Governance. Meeting: Meaning - Requisites - Notice - Proxy - Agenda - Quorum - Resolutions - Minutes - Kinds - Shareholder Meetings - Statutory Meeting - Annual General Body Meeting - Extraordinary General Body Meeting - Board Meetings

UNIT-V: WINDING UP:

Meaning - Modes of Winding Up - Winding Up by tribunal - Voluntary Winding Up - Compulsory Winding Up - Consequences of Winding Up - Removal of name of the company from Registrar of Companies - Insolvency and Bankruptcy code - 2016.

SUGGESTED READINGS:

- 1) Company Law: ND Kapoor, Sultan Chand and Co.
- 2) Company Law: Rajashree. – HPH
- 3) Business Law - Kavitha Krishna, Himalaya Publishing House
- 4) Business Laws – Dr. B. K. Hussain, Nagalakshmi - PBP
- 5) Company Law: Prof. G. Krishna Murthy, G. Kavitha, PBP
- 6) Company Law and Practice: GK Kapoor & Sanjay Dhamija, Taxmann Publication.
- 7) Company Law: Revised as per Companies Act- 2013: KC Garg et al, Kalyani Publication.
- 8) Corporate Law: PPS Gogna, S Chand.
- 9) Business Law: D.S. Vital, S Chand
- 10) Company Law: Bagrial AK, Vikas Publishing House.

Paper DSC 203: BANKING AND FINANCIAL SERVICES

Objective: To familiarize with Fund-based and Non-fund-based Financial Services.

UNIT-I: INTRODUCTION:

Functions of Commercial Banks - Emerging Trends in Commercial Banking in India: E-Banking - Mobile Banking - Core Banking - Bank Assurance - OMBUDSMAN. RBI Constitution - Organizational Structure - Management - Objectives - Functions - Monetary Policy - Brief description on various types of banks - District Co-Operative Central Banks - Contemporary Banks - Regional Rural Banks - National Bank for Agriculture and Rural Development (NABARD) - SIDBI - Development Banks

UNIT-II: BANKER AND CUSTOMER RELATIONSHIP:

Definition of Banker and Customer - Relationship Between Banker and Customer - KYC norms - General and Special Features of Relationship - Opening of Accounts - Special Types of Customers Like Minor, Married Women, Partnership Firms, Companies, Clubs and other Non-Trading Institutions.

UNIT-III: NEGOTIABLE INSTRUMENTS:

Descriptions and their Special Features - Duties and Responsibilities of Paying and Collecting Banker - Circumstances under which a Banker can refuse Payment of Cheques - Consequences of Wrongful Dishonors - Precautions to be taken while Advancing Loans Against Securities - Goods - Documents of Title to Goods - Loans against Real Estate - Insurance Policies - Against Collateral Securities - Banking Receipts

UNIT-IV: INTRODUCTION TO FINANCIAL SERVICES:

Financial Services: Meaning – Functions – Classification- Scope - Fund Based Activities - Non-fund Based Activities - Modern Activities - Causes for Financial Innovation - New Financial Products and Services - Innovative Financial Instruments - Challenges Facing the Financial Service Sector - Present Scenario

UNIT-V: FINANCIAL SERVICES:

Definition - Services of Merchant Banks - Problems and Scope of Merchant Banking in India - Venture Capital: Meaning, Features, Scope, Importance - Leasing - Definition and Steps - Types of Lease - Financial Lease - Operating Lease - Leverage Lease - Sale and Lease Back - Discounting: Concept - Advantages of Bill Discounting - Factoring - Meaning and Nature - Parties in Factoring - Merits and Demerits of Factoring - Forfeiting - Parties to Forfeiting - Costs of Forfeiting - Benefits of Forfeiting for Exporters and Importers

SUGGESTED READINGS:

1. Banking Theory & Practices: Dr. P. K. Srivatsava, Himalaya Publishers
2. Banking Theory & Practices: K.C. Shekar, Vikas Publications
3. Banking and Financial Services: Santhi Vedula & Kavitha Krishna Himalaya Publishing House
4. Banking and Financial Services: Dr. Jayanthi, PBP.
5. Banking Theory, Law & Practices: R. R Paul, Kalyani Publishers
6. Money Banking and Financial Markets: Averbach, Rabort. D, MacMillan. Landon
7. Financial Markets and Services: Gordon and Natarajan, Himalaya Publishing House.
8. Financial Services: T. Siddaiah, Pearson Education.

Paper SEC - 2 (a): PRINCIPLES OF INSURANCE

Objectives: To make Students to learn Principles of Insurance.

UNIT I: RISK MANAGEMENT AND INSURANCE & INSURANCE TERMINOLOGY:

Risk Management -Types of Risks - Actual and Consequential Losses - Management of Risks - Risk of Dying Early - Risk of Living too Long - Different Classes of Insurance - Importance of Insurance - Management of Risk by Individuals and Insurers - Fixing of Premiums – Reinsurance - Role of Insurance in Economic Development and Social Security - Constituents of Insurance Market - Operations of Insurance Companies - Operations of Intermediaries - Specialist Insurance Companies - Role of Regulators - Common and specific terms in Life and Non-Life Insurance - Understanding Insurance Customers - Customer Behavior at Purchase Point - Customer Behavior when Claim Occurs - Importance of Ethical Behavior

UNIT II: INSURANCE CONTRACT AND INSURANCE PRODUCTS:

Insurance Contract Terms - Principles of Insurance: Principle of Insurable Interest, Principle of Indemnity, Principle of Subrogation, Principle of Contribution, Relevant Information Disclosure, Principle of utmost Good Faith, Relevance of Proximate Cause - **Life Insurance Products:** Term Plans - Pure Endowment Plans - Combinations of Plans - Traditional Products - Linked Policies - Features of Annuities and Group Policies - **General Insurance Products:** Risks faced by Owner of Assets - Exposure to Perils - Features of Products Covering Fire and Allied Perils - Products covering Marine and Transit Risks - Products covering Financial Losses due to Accidents - Products covering Financial Losses due to Hospitalization - Products Covering Miscellaneous Risks

SUGGESTED READINGS:

1. Principles of Risk Management and Insurance: George E Rejda (13th Edition) 2. Risk Management and Insurance: Trieschman ,Gustavson and Hoyt . South Western College Publishing, 3. Principles of Insurance: A Publication of the Insurance Institute of India 4. Principles of Insurance: Telugu Academy, Hyderabad 5. Guide to Risk Management: SagarSanyal6. Principles of Insurance: Dr V Padmavathi,Dr V Jayalakshmi - PBP 7. Insurance and Risk Management : P.K. Gupta 8. Insurance Theory and Practice :Tripathi PHI 9. Principles of Insurance Management: Neelam C Gulati, Excel Books 10. Life and Health Insurance: Black, JR KENNETH & Harold Skipper, Pearson, Cincinnati,Ohio Suggested Websites: 1) www.irda.gov.in 2) www.polocyholder.gov.in 3) www.irdaindia.org.in

Paper SEC - 2 (b): FOUNDATION OF DIGITAL MARKETING & WEB DESIGN**Objective:**

- i. To make students to understand Foundation of digital marketing.
- ii. To make students to understand the Fundamentals of Web design and Analytics.

UNIT I: DIGITAL MARKETING FOUNDATIONS& CONTENT MARKETING:

Digital Marketing Strategy - Exploring Digital Marketing - Starting with the Website - Foundations of Analytics - Search Engine Optimization - Search and Display Marketing - Social Media Marketing - Video Marketing.

Email marketing tools and setup - Email marketing segmentation, personalization and mobile friendly design

Content marketing foundations - Blogs for content marketing - Content marketing for staying relevant - Newsletters for content marketing - Mobile marketing foundations

UNIT II: WEB DESIGN AND GOOGLE ANALYTICS:

Exploring and learning web design – Understanding Conversion rate optimization (CRO) – Setting CRO – Understanding target audience – Optimization champion

Getting started with Google Analytics – Core concepts – Additional interface features – Using reports – Audience reports – Acquisition reports – Social reports – Behavior reports – Track events – Conversion reports – Additional features

SUGGESTED READINGS:

1. The Art of Digital Marketing: The Definitive Guide to Creating Strategic, Targeted, and Measurable Online Campaigns by Ian Dodson, Wiley
2. Fundamentals of Digital Marketing by Puneet Singh Bhatia, Pearson
3. Digital Marketing by Vandana Ahuja, Oxford
4. Digital Marketing by Seema Gupta, McGraw Hill
5. Digital Marketing For Dummies by Ryan Deiss and Russ Henneberry
6. Don't Make Me Think Revisited: A Common Sense Approach to Web Usability By Steve Krug
7. Web Analytics 2.0 – Avinash Kaushik
8. Successful Analytics by Brian Clifton
9. Math and Stats for Web Analytics and Conversion Optimization by Himanshu Sharma

Paper DSC 301: ADVANCED ACCOUNTING

Objective: To acquire accounting knowledge of partnership firms and joint stock companies

UNIT-I: PARTNERSHIP ACCOUNTS-I:

Meaning - Partnership Deed - Capital Accounts (Fixed and Fluctuating) - Admission of a Partner - Retirement and Death of a Partner (Excluding Joint Life Policy)(Including problems)

UNIT-II: PARTNERSHIP ACCOUNTS-II:

Dissolution of Partnership - Insolvency of a Partner (excluding Insolvency of all partners) - Sale to a Company (Including problems)

UNIT-III: ISSUE OF SHARES, DEBENTURES, UNDERWRITING AND BONUS SHARES:

Issue of Shares at par, premium and discount - Pro-rata allotment - Forfeiture and Re-issue of Shares - Issue of Debentures with Conditions of Redemption - Underwriting: Meaning – Conditions- Bonus Shares: Meaning - SEBI Guidelines for Issue of Bonus Shares - Accounting of Bonus Shares(Including problems)

UNIT-IV: COMPANY FINAL ACCOUNTS AND PROFIT PRIOR TO INCORPORATION:

Companies Act, 2013: Structure - General Instructions for preparation of Balance Sheet and Statement of Profit and Loss - Part-I: Form of Balance Sheet - Part-II: Statement of Profit and Loss - Preparation of Final Accounts of Companies - Profits Prior to Incorporation- Accounting treatment (Including problems)

UNIT-V: VALUATION OF GOODWILL AND SHARES:

Valuation of Goodwill: Need - Methods: Average Profits, Super Profits and Capitalization Methods -Valuation of Shares: Need - Net Assets, Yield and Fair Value Methods. (Including problems)

SUGGESTED READINGS:

1. Principles and Practice of Accounting: R.L. Gupta & V.K. Gupta, Sultan Chand & Sons.
2. Advanced Accountancy: Shukla and Grewal, S.Chand & Co.
3. Advanced Accountancy: R.L.Gupta & Radhaswamy, Sultan Chand & Sons.
4. Advanced Accountancy (Vol-II): S.N.Maheshwari & V.L.Maheshwari, Vikas.
5. Advanced Accountancy: Dr. G. Yogeshwaran, Julia Allen - PBP
6. Accountancy–III: Tulasian, Tata McGraw Hill Co.
7. Advanced Accountancy: Arulanandam; Himalaya.
8. Accountancy–III: S.P. Jain & K.L Narang, Kalyani Publishers.
9. Guidance Note on the Revised Schedule VI to the Companies Act, 1956, The Institute of Chartered Accounts of India.
10. Advanced Accounting (IPCC): D. G. Sharma, Tax Mann Publications.

Paper DSC 302: BUSINESS STATISTICS -I

Objective: To inculcate analytical and computational ability among the students.

UNIT-I: INTRODUCTION:

Origin and Development of Statistics - Definition - Importance and Scope - Limitations of Statistics - Distrust of Statistics.

Statistical Investigation: Planning of statistical investigation - Census and Sampling methods - Collection of primary and secondary data - Statistical errors and approximation - classification and Tabulation of data - Frequency distribution

UNIT – II: DIAGRAMMATIC AND GRAPHIC PRESENTATION:

Diagrammatic presentation: One Dimensional and Two Dimensional Diagrams - Pictograms - Cartograms - Graphic presentation: Technique of Construction of Graphs - Graphs of Frequency Distribution - Graphs of Time Series or Histograms

UNIT-III: MEASURES OF CENTRAL TENDENCY:

Introduction -Significance -Arithmetic Mean- Geometric Mean - Harmonic Mean – Mode - Median - Quartiles and Percentiles - Simple and Weighted Averages - Uses and Limitations of different Averages

UNIT-IV: MEASURES OF DISPERSION, SKEWNESS AND KURTOSIS:

Measures of Dispersion: Significance - Characteristics - Absolute and Relative Measures - Range - Quartile Deviation - Mean Deviation- Standard Deviation - Coefficient of Variation

Measures of Skewness - Karl Pearson's Coefficient of Skewness - Bowley's Coefficient of Skewness - Kelly's Measure of Skewness- Kurtosis: Mesokurtosis, Platy kurtosis and Leptokurtosis

UNIT-V: CORRELATION:

Meaning -Types - Correlation and Causation - Methods: Scatter Diagram - Karl Person's Coefficient of Correlation - Probable Error and Interpretation of Coefficient of Correlation - Rank Correlation - Concurrent Deviation Method

SUGGESTED READINGS:

1. Statistics for Management: Levin & Rubin, Pearson
2. Fundamentals of Statistics: Gupta S.C, Himalaya
3. Statistics: E. Narayanan Nadar, PHI Learning
4. Business Statistics –I: Dr. Obul Reddy, Dr. D. Shridevi - PBP
5. Business Statistics: Dr. J. K. Thukral, Taxmann Publications
6. Business Statistics: K. Alagar, Tata McGraw Hill
7. Fundamentals of Statistical: S. P Gupta, Sultan Chand
8. Business Statistics: J. K. Sharma, Vikas Publishers
9. Business Statistics: S. L Aggarwal, S. L. Bhardwaj, Kalyani Publications
10. Statistics-Problems and Solutions: Kapoor V.K, S. Chand
11. Statistics - Theory, Methods and Applications: Sancheti D.C. &Kapoor V.K
12. Business Statistics: S. K. Chakravarty, New Age International Publishers
13. Statistics: Andasn,Sweenly,Williams,Cingage.

Paper DSC 303: FINANCIAL INSTITUTIONS & MARKETS

Objective: To familiarize with various Financial Institutions and Markets.

UNIT-I: INDIAN FINANCIAL SYSTEM:

Components - Functions - Flow of Funds Matrix - Financial System and Economic Development - Recent Developments in Indian Financial System - Weaknesses of Indian Financial System

UNIT-II: FINANCIAL INSTITUTIONS:

Commercial Banking: Types - Functions - Lending by Commercial Banks - Recent Developments - Merchant Banking – functions - Venture Capital – objectives-Private Equity - role in start-ups - Hire purchase and leasing - Non-banking Finance Companies: Types - Functions

UNIT-III: MONEY MARKET:

Functions of Money Market - Organization of Money Market - Dealers - Money Market Instruments - RBI - Functions - Role of RBI in Money Market - LAF (Liquidity Adjustment Facility), MSF (Marginal Standing Facility), Repo, and Reverse Repo - MPC (Monetary Policy Committee) - Structure and Functions.

UNIT-IV: DEBT MARKET:

Evolution of Debt Markets in India - Money Market & Debt Market in India - Instruments and Players in Debt Market: Government Securities - PSU Bonds - Corporate Bonds - Securities Trading Corporation of India - Primary Dealers in Government Securities - Bonds: Features of Bonds - Types of Bonds - Bond Ratings.

UNIT-V: EQUITY MARKET:

Meaning - Development of Equity Culture in India - Primary Market: IPO and FPO - Methods of IPO - Role of Merchant Bankers in Fixing the Price - Red Herring Prospectus – Sweat Equity - ESOP - Rights Issue - Secondary Market: Meaning and Functions of Stock Exchanges - Evolution and Growth of Stock Exchanges - Stock Exchanges in India - Recent Developments in Indian Stock Exchanges - Stock Market Indices - SEBI: Objectives and Functions

SUGGESTED READINGS:

- 1) Bhole, L.M., Financial Markets and Institutions. Tata McGraw Hill Publishing Company, New Delhi, India.
- 2) Prof. Prashanta Athma, Financial Institutions and Markets: PBP
- 3) Bihar S.C., Indian Financial System. International Book House Pvt. Ltd., New Delhi, India.
- 4) Gordon & Natarajan, Financial Markets and Services. Himalaya Publishing House, New Delhi, India.
- 5) Khan and Jain, Financial Services, Tata McGraw Hill, New Delhi, India.
- 6) Khan, M.Y., Indian Financial System - Theory and Practice. Vikas Publishing House, New Delhi, India.
- 7) Shashi K. Gupta & Nisha Aggarwal, Financial Services. Kalyani Publishers, New Delhi, India.
- 8) Vinod Kumar, Atul Gupta & Manmeet Kaur, Financial Markets, Institutions & Financial Services, Taxmann's Publications, New Delhi, India.

Paper SEC - 4 (a): PRACTICE OF LIFE AND GENERAL INSURANCE
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Objective: To make students to learn Practice of Life and General Insurance

UNIT-I: PREMIUM CALCULATION AND POLICY DOCUMENTS:

Meaning of Premium, its calculation- Rebates – Mode of Rebates – Large sum assured
 Rebates – Premium Loading – Rider Premiums – Computation of Benefits – Surrender value –
 Paid up value -General Insurance Policy Documents and Forms - Rating and Premiums - concept
 of soft and hard markets

UNIT-II: SETTLEMENT OF CLAIMS RISK & UNDERWRITINGS AND FINANCIAL PLANNING & TAX SAVING:

Life Insurance: Settlement of claims: Intimation Procedure, documents and settlement procedures - Underwriting: The need for underwriting – Guiding principles of Underwriting – Factors affecting Insurability – Methods of Life Classification – Laws affecting Underwriting - Financial Planning and taxation: Savings – Insurance vis-à-vis- Investment in the Units Mutual Funds, Capital Markets – Life Insurance in Individual Financial Planning – Implications in IT treatment.

General Insurance: Concept of Underwriting—Underwriting Process—Risk sharing and its methods—risk management and steps involved in it—Concept of Claim—understanding the process of claim management—claims fraud and fraud prevention—Insurance reserves and accounting—different types of reserves of insurance companies—reserving process followed by insurance companies—Insurance accounting.

SUGGESTED READINGS: 1. Practice of Life Insurance&General Insurance: Insurance Institute of India, Mumbai. 2. Insurance and Risk Management: P.K.Gupta, Himalaya Publishing House, Mumbai. 3. Fundamentals of Life Insurance Theories and Applications: Kanika Mishra, Prentice Hall 4. Principles of Life Insurance & Practice of General Insurance– Dr. V. Padmavathi, Dr. V. Jayalakshmi - PBP 5. Managing Life Insurance: Kutty, S.K., Prentice Hall of India: New Delhi 6. Life and Health Insurance: Black, Jr. Kenneth and Harold Skipper Jr., Prentice Hall, Inc., England. 7. Life Insurance: Principles and Practice: K.C. Mishra and C.S. Kumar, Cengage Learning, New Delhi. 8. Life Insurance in India: Sadhak, Respose Books, New Delhi. 9. Practice of General Insurance – D.S. Vittal-HPH, 10.Principles & Practice of Insurance- Dr. P. Periasamy – HPH. 11. Risk Management: A Publication of the Insurance Institute of India. 12. Insurance Theory and Practice: Tripathi PHI 13. Risk Management and Insurance: Trieschman, Gustavson and Hoyt 9. South Western College Publishing Cincinnati, Ohio.

Paper SEC - 4 (b): SOCIAL MEDIA MARKETING, SEARCH ENGINE OPTIMIZATION & ONLINE ADVERTISING

Objective:

- I. To make students to understand the Social Media marketing.
- II. To make students to understand the Search engine optimization and online advertising.

UNIT I: SOCIAL MEDIA MARKETING:

Building an online community – Understanding Social Media Marketing – Marketing and building presence on Facebook – Marketing and building presence on Twitter – Employer branding on LinkedIn

Facebook advertising overview – How Facebook ads work – How to create Facebook ads – Additional advertising options and best practices for Facebook advertising – Marketing and monetizing on YouTube – Customize your YouTube Channel – Video optimization on YouTube – YouTube Analytics

UNIT II: SEO FOUNDATION & STRATEGIES:

Understanding SEO — Content optimization – Long-term content planning

Keyword strategy – Linkbuilding strategies – Measuring SEO effectiveness – SEO for Ecommerce – Local search – Mobile SEO UNIT

Pay-Per-Click Advertising – Getting started with Google Adwords – Advertising tracking – Key Google Adwords strategies – Remarketing with Google – Budget and ROI tips – B2B Remarketing Campaigns

SUGGESTED READINGS:

1. The Art of Digital Marketing: The Definitive Guide to Creating Strategic, Targeted, and Measurable Online Campaigns by Ian Dodson, Wiley
2. Fundamentals of Digital Marketing by Puneet Singh Bhatia, Pearson
3. Digital Marketing by Vandana Ahuja, Oxford
4. Tuten: Social Media Marketing, Sage
5. Digital Marketing by Seema Gupta, McGraw Hill
6. Social Media Marketing All-In-One for Dummies By Jan Zimmerman and Deborah Ng
7. Facebook Growth Hacking: How to Correctly Set Up and Maintain Your Facebook Presence and Gain Massive Amounts of Fans (Social Media Marketing) by Jeff Abston
8. Youtube Influencer: How To Become a Youtube Influencer, Why Influencer Marketing Matters, and How To Monetize Your Channel by Jeff Abston
9. SEO Fitness Workbook: 2018 Edition: The Seven Steps to Search Engine Optimization Success on Google By Jason McDonald
10. The Art of SEO: Mastering Search Engine Optimization By Eric Enge, Stephan Spencer and Jessie Stricchiola
11. Google Adwords for Beginners: A Do-It-Yourself Guide to PPC Advertising By Cory Rabazinsky, 2015

Paper DSC 401: INCOME TAX

Objective: To acquire conceptual and legal knowledge about Income Tax provisions relating to computation of Income from different heads with reference to an Individual Assessee.

UNIT-I: INTRODUCTION:

Direct and Indirect Taxes – Canons of Taxation - Features and History of Income Tax in India – Definitions and Basic Concepts of Income Tax: Assessee – Deemed Assessee – Assessee-in-default – Assessment Year – Previous Year - Person – Agricultural Income – Heads of Income – Gross Total Income – Total Income — Incomes Exempt from Tax. Residential Status and Scope of Total Income: Meaning of Residential Status – Conditions applicable to an Individual Assessee – Incidence of Tax – Types of Incomes (Theory only)

UNIT-II: INCOME FROM SALARIES:

Definition of ‘Salary’ – Characteristics of Salary – Computation of Salary Income: Salary u/s 17(1) – Annual Accretion – Allowances – Perquisites – Profits in lieu of Salary – Deductions u/s. 16 – Problems on computation of Income from Salary

UNIT-III: INCOME FROM HOUSE PROPERTY:

Definition of ‘House Property’ – Exempted House Property incomes– Annual Value – Determination of Annual Value for Let-out House and Self-occupied House – Deductions u/s.24 – Problems on computation of Income from House Property

UNIT-IV: PROFITS AND GAINS OF BUSINESS OR PROFESSION:

Definition of ‘Business and Profession’ – Procedure for computation of Income from Business – Revenue and Capital nature of Incomes and Expenses – Allowable Expenses u/s. 30 to 37 – Expenses expressly disallowed – Deemed Profits – Miscellaneous provisions u/s 44. Depreciation: Meaning – Conditions for charge of depreciation – Problems on computation of Income from Business. Income from Profession: Rules– procedure – problems on computation of Income from Profession.

UNIT-V: CAPITAL GAINS AND INCOME FROM OTHER SOURCES:

Introduction - Meaning – Scope of charge – Basis of charge – Short term and Long term Capital Assets – Transfer of Capital Asset – Deemed Transfer –Determination of Cost of Acquisition – Procedure for computation of Long-term and Short-term Capital Gains/Losses – Exemptions in respect of certain Capital Gains u/s. 54 – Problems on computation of capital gains - General Incomes u/s. 56(1) – Specific Incomes u/s. 56(2) – Dividends u/s. 2(22) – Winnings from lotteries Puzzles, crown world puzzles, Races – Interest on Securities – Gifts received by an Individual – Casual Income – Family Pension – Rent received on let out of Furniture- Plant and Machinery with/without Building – Deductions u/s. 57. (Theory only)

SUGGESTED READINGS:

1. Income Tax Law and Practice: V.P. Gaur & D.B Narang, Kalyani Publishers.
2. Taxation: Dr. M.N. Ravi, PBP.
3. Direct Taxes Law & Practice: Dr. Vinod K. Singhania & Dr. Kapil Singhania, Taxmann
4. Income Tax: B.B. Lal, Pearson Education.
5. Taxation: R.G. Saha, Himalaya Publishing House Pvt. Ltd.
6. Income Tax: Johar, McGrawHill Education.
7. Taxation Law and Practice: Balachandran & Thothadri, PHI Learning.
8. Direct Tax Law and Practice : Ahuja Girish
9. Income Tax: Dr. P.V. Ramana Rao & Dr. A. Sudhakar, National Publishing Co.

Paper DSC 402: BUSINESS STATISTICS - II

Objective: to inculcate analytical and computational ability among the students.

UNIT-I: REGRESSION:

Introduction - Linear and Non Linear Regression – Correlation Vs. Regression - Lines of Regression - Derivation of Line of Regression of Y on X - Line of Regression of X on Y - Using Regression Lines for Prediction.

UNIT-II: INDEX NUMBERS:

Introduction - Uses - Types - Problems in the Construction of Index Numbers - Methods of Constructing Index Numbers - Simple and Weighted Index Number (Laspeyre - Paasche, Marshall – Edgeworth) - Tests of Consistency of Index Number: Unit Test - Time Reversal Test - Factor Reversal Test - Circular Test - Base Shifting - Splicing and Deflating of Index Numbers.

UNIT-III: TIME SERIES:

Introduction - Components – Methods-Semi Averages - Moving Averages – Least Square Method - Deseasonalisation of Data – Uses and Limitations of Time Series.

UNIT-IV: PROBABILITY:

Probability – Meaning - Experiment – Event - Mutually Exclusive Events - Collectively Exhaustive Events - Independent Events - Simple and Compound Events - Basics of Set Theory – Permutation – Combination - Approaches to Probability: Classical – Empirical – Subjective - Axiomatic - Theorems of Probability: Addition – Multiplication - Baye’s Theorem.

UNIT-V: THEORITCAL DISTRIBUTIONS:

Binomial Distribution: Importance – Conditions – Constants - Fitting of Binomial Distribution.
Poisson Distribution: – Importance – Conditions – Constants - Fitting of Poisson Distribution.
Normal Distribution: – Importance - Central Limit Theorem - Characteristics – Fitting a Normal Distribution (Areas Method Only).

SUGGESTED READINGS:

1. Statistics for Management: Levin & Rubin, Pearson,
2. Fundamentals of Statistics: Gupta S.C, Himalaya
3. Business Statistics: Theory & Application, P. N. Jani, PHI Learning
4. Business Statics – II: Dr. OBul Reddy, Dr. D. Shridevi - PBP
5. Business Statistics: Dr. J. K. Thukral, Taxmann Publications
6. Business Statistics: K. Alagar, Tata McGraw Hill
7. Fundamentals of Statistical: S. P Gupta , Sultan Chand
8. Business Statistics: J. K. Sharma, Vikas Publishers
9. Business Statistics: Vora, Tata McGraw Hill
10. Statistics-Problems and Solutions: Kapoor V.K, S. Chand
11. Statistics-Theory, Methods and Applications: SanchetiD.C. &Kapoor V.K
12. Business Statistics: S. K. Chakravarty, New Age International Publishers
13. Business Statistics-G.Laxman, Vasudeva Reddy, K.Goud, TaxmannPublications,Hyderabad.

Paper DSC 403: CORPORATE ACCOUNTING

Objective: To acquire knowledge of AS-14 and preparation of accounts of banking and insurance companies.

UNIT-I: COMPANY LIQUIDATION:

Meaning – Modes - Contributory Preferential Payments – Statements of Affairs - Liquidator's Remuneration - Preparation of Liquidator's Final Statement of Account (Including problems)

UNIT-II: AMALGAMATION (AS-14):

Amalgamation: In the nature of merger and purchase – Calculation of Purchase Consideration – Accounting Treatment in the books of transferor and transferee companies. (Including problems)

UNIT-III: INTERNAL RECONSTRUCTION AND ACQUISITION OF BUSINESS:

Internal Reconstruction: Accounting treatment – Preparation of final statement after reconstruction- Acquisition of business when new set of books are opened- Debtors and Creditors taken over on behalf of vendors- When same set of books are continued(Including problems)

UNIT-IV: ACCOUNTS OF BANKING COMPANIES:

Books and Registers maintained – Slip system of posting – Rebate on Bills Discounted – Non-Performing Assets – Legal Provisions relating to final accounts - Final Accounts. (Including problems)

UNIT-V: ACCOUNTS OF INSURANCE COMPANIES AND INSURANCE CLAIMS:

Introduction – Formats-Revenue Account–Net Revenue Account - Balance Sheet - Valuation Balance Sheet – Net Surplus – General Insurance - Preparation of final accounts with special reference to Fire and Marine Insurance - Insurance claims- Meaning – Loss of Stock and Assets – Average Clause – Treatment of Abnormal Loss - Loss of Profit. (Including problems)

SUGGESTED READINGS:

1. Advanced Accountancy (Vol-II): S.N.Maheshwari&V.L.Maheswari, Vikas.
2. Accountancy–III: Tulasian, Tata McGraw Hill Co.
3. Advanced Accountancy: Arulanandam; Himalaya
4. Accountancy–III: S.P. Jain & K.L Narang, Kalyani Publishers
5. Advanced Accounting (Vol-II): Chandra Bose, PHI
6. Advanced Accountancy: Shukla and Grewal, S.Chand& Co
7. Advanced Accountancy: R.L.Gupta&Radhaswamy, Sultan Chand & Sons
8. Corporate Accounting: Sakshi Vasudeva, Himalaya.

Paper GE: a) BUSINESS ECONOMICS

Objective: To acquire knowledge for application of economic principles and tools in business practices.

UNIT-I: INTRODUCTION:

Business Economics: Meaning - Nature – Characteristics - Importance and Role - Micro & Macro Economics - Scope - Objectives - Law of Diminishing marginal utility - Law of Equi-marginal utility.

UNIT- II: DEMAND ANALYSIS:

Meaning – Function - Factors influencing Demand -Types of Demand -Demand Curve - Law of Demand –Exceptions to the law of demand-Elasticity of Demand: Concept - Types of elasticity of demand-price, income and cross Elasticity of Demand –measurement of elasticity—arc and point methods—Importance of various Elasticity of Demand

UNIT-III: SUPPLY ANALYSIS:

Law of Supply - Factors influencing Supply - Market Equilibrium- Consumer Surplus - Theory of Consumer behavior - Utility and indifference curve analysis.

UNIT-IV: PRODUCTION ANALYSIS:

Concept of Production –production function-Total Production - Marginal Production - Average Production –returns to a factor- Law of Variable Proportions - Law of Returns to Scale –Isocost–Isoquants - Economies and Dis-economies of Scale.

UNIT-V: COST AND REVENUE ANALYSIS:

Theory of Cost - Concepts of Cost - Short run and Long run cost curves - Traditional and Modern Approaches -Revenue Curves–relationship between total marginal and average revenues- --Break Even Analysis—Meaning – Assumptions – Uses and Limitations.

SUGGESTED READINGS:

1. Business Economics: V. G. Mankar, Himalaya Publishing House
2. Managerial Economics: VanithAgrawal, Pearson Education
3. Business Economics: H. L. Ahuja, S. Chand & Co. Ltd.
4. Business Economics : R. K. Lekhi, Kalyani Publishers
5. Business Economics: D. M. Mithani, Himalaya Publishing House
6. Business Economics: P. N. Chopra, Kalyani Publishers
7. Essential of Business Economics: D. N. Dwivedi, Vikas Publishers
8. Managerial Economics: Varshney and Maheswari, Sultan Chand
9. Business Economics: P. K. Mehta, Tax Mann Publication.

Paper GE: b) ADVANCED ASPECTS OF INCOME TAX

Objective: To acquire conceptual and legal knowledge about Income Tax provisions relating to computation of Income from certain heads and other provisions relating to clubbing, aggregation of income and assessment procedure.

UNIT-I: PROFITS AND GAINS OF BUSINESS OR PROFESSION:

Valuation of Stock Depreciation: Meaning – Assets used for Business – Block of Assets – Rates of Depreciation – Miscellaneous Provisions about depreciation – Computation of Depreciation.

UNIT-II: INCOME FROM OTHER SOURCES:

Winnings from lotteries Puzzles, crown world puzzles, Races Problems on computation on Income from Other Sources. Treatment of Agricultural Income. Heads of income: Gross Total Income – Taxable Income – Income Tax Rates. Problems on computation of Total Income of an Individual based on Residential Status.

UNIT-III: CLUBBING AND AGGREGATION OF INCOME:

Income of other persons included in the total income of Assesse – Income from Firm and AOP – Clubbing Provisions – Deemed Incomes – Provisions of set-off and Carry forward of losses – computation of Gross Total Income – Deductions from GTI u/s 80C to 80U – Problems on Computation of Taxable Income.

UNIT-IV: ASSESSMENT OF INDIVIDUALS:

Computation of Tax Liability – Applicability of Alternate Minimum Tax on Individual u/s 115JC – Problems on Computation of tax liability.

UNIT-V: ASSESSMENT PROCEDURE:

Income tax returns – Types of returns – Filing of e-return – Assessment – Types of assessment: Self-assessment – Provisional assessment – Regular assessment – Best judgement assessment – Reassessment – Rectification of mistakes – Notice on demand.

SUGGESTED READINGS:

1. Income Tax Law and Practice: V.P. Gaur & D.B Narang, Kalyani Publishers.
2. Direct Taxes Law & Practice: Dr. Vinod K. Singhania & Dr. Kapil Singhania, Taxmann
3. Income Tax: M. Jeevarathinam & C. Vijay Vishnu Kumar, SCITECH Publications.
4. Taxation: R.G. Saha, Himalaya Publishing House Pvt. Ltd.
5. Income Tax: B. Lal, Pearson Education.
6. Income Tax: Johar, McGrawHill Education.
7. Taxation Law and Practice: Balachandran & Thothadri, PHI Learnin

Paper DSE 501 (a) : COST ACCOUNTING

Objective: To make the students acquire the knowledge of cost accounting methods.

UNIT-I: INTRODUCTION:

Cost Accounting: Definition – Features – Objectives – Functions – Scope – Advantages and Limitations - Essentials of a good cost accounting system- Difference between Cost Accounting and Financial Accounting – Cost concepts – Cost Classification.

UNIT-II: MATERIAL:

Direct and Indirect Material cost – Inventory Control Techniques – Stock Levels – EOQ – ABC Analysis – JIT - VED - FSND - Issue of Materials to Production – Pricing methods: FIFO - LIFO with Base Stock and Simple and Weighted Average methods.

UNIT-III: LABOUR AND OVERHEADS:

Labour: Direct and Indirect Labour Cost – Methods of Payment of Wages (only Incentive Plans): Halsey, Rowan, Taylor Piece Rate and Merrick Multiple Piece Rate Methods.
Overheads: Classification - Methods of Allocation - Apportionment and Absorption of overheads.

UNIT-IV: UNIT AND JOB COSTING:

Unit Costing: Features - Cost Sheet – Tender and Estimated Cost Sheet.
Job Costing: Features - Objectives – Procedure - Preparation of Job Cost Sheet.

UNIT-V: CONTRACT AND PROCESS COSTING:

Contract Costing: Features – Advantages - Procedure of Contract Costing – Guidelines to Assess profit on incomplete Contracts.
Process Costing: Meaning – Features – Preparation of Process Account – Normal and Abnormal Losses.

SUGGESTED READINGS:

1. Cost Accounting: Jain and Narang, Kalyani
2. Cost Accounting: Srihari Krishna Rao, Himalaya
3. Cost and Management Accounting: PrashantaAthma, Himalaya
4. Cost Accounting: Dr. G. Yogeshweran, PBP.
4. Cost Accounting: Jawaharlal, Tata Mcgraw Hill
5. Cost Accounting: Theory and Practice: Banerjee, PHI
6. Introduction to Cost Accounting: Tulsian, S.Chand
7. Cost Accounting: Horngren, Pearson
8. Cost Accounting: Ravi M. Kishore, Tax Mann Publications.

Paper DSE 501 (b) : FINANCIAL PLANNING & PERFORMANCE

Objective: To make students to understand the Financial Planning & Performance.

UNIT I: STRATEGIC PLANNING:

Strategic planning: Analysis of external and internal factors affecting strategy - Long-term mission and goals - Alignment of tactics with long-term strategic goals - Strategic planning models and analytical techniques - Characteristics of successful strategic planning process - Annual profit plan and supporting schedules: Operational budgets - Financial budgets - Capital budgets - Top-level planning and analysis: Pro forma income - Financial statement projections - Cash flow projections.

UNIT II: BUDGETING AND FORECASTING:

Budgeting Concepts: Operations and performance goals - Characteristics of a successful budget process - Resource allocation - Forecasting techniques: Regression analysis - Learning curve analysis - Expected value - Budgeting Methodologies: Annual business plans (master budgets) - Project budgeting - Activity-based budgeting - Zero-based budgeting - Continuous (rolling) budgets - Flexible budgeting

UNIT III: COST AND VARIANCE ANALYSIS:

Cost and Variance Analysis: Comparison of actual to planned results - Use of flexible budgets to analyze performance - Management by exception - Standard Cost System: Use of standard cost systems - Analysis of variation from standard cost expectations

UNIT IV: PERFORMANCE MEASURES:

Performance Measures: Product profitability analysis - Business unit profitability analysis - Customer profitability analysis - Return on investment - Residual income - Investment base issues - Key performance indicators (KPIs) - Balanced scorecard - Responsibility Centers and Reporting Segments: Types of responsibility centers - Transfer pricing - Reporting of organizational segments

UNIT V: TECHNOLOGY AND ANALYTICS:

Information Systems: Accounting information systems - Enterprise resource planning systems - Enterprise performance management systems - Data Governance: Data policies and procedures - Life cycle of data - Controls against security breaches - Technology-enabled finance transformation: System Development Life Cycle - Process automation - Innovative applications
Data analytics: Business intelligence - Data mining - Analytic tools - Data visualization

SUGGESTED READINGS:

1. Wiley CMAexcel Learning System, Part 1: Planning, Performance & Analytics
2. Strategic Management and Business Policy: Globalization, Innovation and Sustainability, 15th edition; Wheelen, Thomas L., et. al.; Prentice Hall
3. Cost Management: A Strategic Emphasis, 6th edition; Blocher, Edward, J., Stout, David E., Juras, Paul E., and Cokins, Gary; McGraw Hill
4. Horngreen's Cost Accounting: A Managerial Emphasis, 16th edition; Charles T., Datar, Srikant, and Rajan, Madhav; Pearson
5. Quantitative Methods for Business, 13th Edition; Anderson, David, R., Sweeney, Dennis J., Williams, Thomas A., Camm, Jeff, and Martin, R. Kipp; Cengage Learning
6. Management Accounting: An Integrative Approach; McNair-Connolly, C.J., Merchant, Kenneth A.; IMA.

Paper DSE 501 (c) :INTERNATIONAL FINANCIAL REPORTING -I

Objective: To make students to understand the International Financial Reporting.

UNIT I: GENERAL PURPOSE OF FINANCIAL ACCOUNTING AND REPORTING AS PER US GAAP AND IFRS:

Conceptual framework: Standard Setting Bodies & Hierarchy - Elements of F/S - Primary objectives of financial reporting - Qualitative Characteristics of F/S - Fundamental Assumptions & Principles - Accounting Cycle & Preparation of F/S - General-purpose financial statements: Balance sheet - Income statement - Statement of comprehensive income - Statement of changes in equity - Statement of changes cash flows - Public company reporting requirements: SEC Reporting Requirements - Interim Financial Reporting - Segment Reporting - Revenue recognition: 5-Step approach to Revenue Recognition - Certain Customer's Rights & Obligations - Specific Arrangements - Long Term Construction Contracts

UNIT II: CURRENT ASSETS AND CURRENT LIABILITIES (AS PER US GAAP AND IFRS):

Monetary Current Assets & Current Liabilities: Cash & Cash Equivalents - Accounts Receivable - Notes Receivable - Transfers & Servicing of Financial Assets - Accounts Payable - Employee-related Expenses Payable - Inventory: Determining Inventory & Cost of Goods Sold - Inventory Valuation - Inventory Estimation Methods

UNIT III: FINANCIAL INVESTMENTS AND FIXED ASSETS (AS PER US GAAP AND IFRS):

Financial Investments: Investments in Equity Securities - Investment in Debt Securities - Financial Instruments - Tangible Fixed Assets: Acquisition of Fixed Assets - Capitalization of Interest - Costs Incurred After Acquisition - Depreciation - Impairment - Asset Retirement Obligation - Disposal & Involuntary Conversions - Intangible Assets: Knowledge-based intangibles (R&D, software) - Legal rights based intangibles (patent, copyright, trademark, franchise, license, leasehold improvements) - Goodwill

UNIT IV: FINANCIAL LIABILITIES (AS PER US GAAP AND IFRS):

Bonds Payable: Types of Bonds - Convertible bonds vs. Bonds with detachable warrants - Bond Retirement - Fair Value Option & Fair Value Election - Debt Restructuring: Settlement - Modification of terms

UNIT V: SELECT TRANSACTIONS (AS PER US GAAP AND IFRS):

Fair value measurements: Valuation techniques - Fair value hierarchy - Fair value concepts - Accounting changes and error correction: Changes in accounting estimate - Changes in accounting principle - Changes in reporting entity - Correction of an error - Contingencies: Possibility of occurrence (remote, reasonably possible or probable) - Disclosure vs. Recognition
Derivatives and Hedge Accounting: Speculation (non-hedge) - Fair value hedge - Cash flow hedge - Non-monetary exchanges: Exchanges with commercial substance - Exchanges without commercial substance - Leases: Operating lease - Finance lease - Sale leaseback

SUGGESTED READINGS:

1. Miles CPA Review Concept Book: Financial Accounting & Reporting, Miles Education
2. Wiley CPA Excel Exam Review Course Study Guide: Financial Accounting and Reporting, Wiley
3. IFRS & US GAAP Best Practices in Accounting World: GAAP Analysis, Rajesh Dhawan
4. Transparency in Financial Reporting: A concise comparison of IFRS and US GAAP 1st Edition, Ruth Ann McEwen, Harriman House Ltd.
5. IFRS and US GAAP: A Comprehensive Comparison, Steven E. Shamrock, Wiley
6. Wiley GAAP: Interpretation and Application of Generally Accepted Principles, Barry J. Epstein and Ralph Nach, Wiley
7. IFRS Simplified with Practical Illustration Part 1 & 2, Mr RammohanBhave and Dr Mrs Anjali RammohanBhave, CNBC TV 18.

Paper DSE 502 (a) : COMPUTERIZED ACCOUNTING

Objective: To make the students to acquire the knowledge of computer software

UNIT I: MAINTAINING CHART OF ACCOUNTS IN ERP:

Introduction-Getting Started with ERP - Mouse/Keyboard Conventions-Company Creation-Shut a Company-Select a Company-Alter Company Details-Company Features and Configurations-F11: Company Features-F12: Configuration-Chart of Accounts-Ledger-Group-Ledger Creation-Single Ledger Creation-Multi Ledger Creation-Altering and Displaying Ledgers-Group Creation-Single Group Creation-Multiple Group Creation-Displaying Groups and Ledgers-Displaying Groups-Display of Ledgers-Deletion of Groups and Ledgers – P2P procure to page.

UNIT II: MAINTAINING STOCK KEEPING UNITS (SKU):

Introduction-Inventory Masters in ERP - Creating Inventory Masters-Creation of Stock Group-Creation of Units of Measure-Creation of Stock Item-Creation of Godown-Defining of Stock Opening Balance in ERP Stock Category-Reports.

UNIT III: RECORDING DAY-TO-DAY TRANSACTIONS IN ERP:

Introduction-Business Transactions-Source Document for Voucher-Recording Transactions in ERP - Accounting Vouchers-Receipt Voucher (F6)-Contra Voucher (F4)-Payment Voucher (F5)-Purchase Voucher (F9)-Sales Voucher (F8)-Debit Note Voucher-Credit Note (Ctrl+F8)-Journal Voucher (F7).

UNIT IV: ACCOUNTS RECEIVABLE AND PAYABLE MANAGEMENT:

Introduction-Accounts Payables and Receivables-Maintaining Bill-wise Details-Activation of Maintain Bill-wise Details Feature-New Reference-Against Reference-Advance-On Account-Stock Category Report-Changing the Financial Year in ERP.

UNIT V: MIS REPORTS:

Introduction-Advantages of Management Information Systems-MIS Reports in ERP - Trial Balance - Balance Sheet-Profit and Loss Account-Cash Flow Statement-Ratio Analysis-Books and Reports - Day Book-Receipts and Payments-Purchase Register-Sales Register-Bills Receivable and Bills Payable.

SUGGESTED READINGS:

1. Computerised Accounting: GarimaAgarwal, Himalaya
2. Computerised Accounting: A. Murali Krishna, Vaagdevi publications
3. Computerised Accounting: Dr. G. Yogeshweran, PBP.
4. Aakash Business Tools: Spoken Tutorial Project IIT Bombay
5. Mastering Tally: Dinesh Maidasani, Firewal Media
6. Implementing Tally ERP 9: A.K Nadhani and K.K Nadhani, BPB Publications
7. Computerised Accounting and Business Systems: Kalyani Publications
8. Manuals of Respective Accounting Packages
9. Tally ERP 9: J.S. Arora, Kalyani Publications.

Paper DSE 502 (b): FINANCIAL DECISION MAKING - I

Objective: To make students to understand the Financial Decision Making.

UNIT I: FINANCIAL STATEMENT ANALYSIS

Basic Financial Statement Analysis: Common size financial statements - Common base year financial statements - Financial Ratios: Liquidity - Leverage - Activity - Profitability - Market Profitability analysis: Income measurement analysis - Revenue analysis - Cost of sales analysis - Expense analysis - Variation analysis - Special issues: Impact of foreign operations - Effects of changing prices and inflation - Off-balance sheet financing - Impact of changes in accounting treatment - Accounting and economic concepts of value and income - Earnings quality

UNIT II: FINANCIAL MANAGEMENT

Risk & Return: Calculating return - Types of risk - Relationship between risk and return
Long-term Financial Management: Term structure of interest rates - Types of financial instruments - Cost of capital - Valuation of financial instruments

UNIT III: RAISING CAPITAL

Raising Capital: Financial markets and regulation - Market efficiency - Financial institutions - Initial and secondary public offerings - Dividend policy and share repurchases - Lease financing

UNIT IV: WORKING CAPITAL MANAGEMENT

Managing working capital: Cash management - Marketable securities management - Accounts receivable management - Inventory management - Short-term Credit: Types of short-term credit - Short-term credit management

UNIT V: CORPORATE RESTRUCTURING AND INTERNATIONAL FINANCE

Corporate Restructuring: Mergers and acquisitions - Bankruptcy - Other forms of restructuring
International Finance: Fixed, flexible, and floating exchange rates - Managing transaction exposure - Financing international trade - Tax implications of transfer pricing

SUGGESTED READINGS:

1. Wiley CMAexcel Learning System, Part 2: Strategic Financial Management
2. Interpretation and Application of International Financial Reporting Standards; Mackenzie, Bruce, Coetsee, Danie, Njikizana, Tapiwa, Chamboko, Raymond, Colyvas, Blaise, and Hanekom, Brandon; Wiley
3. Financial Reporting & Analysis, 13th edition; Gibson, Charles H.; South-Western Cengage Learning
4. Financial Statement Analysis, 10th edition; Subramanyam, K.R., and Wild, John L.; McGraw Hill
5. Principles of Corporate Finance, 11th edition; Brealey, Richard, A., Myers, Stewart C., and Allen, Franklin; McGraw Hill
6. Fundamentals of Financial Management, 13th edition; Van Horn, James, C., and Wachowicz, John M. Jr.; FT / Prentice Hall

Paper DSE 502 (c) : INTERNATIONAL TAX & REGULATION

Objective: To make students to understand the International Tax & Regulation..

UNIT I: TAXATION OF INDIVIDUALS:

Individual Income Tax Return: Filing Status - Cash basis and Accrual basis

Gross Income: Wages, Salaries, Bonus, Commission, Fees & Tips - Interest & Dividend Income - Business Income - Capital Gains & Losses - Passive Income - Farming Income - Deductions: Adjustments - Deductions from AGI - Calculating Tax: Tax Credits - Alternative Minimum Taxes - Other Taxes - Estimated Tax penalty

UNIT II: PROPERTY TRANSACTIONS & DEPRECIATION:

Capital Gains & Losses - Gains & Losses from Sale of Long-term Business Property - Depreciation & Amortization

UNIT III: TAXATION OF CORPORATIONS:

C-Corporations: Formation - Income Tax Return - Income - Deductions - Reconciliation of Taxable Income with books - Calculating Tax - Corporate Earnings & Distributions - Corporate Liquidation & Reorganizations - S-Corporations: Eligibility criteria - Income Tax Return - Shareholder basis - Earnings and Distribution - Termination of Election

UNIT IV: TAXATION OF OTHER ENTITIES:

Partnerships: Formation - Income Tax Return - Partner basis - Partnership Distributions - Sale of Partnership Interest by a Partner - Termination of Partnership - Estate, Trust & Gift Taxation: Estate and Trust Fiduciary Income Tax Return - Estate Tax Return - Gift Tax Return - Generation-skipping transfer Tax - Tax Exempt Organizations: Formation - Income Tax Return

UNIT V: STATUTORY REGULATIONS, ACCOUNTANT RESPONSIBILITIES, BUSINESS STRUCTURES:

Federal Security Regulations: Securities Act of 1933 - Securities Exchange Act of 1934 - Other federal security regulations - Professional & Legal Responsibilities: Accountant Common Law Liabilities - Accountant Statutory Liabilities - Accountant Liabilities for Privileged Information - Accountant Criminal Liabilities - Employment Regulations - Environmental Regulations - Antitrust Regulations - Business Structures: Sole Proprietorships - Partnerships - Corporations

SUGGESTED READINGS:

1. Miles CPA Review Concept Book: Regulation, Miles Education
2. Wiley CPA Excel Exam Review Course Study Guide: Regulation, Wiley
3. Internal Revenue Code: Income, Estate, Gift, Employment and Excise Taxes, CCH Tax Law Editors
4. Federal Income Tax: Code and Regulations--Selected Sections, Martin B. Dickinson, Wolters Kluwer
5. Federal Income Taxation by Katherine Pratt and Thomas D. Griffith, Wolters Kluwer
6. Federal Income Taxation (Concepts and Insights), Marvin Chirelstein and Lawrence Zelenak, Foundation Press

Paper DSE 503 (a) : AUDITING

Objective: to understand meaning and elements of auditing and gain knowledge for execution of audit.

UNIT-I: INTRODUCTION:

Auditing: Meaning – Definition – Evolution – Objectives – Importance - Types of Audit – Standards of Auditing – Procedure for issue of standards by AASB.

UNIT-II: AUDITOR AND EXECUTION OF AUDIT:

Appointment – Qualification and Disqualification – Qualities – Remuneration – Removal – Rights – Duties – Civil and Criminal Liabilities of Auditors – Commencement of Audit – Engagement Letter – Audit Program – Audit Note Book – Audit Workbook – Audit Markings.

UNIT-III: INTERNAL CONTROL, INTERNAL CHECK AND INTERNAL AUDIT:

Meaning and Objectives of Internal Control – Internal Check and Internal Audit – Internal Check Vs. Internal Audit – Internal Control vs. Internal Audit.

UNIT-IV: VOUCHING:

Meaning – Objectives – Types of Vouchers – Vouching of Trading Transactions – Vouching Cash Transaction – Auditing in an EDP Environment.

UNIT-V: VERIFICATION AND VALUATION OF ASSETS:

Meaning and Definition – Distinction – Verification and Valuation of various Assets and Liabilities – Audit Committee – Role of Audit Committee – Audit Reports.

SUGGESTED READINGS:

1. Principles and Practice of Auditing: RG Saxena, Himalaya Publishing House.
2. Auditing and Assurance for CA Integrated Professional Competence: SK Basu, Pearson.
3. Auditing : Mahitha HPH
4. Auditing: Dr.Nazia Sultana, PBP.
5. Auditing: ArunaJha, Taxmann Publications.
6. Auditing Principles, Practices & Problems: JagdishPrakash, Kalyani Publishers.
7. Auditing and Assurance: Ainapure&Ainapure, PHI Learning.
8. Principles and Practice of Auditing: DinkarPagare, Sultan Chand & Sons.
9. Fundamentals of Auditing: Kamal Gupta and Ashok Arora, Tata McGraw-Hill
10. A Hand Book of Practical Auditing: B.N. Tandonetal., S. Chand.

Paper DSE 503 (b) : ADVANCED CORPORATE ACCOUNTING

Objective: To gain knowledge of AS-19 & 21 and format accounts.

UNIT-I: HOLDING COMPANIES (AS-21):

Nature – Legal requirements – Capital and Revenue Profit/Reserves/Losses – Minority Interest – Cost of Control or Goodwill – Capital Reserve – Inter Company Transactions – Un-realized Profit on Unsold stock - Revaluation of Assets – Interim Dividend by Subsidiary Companies - Debentures in Subsidiary Companies – Consolidated Balance Sheet.

UNIT-II: ELECTRICITY COMPANIES (DOUBLE ACCOUNTING SYSTEM):

Meaning of Double Account System – Final Accounts - Calculation of Reasonable Return and Disposal of Surplus – Replacement of an Asset.

UNIT-III: ACCOUNTING FOR PRICE LEVEL CHANGES:

Introduction – History – Limitations – Profit measurement under different systems of accounting – Methods of Accounting for Price Level Changes: Current Purchasing Power (CPP) – Current Cost Accounting (CCA).

UNIT-IV: LEASE ACCOUNTS (AS-19):

Meaning – Terminology – Advantages and Disadvantages – Types: Financial and Operating Lease – Accounting Treatment in the books of both the parties.

UNIT-V: HUMAN RESOURCE ACCOUNTING & SOCIAL RESPONSIBILITY ACCOUNTING:

Human Resource Accounting: Definition – Objectives – Assumptions – Advantages and Limitations – Approaches - Human resource accounting in India (Theory only).

Social Responsibility Accounting: Meaning – Nature – Need – Objectives – Accounting Concepts – Indicators of Social Performance (Theory only).

SUGGESTED READINGS:

1. Corporate Accounting: R.L.Gupta, M.RadhaSwamy, Sultan Chand
2. Advanced Corporate Accounting: Srilatha Reddy, Himalaya
3. Advanced Corporate Accounting: Dr. Thangapandi, PBP
3. Advanced Accounting: Tulsania, TataMcGraw-hill Publishing Company
4. Corporate Accounting: Jain &Narang, Kalyani Publications
5. Advanced Accounting: S.M.Shukla, SahityaBhavan
6. Corporate Accounting: PrashantaAthma, Himalaya Publishers.
7. Advanced Accounting (Vol. II): Chandra Bose, PHI

Paper DSE 503 (c) : FINANCIAL MANAGEMENT

Objective: To understand basics in Financial Management.

UNIT-I: INTRODUCTION:

Financial Management: Meaning - Nature and Scope – Importance - Objectives - Profit Maximization vs Wealth Maximization – Traditional Functions of Finance Manager – Changing Role of Finance Manager – Relationship between Financial Management and Other Management Areas (Theory).

UNIT-II: FINANCIAL PLANNING:

Sources of Finance - Financial Planning: Meaning and Definition – Objectives – Characteristics – Process – Factors - Limitations (Theory).

UNIT-III: CAPITALIZATION:

Meaning of Capital and Capitalization – Sources of Capital - Theories of Capitalization – Over Capitalization: Meaning - Causes – Consequences - Remedies - Under Capitalization: Meaning – Causes – Consequences - Remedies - Comparison of Under and Over Capitalization – Watered Stock (Theory).

UNIT-IV: COST OF CAPITAL:

Meaning and Definition – Significance – Classification of Costs – Problems in Determination of Cost of Capital – Cost of Debt - Cost of Perpetual and Redeemable Debt - Cost of Preference Capital - Cost of Equity Capital – Cost of retained earnings - Weighted Average Cost of Capital (Simple Problems).

UNIT-V: CAPITAL STRUCTURE:

Meaning – Importance – Factors – Types – Optimal Capital Structure – Theories of Capital Structure: Net Income Approach - Net Operating Income Approach - Traditional Approach - Modigliani and Miller Approach (Simple Problems).

SUGGESTED READINGS:

1. Financial Management: I MPandey, Vikas Publishing House Pvt Ltd.
2. Financial Management: M.Y. Khan & P.K. Jain, Tata McGraw-Hill
3. Financial Management: Shashi K. Gupta & R.K. Sharma, Kalyani Publishers,
4. Financial Management: R.M. Srivastava, Himalaya Publishing House, Hyderabad.
5. Financial Management: Prasanna Chandra, McGraw Hill
6. Financial Management: Kothari, sage
7. Financial Management: Rustagi, Taxman Publications.
8. Fundamentals of Financial Management: Sharan, Pearson.
9. Financial Management: Tulsian, S. Chand.
10. Financial Management: Satish B Mathur, Trinity Press.
11. Fundamentals of Financial Management: D. Chandra Bose, PHI.

Paper PR : RESEARCH METHODOLOGY & PROJECT REPORT

Objective: To introduce the basics of conducting research in social sciences.

UNIT-I: INTRODUCTION, MEASUREMENT AND HYPOTHESIS TESTING:

Meaning of Research-Steps involved- Identification of Problem- Steps involved in the selection of problem-Research Design-Meaning and Types- Measurement Levels/Scales - Scaling Techniques-Hypothesis-Meaning - Types – Testing Procedure.

UNIT-II:PARAMETRIC AND NON-PARAMETRIC TESTS AND RESEARCH REPORT:

Introduction - t-Test - F-Test - Chi Square Test - Anova (One-Way Anova, Two-Way Anova).Concepts onlyContents of a Research Report.

SUGGESTED READINGS:

1. Research Methodology: Himalaya Publications.
2. Methodology of Research in Social Sciences: Krishna Swamy,
3. Research Methodology: Kothari &Garg, New Age Publication
4. Research Methodology: Paneerselvam R, PHI
5. Research Methodology: Dr Vijay Upagade& Dr ArvindShende, S. Chand Publications
6. Research Methodology: Ranjit Kumar, Pearson Publication
7. Reading in Research Methodology in Commerce & Business Management: Achalpathi KV,
8. Research Methodology: Sashi.K Gupta, PraneethRangi, Kalyani Publishers.

GUIDELINES FOR PROJECT WORK

- 1) Project work is a part of the prescribed curriculum to B. Com students.
- 2) Project work is allotted to a group of 4 students.
- 3) During the IV semester, students are expected to undergo internship at a business firm/ Government Department /Software organization/Voluntary organization as per the guidance of teacher concerned.
- 4) Students should get a certificate from the organization.
- 5) At the end of Semester-VI, the project reports would be evaluated by the external examiner designated by the Controller of Examinations, from the panel submitted by the Board of Studies in Commerce. The Examiner would evaluate the project reports for a maximum of 35 marks and conduct Viva-Voce examination for 15 marks. The award lists duly signed would be sent the Controller of Examinations.
- 6) Examiners will examine the following in the project report: i) Survey/Analysis on the topic chosen; ii) Method of data collection; iii) Presentation: Style, Comprehensiveness, graphs, charts etc.; iv) Analysis and inference and implications of the study; v) Bibliography.
- 7) Students must ensure that they maintain **regular contact with their supervisor** and also that they provide the supervisor with drafts of their work at regular intervals.
- 8) Students are required to submit a project report on a topic related/connected with trade, industry & commerce. Project can be done by taking the information from the select organization focusing on areas like marketing, finance, human resource, operations, general management etc.

- 9) Project should be a practical, in-depth study of a problem, issue, opportunity, technique or procedure or some combination of these aspects of business. The Students are required to define an area of investigation, assemble relevant data, analyse the data, draw conclusions and make recommendations.

ORGANISATION OF PROJECT REPORT

1) Project report should be presented in the following sequence:

- i) Title page; ii) Student's declaration; iii) Supervisor's certificate; iv) Internship certificate; v) Abstract; vi) Acknowledgements; vii) Table of contents; viii) List of tables; ix) List of figures; x) List of appendices.

2) Chapter Design should be as follows:

Chapter-I: Introduction: this chapter includes the research problem, need for study/significance of the project, objectives, methodology (hypotheses, statistical tools, data source, scope, sample, chapter design).

Chapter-II: Company Profile: this chapter should contain a brief historical retrospect about the entity of your study.

Chapter-III: Data Analysis and interpretation: this chapter should present the data analysis and inferences.

Chapter-IV: Summary and Conclusions: This Chapter should give an overview of the project, conclusions, implications, recommendations and scope for further research.

Bibliography: lists the books, articles, and websites that are referred and used for research on the topic of the specific project. Follow Harvard style of referencing.

Appendices: the data, used to prepare the tables for analysis, may not be feasible to incorporate as part of chapters, may given as appendices.

TECHNICAL SPECIFICATIONS OF THE PROJECT

- 1) Project should be typed on **A4 white paper**, and be **1.5 spaced**.
- 2) All pages should be **numbered**, and numbers should be placed at the centre of the bottom of the page.
- 3) **All tables, figures and appendices** should be consecutively numbered or lettered, and suitably labeled.
- 4) **3 bound copies&a soft-copy** should be handed in to the **principal/director of your college/institute** at the time of submission.
- 5) **bibliography and referencing:** **Referencing** is necessary to avoid plagiarism, to verify quotations and to enable readers to follow-up and read more fully the cited author's arguments. Reference is given within the text of the project as well as at the end of the project. The basic difference between citation and a reference list (bibliography) is that the latter contains full details of all the in-text citations.
 - **Citation** provides brief details of the author and date of publication for referencing the work in the body of the text.
 - **Reference list** is given at the end of the text and is a list of all references used with additional details provided to help identify each source.

Proper referencing is as crucial aspect of your project. You are therefore strongly advised to talk to your supervisor about this, in order to make sure that your project report follows the appropriate referencing system.

Paper DSE 601 (a) : COST CONTROL AND MANAGEMENT ACCOUNTING

Objective: To be acquaint with Cost Control techniques, Managerial Accounting decision-making techniques and reporting methods.

UNIT-I: INTRODUCTION TO MANAGEMENT ACCOUNTING & MARGINAL COSTING:

Meaning and Importance of Management Accounting – Marginal Cost Equation – Difference between Marginal Costing and Absorption Costing – Application of Marginal Costing – CVP Analysis – Break Even Analysis: Meaning – Assumptions – Importance - Limitations. Marginal Costing for Decision Making-Make or Buy – Add or Drop Products – Sell or Process Further – Operate or Shut-down – Special Order Pricing – Replace or Retain.

UNIT-II: BUDGETARY CONTROL AND STANDARD COSTING:

Budget: Meaning – Objectives – Advantages and Limitations – Essentials of Budgets - Budgetary Control - Classification of Budgets - Preparation of Fixed and Flexible Budgets. Standard Costing: Meaning – Importance – Standard Costing and Historical Costing - Steps involved in Standard Costing. Variance Analysis: Material variance - Labour variance - Overhead variance.

UNIT-III: TECHNIQUES OF FINANCIAL STATEMENT ANALYSIS:

Meaning – Objectives - Techniques: Comparative Statement, Common Size Statement, Trend Analysis. Ratios- Meaning, Objectives and Classification—Computation of Activity, Liquidity, Solvency and Profitability Ratios.

UNIT-IV: FUNDS FLOW ANALYSIS:

Concept of Funds – Meaning and Importance – Limitations – Statement of Changes in Working Capital – Statement of Sources and Application of Funds.

UNIT-V: CASH FLOW ANALYSIS (AS-3):

Meaning – Importance – Differences between Funds Flow and Cash Flow Statements – Procedure for preparation of Cash Flow Statement.

SUGGESTED READINGS:

1. Management Accounting- Principles & Practice: Sharma RK & Shashi K. Gupta, Kalyani
2. Advanced Managerial Accounting: Srihari Krishna Rao, Himalaya
3. Advanced Managerial Accounting: Dr. Sundaram, PBP
3. Advanced Management Accounting: Robert S. Kaplan & Anthony A. Atkinson, Prentice-Hall
4. Management Accounting: Rustagi R.P, Galgotia
5. Managerial Accounting: Ronald W. Hilton, TMH

Paper DSE 601 (b) : FINANCIAL CONTROL

Objective: To make students to understand the Financial Control.

UNIT I: EXTERNAL FINANCIAL REPORTING DECISIONS (AS PER US GAAP & IFRS):

Financial Statements: Balance sheet - Income statement - Statement of Comprehensive Income - Statement of changes in equity - Statement of cash flows - Integrated reporting

UNIT II: RECOGNITION, MEASUREMENT, VALUATION, AND DISCLOSURE (AS PER US GAAP & IFRS) :

Assets, Liabilities & Equity: Asset valuation - Valuation of liabilities - Equity transactions - Income: Revenue recognition - Income measurement - Major differences between U.S. GAAP and IFRS

UNIT III: COST MANAGEMENT:

Measurement concepts: Cost behavior and cost objects - Actual and normal costs - Standard costs - Absorption (full) costing - Variable (direct) costing - Joint and by-product costing - Costing Systems: Joint and by-product costing - Job order costing - Process costing - Activity-based costing - Life-cycle costing - Overhead costs: Fixed and variable overhead expenses - Plant-wide versus departmental overhead - Determination of allocation base - Allocation of service department costs

UNIT IV: SUPPLY CHAIN MANAGEMENT AND BUSINESS PROCESS IMPROVEMENT:

Supply chain management: Lean resource management techniques - Enterprise resource planning (ERP) - Theory of constraints - Capacity management and analysis - Business Process Improvement: Value chain analysis - Value-added concepts - Process analysis, redesign, and standardization - Activity-based management - Continuous improvement concepts - Best practice analysis - Cost of quality analysis - Efficient accounting processes

UNIT V: INTERNAL CONTROLS:

Governance, Risk & Compliance: Internal control structure and management philosophy - Internal control policies for safeguarding and assurance - Internal control risk - Corporate governance - External audit requirements - System Controls & Security Measures: General accounting system controls - Application and transaction controls - Network controls - Backup controls - Business continuity planning

SUGGESTED READINGS:

1. Wiley CMAexcel Learning System, Part 1: Planning, Performance & Analytics
2. Intermediate Accounting, 17th edition; Kieso, Donald E., Weygandt, Jerry J., and Warfield, Terry D.; Wiley
3. Intermediate Accounting, 11th edition; Nikolai, Loren A., Bazley John D., and Jones, Jefferson P., South-Western Cengage Learning
4. Cost Management: A Strategic Emphasis, 6th edition; Blocher, Edward, J., Stout, David E., Juras, Paul E., and Cokins, Gary; McGraw Hill
5. Horngreen's Cost Accounting: A Managerial Emphasis, 16th edition; Charles T., Datar, Srikant, and Rajan, Madhav; Pearson
6. Management Accounting: An Integrative Approach; McNair-Connolly, C.J., Merchant, Kenneth A.; IMA

Paper DSE 601(c) :INTERNATIONAL FINANCIAL REPORTING - II

Objective: *To make students to understand the International Financial Reporting.*

UNIT I: PENSIONS & POST-EMPLOYMENT BENEFITS (AS PER US GAAP & IFRS):

Defined contribution pension plans - Defined benefit pension plans: Pension obligations - Pension plan assets - Net pension expense - Other Post-retirement benefits

UNIT II: INCOME TAXES (AS PER US GAAP & IFRS):

Income tax expense: Current income tax expense - Deferred income tax expense - Deferred taxes on balance sheet: Deferred tax assets - Deferred tax liabilities - Specific accounting - considerations: Net Operating Losses (NOL) - Investee's undistributed dividends

UNIT III: EQUITY (AS PER US GAAP & IFRS):

Equity accounts: Common Stock - Preferred Stock - Additional Paid-In Capital - Retained Earnings - Accumulated Other Comprehensive Income - Treasury Stock - Specific accounting considerations: Share-based Payments to Employees - Equity Securities Classified as Debt Presentation of Equity: On Balance sheet - On Statement of Changes in Equity - Earnings per Share (EPS): Basic EPS - Diluted EPS

UNIT IV: SELECT TRANSACTIONS (AS PER US GAAP & IFRS):

Business Combinations and Consolidations: Acquisitions - Non-controlling Interest - Intercompany Transactions - Variable Interest Entities (VIE) - Foreign currency: Remeasurement- Translation

UNIT V: NOT-FOR-PROFIT AND GOVERNMENTAL ACCOUNTING AND REPORTING (AS PER US GAAP):

Not-for-Profit (NFP) Entities: NFP Financial Statements - Contribution Revenue - Specific Accounting Considerations - Colleges and Universities - Voluntary Health and Welfare Organizations - Health Care Organizations - Governmental Entities: Fund types (Governmental funds, Proprietary funds, Fiduciary funds) - Modified Accrual Accounting - Inter-fund transactions - Government Financial Reporting

SUGGESTED READINGS:

1. Miles CPA Review Concept Book: Financial Accounting & Reporting, Miles Education
2. Wiley CPA Excel Exam Review Course Study Guide: Financial Accounting and Reporting, Wiley
3. IFRS & US GAAP Best Practices in Accounting World: GAAP Analysis, Rajesh Dhawan
4. Transparency in Financial Reporting: A concise comparison of IFRS and US GAAP 1st Edition, Ruth Ann McEwen, Harriman House Ltd.
5. IFRS and US GAAP: A Comprehensive Comparison, Steven E. Shamrock, Wiley
6. Wiley GAAP: Interpretation and Application of Generally Accepted Principles, Barry J. Epstein and Ralph Nach, Wiley
7. IFRS Simplified with Practical Illustration Part 1 & 2, Mr RammohanBhave and Dr Mrs Anjali RammohanBhave, CNBC TV 18

Paper DSE 602(a) : THEORY AND PRACTICE OF GST

Objective: to equip the students with the knowledge regarding Theory and Practice of GST.

UNIT I: INTRODUCTION TO GST:

Introduction – GST - Taxes Subsumed under GST -Determination of Tax - Registration -Process of Registration - Cancellation and renovation of registration - Supply of Goods and Services - Transition to GST - Registered Business -Availed Input Tax Credit -Unavailed CENVAT credit and Input VAT on capital goods-Availing the input credit held in closing stock -Invoicing -Tax Invoice -Bill of Supply - Credit Note, Debit Note and Supplementary Invoice-Transportation of goods without issue of Invoice - Input Credit Mechanism - Input Tax - GST Returns - Payment of Tax.

UNIT II: GETTING STARTED WITH GST:

Introduction - Enabling GST and Defining Tax Details-Transferring Input Tax credit to GST -Intrastate Supply of Goods-Intrastate Inward Supply -Intrastate Outward Supply -Interstate -Interstate Outward Supply - Return of Goods -Purchase Returns -Sales Returns -Supplies Inclusive of Tax -Defining Tax Rates at Master and Transaction Levels - Defining GST Rates at Stock Group Level-Defining GST Rate at Transaction Level -Hierarchy of Applying Tax Rate Details –Reports.

UNIT III: RECORDING ADVANCED ENTRIES, GST ADJUSTMENT AND RETURN FILING:

Introduction -Accounting of GST Transactions -Purchases from Composition Dealer -Purchases from Unregistered Dealers-Exports -Imports -Exempted Goods -SEZ Sales -Advance Receipts and payments - Mixed Supply and Composite Supply under GST -Mixed Supply of Goods -Composite Supply of Goods -GST Reports - Generating GSTR- Report in ERP -Input Tax Credit Set Off -GST Tax Payment -Time line for payment of GST tax -Modes of Payment -Challan Reconciliation -Exporting GSTR- return and uploading in GST portal.

UNIT IV: GETTING STARTED WITH GST (SERVICES):

Introduction -Determination of supply of services -Determining the Place of Supply of Services -Enabling GST and Defining Tax Details-Transferring Input Tax credit to GST -Intrastate Supply of Goods - Intrastate Inward Supply-Intrastate Outward Supply -Interstate Supply -Interstate Outward Supply - Interstate Inward Supply -Interstate Outward Supply of Services -Cancellation of Services -Cancellation of Inward Supplies -Cancellation of Outward Supply of Services -Defining Tax Rates at Master and Transaction Levels.

UNIT V: RECORDING ADVANCED ENTRIES AND MIGRATION TO ERP:

Introduction - Accounting Multiple Services in a Single Supply - Recording Partial Payment to Suppliers -Outward Supplies - Recording Outward Supply with Additional Expenses - Supply of services -Business to consumers - Time of Supply of Services - Place of Supply of Services - Determining place of supply of services - Exempt Supply of Services under GST -Export Supply of Services - Reverse Charge on Services under GST - Advance Receipts from Customers under GST - Advance Receipt and issuing Invoice on same month -Advance Receipt and issuing Invoice on different month - Reversal of GST on account of cancellation of advance receipt - Generating GSTR- Report in ERP - Input Tax Credit Set Off - Migration to ERP - Activate Goods and Services Tax (GST) in ERP - Set up GST rates - Update Masters - Update party GSTIN/UIN - Creation of GST Duty ledgers.

SUGGESTED READINGS:

1. Taxmann's Basics of GST
2. Taxmann's GST: A practical Approach
3. Theory & Practice of GST, Srivathsala, HPH
4. Theory & Practice of GST: Dr. Ravi M.N, PBP.
5. Theory and Practice of GST: Prof. A. Sudhakar, Dr. O. Bhavani& Dr. N. Moses, National Publishing Co.

Paper DSE 602(b) : FINANCIAL DECISION MAKING - II

Objective: To make students to understand the Financial Decision making.

UNIT I: DECISION ANALYSIS:

Cost/volume/profit analysis: Breakeven analysis - Profit performance and alternative operating levels - Analysis of multiple products - Marginal Analysis: Sunk costs, opportunity costs and other related concepts - Marginal costs and marginal revenue - Special orders and pricing - Make versus buy - Sell or process further - Add or drop a segment - Capacity considerations

UNIT II: PRICING:

Pricing decisions: Pricing methodologies - Target costing - Elasticity of demand - Product life cycle considerations - Marketstructure considerations

UNIT III: RISK MANAGEMENT:

Enterprise Risk: Types of risk - Risk identification and assessment - Risk mitigation strategies - Managing risk

UNIT IV: INVESTMENT DECISIONS:

Capital budgeting process: Stages of capital budgeting - Incremental cash flows - Income tax considerations - Evaluating uncertainty - Capital investment method analysis: Net present value - Internal rate of return - Payback - Comparison of investment analysis methods

UNIT V: PROFESSIONAL ETHICS:

Business ethics: Moral philosophies and values - Ethical decision making - Ethical considerations for management accounting and financial management professionals: IMA's Statement of Ethical Professional Practice - Fraud triangle - Evaluation and resolution of ethical issues - Ethical considerations for the organization: Organizational factors and ethical culture - IMA's Statement on Management Accounting, "Values and Ethics: From Inception to Practice" - Ethical leadership - Legal compliance - Responsibility for ethical conduct - Sustainability and social responsibility.

SUGGESTED READINGS:

1. Wiley CMAexcel Learning System, Part 2: Strategic Financial Management
2. Cost Management: A Strategic Emphasis, 6th edition; Blocher, Edward, J., Stout, David E., Juras, Paul E., and Cokins, Gary; McGraw Hill
3. Horngreen's Cost Accounting: A Managerial Emphasis, 16th edition; Charles T., Datar, Srikant, and Rajan, Madhav; Pearson
4. Principles of Corporate Finance, 11th edition; Brealey, Richard, A., Myers, Stewart C., and Allen, Franklin; McGraw Hill
5. Fundamentals of Financial Management, 13th edition; Van Horn, James, C., and Wachowicz, John M. Jr.; FT / Prentice Hall
6. Enterprise Risk Management - Integrated Framework; COSO, The Committee of Sponsoring Organizations of the Treadway Commission, 2017

Paper DSE 602 (c): INTERNATIONAL AUDITING

Objective: To make students to understand the International Auditing.

UNIT I: ETHICS, PROFESSIONAL RESPONSIBILITIES AND GENERAL AUDITING**PRINCIPLES:**

Introduction to Auditing: Generally Accepted Auditing Standards (GAAS) - International Standards of Auditing (ISA) - Ethics, independence and professional conduct: AICPA Code of Professional Conduct - Sarbanes-Oxley Act (SOX), 2002 - Public Company Accounting Oversight Board (PCAOB) - Securities & Exchange Commission (SEC) - International Standards - Engagement Understanding and Acceptance: Pre-Engagement Acceptance Activities - Engagement Letter - Auditor's communication with those charged with governance

Quality Control: Statements on Quality Control Standards (SQCS) - Elements of a System of Quality control

UNIT II: ASSESSING AUDIT RISK AND DEVELOPING A PLANNED RESPONSE:

Audit Risk: Inherent Risk - Control Risk - Detection Risk - Fraud Risk: Fraudulent financial reporting - Misappropriation of assets - Fraud risk factors - Auditor's consideration of fraud

Planning the Audit: Audit Strategy - Audit Plan - Internal Controls: Auditor's Consideration of Internal Control - Operating Cycles - Internal Control Reports and Communications

UNIT III: PERFORMING FURTHER PROCEDURES AND OBTAINING AUDIT EVIDENCE:

Audit Evidence: Management's Assertions - Sufficient & Appropriate Audit Evidence - Audit Evidence determined by Risk of Material Misstatement (RMM) - Substantive Procedures: Revenue cycle - Expenditure cycle - Production cycle - Payroll cycle - Investing cycle - Financing cycle - Opening Balances - Illegal Acts - Related Parties - Contingencies - Estimates & Fair Value Measurements - Subsequent Events - Omitted Procedures & Subsequent Discovery of Facts - Using the Work of Others - Evaluating Audit Findings - Audit Documentation - Management Representation Letter - Audit Sampling: Sampling Risks - Attributes Sampling - Classical Variables Sampling - Probability Proportional to Size (PPS) Sampling

UNIT IV: AUDIT REPORTING:

Audit Reports: Unmodified opinion - Unmodified Opinion with Emphasis-of-matter and/or Other-matter paragraph - Qualified Opinion - Adverse Opinion - Disclaimer of Opinion - Audit Reporting Considerations: Audit of Comparative financial statements - Supplementary Information - Audit of Group financial statements - Audit of Single financial statements & Specific financial statement elements, accounts or items - Audit of Special Purpose financial statements - Audit of financial statements prepared using financial reporting framework of another country

UNIT V: OTHER ENGAGEMENTS:

Accounting & Review Services: Preparation of financial statements - Compilation engagement - Review engagement - Attestation Engagements: Examination - Review - Agreed-upon Procedures - Governmental Auditing: Governmental Auditing Standards - Single Audit Act

SUGGESTED READINGS:

1. Miles CPA Review Concept Book: Auditing and Attestation, Miles Education
2. Wiley CPA Excel Exam Review Course Study Guide: Auditing and Attestation, Wiley
3. Wiley Practitioner's Guide to GAAS: Covering all SAS, SSAE's, SSARS, PCAOB, Auditing Standards, and Interpretations, Joanne M. Flood, Wiley
4. Auditing: A Risk Based-Approach to Conducting a Quality Audit, Karla M Johnstone, Audrey A. Gramling and Larry E. Rittenberg, Cengage Learning
5. Principles of Auditing & Other Assurance Services, Ray Whittington and Kurt Pany, McGraw Hill
6. Auditing & Assurance Services: A Systematic Approach, William F Messier Jr, Steven M. Glover and Douglas F. Prawitt, McGraw Hill.

Paper DSE 603(a): ACCOUNTING STANDARDS

Objectives: To make the students acquire the knowledge and application of Indian Accounting Standards.

UNIT-I: INTRODUCTON:

Introduction to Accounting – Concept of Accounting Theory – Role of accounting theory - Classification of Accounting Theory – Deductive and inductive approach in theory formulation – - Accounting Principles: Concepts and Conventions - Accounting standard: Concept – Evolution. (Theory only)

UNIT-II: STANDARDS RELATING TO FINANCIAL REPORTING & DISCLOSURE:

Ind AS-101: First time adoption of Indian Accounting Standards – Ind AS-1: Presentation of Financial Statements - Ind AS-7: Cash Flow Statements (Including problems) – Ind AS-8: Accounting Policies, Changes in Accounting Estimates and Errors – Ind AS-10: Events after the Balance Sheet Date -- Ind AS-24: Related Party Disclosures – Ind AS- 34: Interim Financial Reporting - Ind AS-105: Non-current assets held for sale and discontinued operations – Ind AS-108: Operating Segments.

UNIT-III: STANDARDS PROVIDING GUIDANCE ON FINANCIAL STATEMENT ITEMS:

Ind AS-2: Inventories (Including simple problems) -- Ind AS-11: Construction contracts (Including simple problems) - Ind AS-12: Income taxes – Ind AS-16: Property, Plant and Equipment – Ind AS-17: Leases (Including simple problems) - Ind AS-18: Revenue – Ind AS-20: Accounting for Government Grants and Disclosure of Government Assistance – Ind AS-23: Borrowing Costs – Ind AS-38: Intangible Assets.

UNIT-IV: STANDARDS RELATING TO BUSINESS ACQUISITIONS AND CONSOLIDATIONS:

Ind AS-28: Investments in Associate and Joint Ventures - Ind AS-103: Business Combinations – Ind AS-110: Consolidated Financial Statements – Ind AS-111: Joint Arrangements – Ind AS-112: Disclosure of interest in other entities

UNIT-V: FINANCIAL REPORTING:

Financial reporting – Concept — Development in Financial reporting objectives: True blood Report (USA) – The Corporate Report (UK) – Stamp Report (Canada) - Objectives of Financial Reporting – Qualities of Financial Reporting - Recent trends in Corporate Reporting in India. (Theory only)

SUGGESTED READINGS:

1. Rawat D.S. “Ind ASs Converged IFRS” Taxmann Allied Services Private Limited.
2. Accounting Theory and Practice: Jawaharlal, Himalaya Publishing Company
3. Accounting Standards: Rawat D.S, Taxmann Allied Services Private Limited
4. IFRS Concepts and Applications: Kamal Garg, Bharat Law House Pvt. Limited
5. Accounting Theory: Porwal L.S, TataMcGraw-Hill Publishing Company
6. Accounting Theory & Management Accounting: Jain S.P. & Narang K.L, Kalyani
7. Accounting Standards and Corporate Accounting Practices: Ghosh T.P, Taxman

Paper DSE 603(b) : CORPORATE GOVERNANCE

Objective: To acquaint the student with the finer nuances of Corporate Governance.

UNIT-1: CORPORATE GOVERNANCE: Evolution and Significance: Corporate Governance: Meaning – Definition - Evolution – Historical Perspective of Corporate Governance – Nature and Scope of Corporate Governance – Need for Corporate Governance – Essentials of Corporate Governance – Objectives of Corporate Governance - Benefits and Limitations of Corporate Governance - Structure – Theories.

UNIT – II: CORPORATE GOVERNANCE COMMITTEES AND MODELS:

CG Committees: Cadbury Committee, Greenbury Committee, Hampel Committee, Sarbanes-Oxley Act, 2002, Blue Ribbon Committee, King Committee, Kumara Mangalam Birla Committee, Narayana Murthy Committee, CII Task Force Committee – CG Models : Anglo-American, German, Japanese and Indian Model.

UNIT - III: CORPORATE GOVERNANCE AND SOCIAL RESPONSIBILITY:

Corporate Social Reporting – Meaning – Types of CSR - Role of CSR towards Society – Employees, Government, Stakeholders and Consumers – Nature of CSR – CSR Principles and Strategies - Models – Best Practices of CSR - CSR: Indian Perspective – Sachar Committee Report.

UNIT - IV: ACCOUNTABILITY IN CORPORATE GOVERNANCE:

Definition – Importance - Accounts and Financial Reporting - Stakeholders Influence - Social Responsibility and Accountability - Reflection of Stakeholder’s Accountability in Legislation, Guidance on Stakeholders and Shareholders Interest. Role of Top Management in Corporate Governance. Role of Auditors in Corporate. Role of Shareholders & Other Stakeholders in Corporate Governance.

UNIT – V: ISSUES IN CORPORATE GOVERNANCE :

Role of Promoters - Nominee Directors - Mismanagement – Corporate Frauds - Negligent Role of Auditors – Banks- Supervision and Control of Stock Exchanges – Whistle Blowing Policy - RBI – Ministry of Corporate Affairs – Towards Building Ethical and Sustainable Organization.

SUGGESTED READINGS:

1. Business Ethics and Corporate Governance, (2017) Prof. K. ViyyannaRao, Dr. G. Nagaraju I.K., International Publishing House Pvt. Ltd,
2. Corporate Governance,(2014), BholanathDutta and S.K. Podder - Vision Book house,
3. Business Ethics,(2005)2ND Edition, R.V. Badi N.V. Badi, Vrinda Publication pvt Ltd
4. Business Ethics An Indian Perspective, 2015, A. C. Fernando - Pearson
5. Business Ethics and Corporate Governance, Reprint 2013, C.S.V. Murthy – Himalaya Publication
6. Corporate Governance,(2004) H.R. Machiraju, Himalaya Publication House
7. Business Ethics -Text & Cases 2010, C.S.V. Murthy – Himalaya Publication
8. Business Ethics – Dr. Muninarayanappa, Prof. Manjula, Prof. V. Tamil Selvan, Prof. Raghavendra K.S.- Takur Publishers,2015, Bangalore
9. A Study in Business Ethics, Reprint (2008) RituParna Raj, Himalaya Publishing house
10. Ethics in Business and Management Concepts (Western and Indian) & Cases (National & International), R. P. Banerjee, Himalaya Publishing House.
11. Corporate Governance (with Case Studies), DayanandAchrekar, Surendra Publications, New Delhi.
12. Corporate Governance, Robert A G Monks, Wiley India Pvt. Ltd.

Paper DSE 603(C) : INVESTMENT MANAGEMENT

Objective: To familiarize with concepts of risk and return relating to Investment.

UNIT-I: INTRODUCTION:

Investment Management: Meaning and Definition – Objectives - Scope – Investment Vs Speculation – Investment Vs Gambling - Factors affecting Investment Decisions – Investment Alternatives - Types of Investors (Theory).

UNIT-II: RISK AND RETURN:

Meaning of Risk – Risk Vs Uncertainty – Causes of Risk – Types of Risks – Risk and Return of a Single Asset – Ex-Ante and Ex-Post – Risk-Return Relationship – Risk-Return Trade off (Simple Problems).

UNIT-III: MARKET INDICES:

Concept of Index – Methods of computing stock indices – Leading Stock Price Indices in India – Sensex and Nifty – Uses of Market Index (Simple Problems).

UNIT-IV: TIME VALUE OF MONEY:

Concept - Techniques - Compounding Techniques - Doubling Period - Multiple Compounding Period - Present Value Techniques (Simple Problems).

UNIT-V: PORTFOLIO ANALYSIS:

Traditional Vs Modern - Rationale of Diversification - Markowitz portfolio theory - Effect of combining the securities - Measurement of expected return and risk of portfolio (Simple Problems).

SUGGESTED READINGS:

1. Investment Management (Text and Cases): V.K. Bhalla, S. Chand & Company.
2. Security Analysis and Portfolio Management: Shashi K. Gupta & Rosy Joshi, Kalyani Publishers.
3. Investment Management: Dr. V.A. Avadhani, Himalaya Publishing House.
4. Fundamentals of Investment Management: Preeti Singh, Himalaya Publishing House
5. Security Analysis and Portfolio Management: Kevin, PHI.
6. Investment Analysis and Portfolio Management: Prasanna Chandra, Tata McGraw-Hills
7. Investment Management, Prashanta Athma: Kalyani Publications.
8. Security Analysis and Portfolio Management: Madhumati Ranganathan, Pearson.
9. Investment Management: Masheswari, PHI.
10. Security Analysis and Portfolio Management: Dhanesh Khatri, Trinity Press.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc (Computer Applications)
CBCS Pattern with Effect from the Academic Year 2019-2020

Code	Course Title	Course Type	HpW	Credits
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SEMESTER – I

BS106	Programming in C	DSC–3A	4T+3P=7	4 + 1 =5
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SEMESTER – II

BS206	Programming in C++	DSC–3B	4T+3P=7	4 + 1 =5
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AECC

BS107	Fundamentals of Computers	AECC	2T	2
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SEMESTER – III

BS301	Communication Skills(or) Professional Skills (Sec –I)	SEC–1	2T	2
BS302	Python – 1 (Sec –II)	SEC–2	2T	2
BS306	Relational Data Base Management Systems	DSC–3C	4T+3P=7	4 + 1 =5

SEMESTER – IV

BS401	Leadership & Management Skill (or) Universal Human Values (Sec –III)	SEC–3	2T	2
BS402	Python – 2 (Sec –IV)	SEC–4	2T	2
BS406	Multi Media Systems	DSC–3D	4T+3P=7	4 + 1 =5

SEMESTER – V

BS501	Information Technologies	GE	4T	4
BS505	Programming in Java	DSE– 3E	4T+3P=7	4 + 1 =5

SEMESTER – VI

BS605	Web Technologies	DSE– 3F	4T+3P=7	4 + 1 =5
Project/Optional				
BS601	Information Security and Cyber Laws	PO	3T+3P=6	3 + 1 =4
Total Number of Credits				48

Prof.G.Kamala

Chairperson Board of Studies in Computer Science, OU

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Applications)
SEMESTER – I
Programming in C

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

Unit – I

Computer Fundamentals: Introduction of Computers, Classification of Computers, Anatomy of a Computer, Memory Hierarchy, Introduction to OS, Operational Overview of a CPU.

Program Fundamentals: Generation and Classification of Programming Languages, Compiling, Interpreting, Loading, Linking of a Program, Developing Program, Software Development.

Algorithms: Definitions, Different Ways of Stating Algorithms (Step-form, Pseudo-code, Flowchart), Strategy for Designing Algorithms, Structured Programming Concept.

Basics of C: Overview of C, Developing Programs in C, Parts of Simple C Program, Structure of a C Program, Comments, Program Statements, C Tokens, Keywords, Identifiers, Data Types, Variables, Constants, Operators and Expressions, Expression Evaluation–precedence and associativity, Type Conversions.

Unit – II

Input-Output: Non-formatted and Formatted Input and Output Functions, Escape Sequences,

Control Statements: Selection Statements – if, if-else, nested if, nested if-else, comma operator, conditional operator, switch; Iterative Statements–while, for, do-while; Special Control Statement–goto, break, continue, return, exit.

Arrays and Strings: One-dimensional Arrays, Character Arrays, Functions from ctype.h, string.h,

Unit – III

Functions: Concept of Function, Using Functions, Call-by-Value Vs Call-by-reference, Passing Arrays to Functions, Scope of Variables, Storage Classes, Inline Functions, and Recursion.

Pointers: Introduction, Address of Operator (&), Pointer, Uses of Pointers, Arrays and Pointers, Pointers and Strings, Dynamic Memory Allocation.

Unit – IV

User-defined Data Types: Declaring a Structure (Union) and its members, Initialization Structure (Union), Accessing members of a Structure (Union), Structures versus Unions, Enumeration Types.

Files: Introduction, Using Files in C, Working with Text Files and Binary Files, Other File Management Functions.

Textbook: Pradip Dey, Manas Ghosh, Computer Fundamentals and Programming in C (2e)

References:

1. Ivor Horton, Beginning C
2. Ashok Kamthane, Programming in C
3. Herbert Schildt, The Complete Reference C
4. Paul Deitel, Harvey Deitel, C How to Program
5. Byron S. Gottfried, Theory and Problems of Programming with C
6. Brian W. Kernighan, Dennis M. Ritchie, The C Programming Language
7. B. A. Forouzan, R. F. Gilberg, A Structured Programming Approach Using C

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc (Computer Applications)
SEMESTER – I

Programming in C Lab

Practical 3 Hours/Week 1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
 - Faculty must take care about UG Standard Programs.
 - In the external lab examination student has to execute two programs with compilation and deployment steps are necessary. Write the Pseudo Code and draw Flow Chart for the programs.
 - Recommended to use Open Source Software: GCC on Linux; DevC++ (or) CodeBlocks on Windows10.
 - External Vice-Voce is compulsory.
1. Write a program to find the largest two numbers using if and conditional operator.
 2. Write a program to calculate arithmetic operations of two numbers using switch.
 3. Write a program to print the reverse of a given number.
 4. Write a program to print whether the given number is a prime or not.
 5. Write a program to find largest and smallest elements in a given list of numbers
 6. Write a program to find the sum of two matrices
 7. Write a program to find the product of two matrices.
 8. Write a program to print reverse of the string
 9. Write a program to find the factorial of a Positive integer Using iteration and recursion
 10. Write a program to find the GCD of two positive integers using iteration and recursion.
 11. Write a program to demonstrate the call by value and the call by reference concepts.
 12. Write a program to illustrate the use of Enumeration data type.
 13. Write a program to illustrate the use of structure concept.
 14. Write a program to illustrate the use of union concept.
 15. Write a program to write content into a file and display contents of a file
 16. Write a program to copy content of one file into another file and display the content of new file.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Applications)
SEMESTER – II
Programming in C++

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

Unit – I

Introduction to C++: Applications, Example Programs, Tokens, Data Types, Operators, Expressions, Control Structures, Arrays, Strings, Pointers, Searching and Sorting Arrays.
 Functions: Introduction, Prototype, Passing Data by Value, Reference Variables, Using Reference Variables as Parameters, Inline Functions, Default Arguments, Overloading Functions, Passing Arrays to Functions.

Unit – II

Object Oriented Programming: Procedural and Object-Oriented Programming, Terminology, Benefits, OOP Languages, and OOP Applications.
 Classes: Introduction, Defining an Instance of a Class, Why Have Private Members? Separating Class Specification from Implementation, Inline Member Functions, Constructors, Passing Arguments to Constructors, Destructors, Overloading Constructors, Private Member Functions, Arrays of Objects, Instance and Static Members, Friends of Classes, Member-wise Assignment, Copy Constructors, Operator Overloading.

Unit – III

Inheritance: Introduction, Protected Members and Class Access, Base Class Access Specification, Constructors and Destructors in Base and Derived Classes, Redefining Base Class Functions, Polymorphism and Virtual Member Functions, Abstract Base Classes and Pure Virtual Functions, Multiple Inheritance.
 C++ Streams: Stream Classes, Unformatted I/O Operations, Formatted I/O Operations.

Unit – IV

Exceptions: Introduction, Throwing an Exception, Handling an Exception, Object-Oriented Exception Handling with Classes, Multiple Exceptions, Extracting Data from the Exception Class, Re-throwing an Exception.
 Templates: Function Templates–Introduction, Function Templates with Multiple Type, Overloading with Function Templates, Class Templates – Introduction, Defining Objects of the Class Template, Class Templates and Inheritance.

Textbook: Tony Gaddis, Starting out with C++: from control structures through objects (7e)

References:

1. B. Lippman, C++ Primer
 2. Bruce Eckel, Thinking in C++
 3. K.R. Venugopal, Mastering C++
 4. Herbert Schildt, C++: The Complete Reference
 5. Bjarne Stroustrup, The C++ Programming Language
 6. Sourav Sahay, Object Oriented Programming with C++
- TEXT BOOK:**

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Applications)
SEMESTER – II
Programming in C++ Lab

Practical 3 Hours/Week 1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
 - Faculty must take care about UG Standard Programs.
 - In the external lab examination student has to execute two programs with compilation and deployment steps are necessary. Write the Pseudo Code and draw Flow Chart for the programs.
 - Recommended to use Open Source Software: GCC on Linux; DevC++ (or) CodeBlocks on Windows10.
 - External Vice-Voce is compulsory.
1. Write a program to print the sum of digits of a given number
 2. Write a program to check whether the given number is Armstrong or not
 3. Write a program to check whether the given string is Palindrome or not
 4. Write a program to read student name, roll no, marks and display the same using class and object
 5. Write a program to find area of a rectangle, circle, and square using class and object
 6. Write a program to implement inline function inside and outside of a class for
 - a. Finding the area of a square
 - b. Finding the area of a cube
 7. Write a program to implement friend function and friend class
 8. Write a program to implement constructor and destructor with in a class
 9. Write a program to demonstrate hierarchical inheritance.
 10. Write a program to demonstrate multiple inheritances.
 11. Write a program to demonstrate the constructor overloading.
 12. Write a program to demonstrate static polymorphism
 13. Write a program to demonstrate dynamic polymorphism.
 14. Write a program to implement polymorphism using pure virtual functions
 15. Write a program to demonstrate the function templates and class templates
 16. Write a program to demonstrate exception handling using try, catch and finally.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. Computer Applications
Semester-I
AECC
Fundamentals of Computers

Theory

2 Hours/Week

2 Credits

Unit-I

Introduction to Computers: what is a computer, characteristics of Computers, Generations of Computers, Classifications of Computers, Basic Computer organization, Applications of Computers. Input and Output Devices: Input devices, Output devices, Softcopy devices, Hard copy devices. Computer Memory and Processors: Introduction, Memory Hierarchy, Processor, Registers, Cache memory, primary memory, secondary storage devices, magnetic tapes, floppy disks, hard disks, optical drives, USB flash drivers, Memory cards, Mass storage devices, Basic processors architecture.

Unit-II

Number System and Computer Codes: Binary number system, working with binary numbers, octal number system, hexadecimal number system, working with fractions, signed number representation in binary form, BCD code, other codes. Boolean algebra and logic gates: Boolean algebra, Venn diagrams, representation of Boolean functions, logic gates, logic diagrams and Boolean expressions using karnaugh map. Computer Software: Introduction to computer software, classification of computer software, system software, application software, firmware, middleware, acquiring computer software, design and implementation of correct, efficient and maintainable programs.

Text Book: Reema Thareja, Fundamentals of Computers.

References:

1. V.Rajaraman, 6th Edition Fundamentals of Computers, Neeharika Adabala.
2. Anita Goel, Computer Fundamentals.

Course 1: Communication Skills

Context and Justification :

Communication plays an important role in shaping an individual's life, personal as well as professional. Also it is the backbone of any organisation/institution. Success in life to a considerable extent depends on effective communication skills. In today's world of computers and digital media, a strong communication skill base is essential for learners and for smooth functioning of an organisation.

Objectives :

This course has been developed with the following objectives:

1. Identify common communication problems that may be holding learners back
2. Identify what their non-verbal messages are communicating to others
3. Understand role of communication in teaching-learning process
4. Learning to communicate through the digital media
5. Understand the importance of empathetic listening
6. Explore communication beyond language.

Expected Outcome :

By the end of this program participants should have a clear understanding of what good communication skills are and what they can do to improve their abilities.

Credit: 02

Duration: 30 Hours

Number & Titles of Modules:

Total of 7 Modules

Module 1	Listening	4 Hours
Module 2	Speaking	6 Hours
Module 3	Reading	3 Hours
Module 4	Writing and different modes of writing	4 Hours
Module 5	Digital Literacy	4 Hours
Module 6	Effective use of Social Media	4 Hours
Module 7	Non-verbal communication	5 Hours

Module Outline :

Module 1: Listening

4 Hours

- Techniques of effective listening
- Listening and comprehension
- Probing questions
- Barriers to listening

Module 2: Speaking

6 Hours

- Pronunciation
- Enunciation
- Vocabulary
- Fluency
- Common Errors

Module 3: Reading

3 Hours

- Techniques of effective reading
- Gathering ideas and information from a given text
 - i. Identify the main claim of the text
 - ii. Identify the purpose of the text
 - iii. Identify the context of the text
 - iv. Identify the concepts mentioned
- Evaluating these ideas and information
 - i. Identify the arguments employed in the text
 - ii. Identify the theories employed or assumed in the text
- Interpret the text
 - i. To understand what a text says
 - ii. To understand what a text does
 - iii. To understand what a text means

Module 4: Writing and different modes of writing

4 Hours

- Clearly state the claims
- Avoid ambiguity, vagueness, unwanted generalisations and oversimplification of issues
- Provide background information
- Effectively argue the claim
- Provide evidence for the claims
- Use examples to explain concepts
- Follow convention
- Be properly sequenced
- Use proper signposting techniques
- Be well structured
 - i. Well-knit logical sequence
 - ii. Narrative sequence
 - iii. Category groupings

- Different modes of Writing
 - i. E-mails
 - ii. Proposal writing for Higher Studies
 - iii. Recording the proceedings of meetings
 - iv. Any other mode of writing relevant for learners

Module 5: Digital Literacy

4 Hours

- Role of Digital literacy in professional life
- Trends and opportunities in using digital technology in workplace
- Internet Basics
- Introduction to MS Office tools
 - i. Paint
 - ii. Office
 - iii. Excel
 - iv. Powerpoint

Module 6: Effective use of Social Media

4 Hours

- Introduction to social media websites
- Advantages of social media
- Ethics and etiquettes of social media
- How to use Google search better
- Effective ways of using Social Media
- Introduction to Digital Marketing

Module 7: Non-verbal communication

5 Hours

- Meaning of non-verbal communication
- Introduction to modes of non-verbal communication
- Breaking the misbeliefs
- Open and Closed Body language
- Eye Contact and Facial Expression
- Hand Gestures
- Do's and Don'ts
- Learning from experts
- Activities-Based Learning

Pedagogy : Instructor-Led Training, Supplemented by Online Platform (SWAYAM)

Materials : Teaching & Learning

Assessment : Paper-Based or Online Assessment

Bibliography & Suggested Reading including audio video material :

Books

- Sen Madhucchanda (2010), *An Introduction to Critical Thinking*, Pearson, Delhi
- Silvia P. J. (2007), *How to Read a Lot*, American Psychological Association, Washington DC

Course 2: Professional Skills

Context with Justification :

One of the significant outcomes of Higher Education is to prepare an individual for entering the job/employment market. Besides knowledge and skills required for a particular job/occupation, professional skills are also required for an individual to be gainfully employed for a successful and satisfied life. Professional skills are part of life skills. An individual should be able to demonstrate professional skills involving the use of intuitive, logical and critical thinking, communication and interpersonal skills, not limited to cognitive/creative skills. These skills, behaviour and quality of output enhance employability.

The career skills empower an individual with ability in preparing an appropriate resume, addressing the necessary gaps for facing interviews and actively and effectively participating in group discussion thereof, etc. It is also of significant importance that students /individuals possess the know-how to explore career opportunities for themselves, considering their innate strengths and weaknesses.

It is important that the students/individuals are well prepared to take on new challenges and opportunities. With the increasing use of technology in the way we live, learn and work, it is critical for students/individuals to be able to utilise basic computing concepts and also have and espouse excellent Team Skills. Collaborating and working together can assist in resolving complex problems, which allow/offer individuals an opportunity to articulate new ideas and perspectives. It further allows learner / individuals design, develop, problem solve and to adapt to situations based on their experience and skills.

Credit: 02

Duration:30 hours

The Course Professional Skills is divided into two parts:

- a) Career Skills
- b) Team Skills

A. Career Skills

Objectives :

The Objectives of the course are to help students/candidates:

1. Acquire career skills and fully pursue to partake in a successful career path
2. Prepare good resume, prepare for interviews and group discussions
3. Explore desired career opportunities in the employment market in consideration of an individual SWOT.

Expected Outcomes :

At the end of this course the students will be able to:

1. Prepare their resume in an appropriate template without grammatical and other errors and using proper syntax
2. Participate in a simulated interview
3. Actively participate in group discussions towards gainful employment
4. Capture a self - interview simulation video regarding the job role concerned
5. Enlist the common errors generally made by candidates in an interview
6. Perform appropriately and effectively in group discussions
7. Explore sources (online/offline) of career opportunities
8. Identify career opportunities in consideration of their own potential and aspirations
9. Use the necessary components required to prepare for a career in an identified occupation (as a case study).

Duration: 15 Hours

Number & Titles of Modules:

Module 1	Resume Skills	3 Hours
Module 2	Interview Skills	5 Hours
Module 3	Group Discussion Skills	4 Hours
Module 4	Exploring Career Opportunities	3 Hours

Module Outline :

Module 1: Resume Skills **3 Hours**

- i. Resume Skills : Preparation and Presentation**
 - Introduction of resume and its importance
 - Difference between a CV, Resume and Bio data
 - Essential components of a good resume
- ii. Resume skills : common errors**
 - Common errors people generally make in preparing their resume
 - Prepare a good resume of her/his considering all essential components

Module 2: Interview Skills **5 Hours**

- i. Interview Skills : Preparation and Presentation**
 - Meaning and types of interview (F2F, telephonic, video, etc.)
 - Dress Code, Background Research, Do's and Don'ts
 - Situation, Task, Approach and Response (STAR Approach) for facing an interview
 - Interview procedure (opening, listening skills, closure, etc.)
 - Important questions generally asked in a job interview (open and closed ended questions)

- ii. **Interview Skills : Simulation**
 - Observation of exemplary interviews
 - Comment critically on simulated interviews
- iii. **Interview Skills : Common Errors**
 - Discuss the common errors generally candidates make in interview
 - Demonstrate an ideal interview

Module 3: Group Discussion Skills **4 Hours**

- Meaning and methods of Group Discussion
- Procedure of Group Discussion
- Group Discussion- Simulation
- Group Discussion - Common Errors

Module 4: Exploring Career Opportunities **3 Hours**

- Knowing yourself – personal characteristics
- Knowledge about the world of work, requirements of jobs including self-employment.
- Sources of career information
- Preparing for a career based on their potentials and availability of opportunities

Pedagogy : Besides Face to Face lectures (theory would be limited only to 20% of the component and remaining 80% would be practical oriented), the focus would be primarily on blended /hybrid learning. This could include a flipped classroom approach that leverages project-based learning, demonstration, group discussion, simulations etc.

Materials : Audio video materials, Online Platform (SWAYAM), FutureSkills Platform, Used Cases & Case Studies etc.

Assessment: Online evaluation, demonstration, assignments : Some components could be aligned to NOS (SSC/N9005) IT-ITeS Sector . The questions posed to the students would be a mix of MCQs, scenario-based, logical reasoning, comprehension, simulations, etc. Do check the assessment model and sample assessment at (<http://nac.nasscom.in/>)

Bibliography & Suggested Reading including audio video material :
Please check IT-ITeS Sector Skills Council readiness programs namely

- Foundation Skills In IT (FSIT) - Refer the websites like <https://www.sscnasscom.com/ssc-projects/capacity-building-and-development/training/fsit/> and
- Global Business Foundation Skills (GBFS) – Refer websites like <https://www.sscnasscom.com/ssc-projects/capacity-building-and-development/training/gbfs/>

B. Team Skills

Objectives :

The objectives of the course is to make learners:

1. Understand the significance of Team Skills and help them in acquiring them
2. To help them design, develop and adapt to situations as an individual and as a team.

Expected Outcomes :

By the end of this course the learners/candidates will be able to:

1. Use common technology messaging tools that are used in enterprises for flow of information and transition from command and control to informal communication during an online/offline team session
2. Actively use and operate online team communication tools: Webinar, Skype, Zoom, Google hangout etc
3. Appreciate and demonstrate Team Skills
4. Participate in a digital lifestyle conversant with computers, applications, Internet and nuances of cyber security
5. Explore (online) and identify career opportunities in consideration of their own potential and aspirations.
6. Discuss and articulate the key requirements of an entrepreneurial exercise
7. Empathise and trust colleagues for improving interpersonal relations
8. Engage in effective communication by respecting diversity and embracing good listening skills
9. Distinguish the guiding principles for communication in a diverse, smaller internal world
10. Practice interpersonal skills for better relations with seniors, juniors, peers and stakeholders
11. Project a good personal image and social etiquette so as to have a positive impact on building of one's chosen career
12. Generate, share and maximise new ideas with the concept of brainstorming and the documentation of key critical ideas/thoughts articulated and action points to be implemented with timelines in a team discussion (as MOM) in identified applicable templates.

Duration: 15 Hours

Number & Titles of Modules:

Module 1	Presentation Skills	5 Hours
Module 2	Trust and Collaboration	2 Hour
Module 3	Listening as a Team Skill	2 hour
Module 4	Brainstorming	2 Hour
Module 5	Social and Cultural Etiquettes	2 Hour
Module 6	Internal Communication	2 Hour

Module Outline :

Module 1: Presentation Skills **5 Hours**

- Types of presentations
- Internal and external presentation
- Knowing the purpose
- Knowing the audience
- Opening and closing a presentation
- Using presentation tools
- Handling questions
- Presentation to heterogenic group
- Ways to improve presentation skills over time

Module 2: Trust and Collaboration **2 Hours**

- Explain the importance of trust in creating a collaborative team
- Agree to Disagree and Disagree to Agree – Spirit of Team work
- Understanding fear of being judged and strategies to overcome fear

Module 3: Listening as a Team Skill **2 Hours**

- Advantages of Effective Listening
- Listening as a team member and team leader. Use of active listening strategies to encourage sharing of ideas (full and undivided attention, no interruptions, no pre-think, use empathy, listen to tone and voice modulation, recapitulate points, etc.).

Module 4: Brainstorming**2 Hour**

- Use of group and individual brainstorming techniques to promote idea generation.
- Learning and showcasing the principles of documentation of team session outcomes

Module 5: Social and Cultural Etiquette**2 Hour**

- Need for etiquette (impression, image, earn respect, appreciation, etc)
- Aspects of social and cultural/corporate etiquette in promoting teamwork
- Importance of time, place, propriety and adaptability to diverse cultures

Module 6: Internal Communication**2 Hour**

- Use of various channels of transmitting information including digital and physical, to team members.

Pedagogy : Besides Face to Face Lectures (as theory would be limited only to 20% of the component and remaining 80% would be practical oriented), the focus would be primarily on blended learning/hybrid learning. This could include a flipped classroom approach that leverage project based learning, demonstration, group discussion, simulation as well as coaching, seminars and tutorials.

Materials : Audio video materials, Online Platform (SWAYAM), Future Skills platform

Assessment: Written evaluation, demonstration, assignments:

Some components aligned to NOS (SSC/N9005) IT-ITeS . The questions posed to the students would be a mix of MCQs, Scenario-based, logical reasoning, comprehension, simulations, etc. Do check the assessment at website like (<http://nac.nasscom.in/>)

Bibliography & Suggested Reading including audio video material :

Please check IT-ITeS Sector Skills Council readiness program namely Global Business Foundation Skills (GBFS) in website (<https://www.sscnasscom.com/ssc-projects/capacity-building-and-development/training/gbfs/>),and Generic and the entrepreneurial NOS at NSQF Level 4 -7.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. Computer Applications
SEMESTER – III

Python – I
(SEC – II)

Theory

2 Hours/Week

2 Credits

Unit – I

Introduction to Python Programming: How a Program Works, Using Python, Program Development Cycle, Input, Processing, and Output, Displaying Output with the Print Function, Comments, Variables, Reading Input from the Keyboard, Performing Calculations (Operators. Type conversions, Expressions), More about Data Output.

Decision Structures and Boolean Logic: if, if-else, if- elif -else Statements, Nested Decision Structures, Comparing Strings, Logical Operators, Boolean Variables.

Repetition Structures: Introduction, while loop, for loop, Calculating a Running Total, Input Validation Loops, Nested Loops.

Unit – II

Functions: Introduction, Defining and Calling a Void Function, Designing a Program to Use Functions, Local Variables, Passing Arguments to Functions, Global Variables and Global Constants, Value-Returning Functions- Generating Random Numbers, Writing Our Own Value-Returning Functions, The math Module, Storing Functions in Modules.

File and Exceptions: Introduction to File Input and Output, Using Loops to Process Files, Processing Records, Exceptions.

Text Tony Gaddis, *Starting Out With Python (3e)*

References

1. Kenneth A. Lambert, *Fundamentals of Python*
2. Clinton W. Brownley, *Foundations for Analytics with Python*
3. James Payne, *Beginning Python using Python 2.6 and Python 3*
4. Charles Dierach, *Introduction to Computer Science using Python*
5. Paul Gries, *Practical Programming: An Introduction to Computer Science using Python 3*

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Applications)
SEMESTER – III
Relational Data base Management Systems

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

Unit-I

Basic Concepts: Database Management System, File based system, Advantages of DBMS over file based system, Database Approach, Logical DBMS Architecture, Three level architecture of DBMS or logical DBMS architecture, Need for three level architecture, Physical DBMS Architecture, Database Administrator (DBA) Functions & Role, Data files indices and Data Dictionary, Types of Database.

Relational and ER Models: Data Models, Relational Model, Domains, Tuple and Relation, Super keys, Candidate keys, Primary keys and foreign key for the Relations, Relational Constraints, Domain Constraint, Key Constraint, Integrity Constraint, Update Operations and Dealing with Constraint Violations, Relational Operations, Entity Relationship (ER) Model, Entities, Attributes, Relationships, More about Entities and Relationships, Defining Relationship for College Database, E-R Diagram, Conversion of E-R Diagram to Relational Database.

Unit-II

Database Integrity And Normalisation: Relational Database Integrity, The Keys, Referential Integrity, Entity Integrity, Redundancy and Associated Problems – Single Valued Dependencies – Normalisation, Rules of Data Normalization, The First Normal Form, The Second Normal Form, The Third Normal Form, Boyce Codd Normal Form, Attribute Preservation, Lossless, join Decomposition Dependency Preservation.

File Organization: Physical Database Design Issues, Storage of Database on Hard Disks, File Organization and Its Types, Heap files (Unordered files), Sequential File Organization – Indexed (Indexed Sequential) File Organization, Hashed File Organization, Types of Indexes, Index and Tree Structure.

Unit-III

Structures Query Language (SQL): Meaning – SQL commands, Data Definition Language, Data Manipulation Language – Data Control Language, Transaction Control Language Queries using Order by, Where, Group by, Nested Queries. Joins – Views – Sequences, Indexes and Synonyms, Table Handling.

Advanced SQL: Accessing SQL from a Programming Language, Functions and Procedures, Triggers, Recursive Queries.

Unit-IV

Transactions and Concurrency Management: Transactions, Concurrent Transactions, Locking Protocol, Serializable Schedules – Locks Two Phase Locking (2PL), Deadlock and its Prevention, Optimistic Concurrency Control.

Database Recovery and Security: Database Recovery meaning, Kinds of failures – Failure Controlling methods, Database errors, Backup & Recovery Techniques, Security & Integrity.

Text Book: Database Systems: R.Elmasri & S.B. Navathe, Pearson.

References:

1. Introduction to Database Management System: ISRD Group, McGraw Hill.
2. Database Management System: R.Rama krishnan & J.Gehrke, McGraw Hill.
3. Modern Database Management: J.A.Hoffer, V.Rames & H.Topi, Pearson.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Applications)
SEMESTER – III

Relational Data base Management Systems Lab

Practical 3 Hours/Week 1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
- In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.
- External Vice-Voce is compulsory.

1. Create a database having two tables with the specified fields, to computerize a library system of a University College.

LibraryBooks (Accession number, Title, Author, Department, PurchaseDate, Price),
 IssuedBooks (Accession number, Borrower)

- a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
- b) Delete the record of book titled “Database System Concepts”.
- c) Change the Department of the book titled “Discrete Maths” to “CS”.
- d) List all books that belong to “CS” department.
- e) List all books that belong to “CS” department and are written by author “Navathe”.
- f) List all computer (Department=”CS”) that have been issued.
- g) List all books which have a price less than 500 or purchased between “01/01/1999” and “01/01/2004”.

2. Create a database having three tables to store the details of students of Computer Department in your college.

Personal information about Student (College roll number, Name of student, Date of birth, Address, Marks(rounded off to whole number) in percentage at 10 + 2, Phone number)

Paper Details (Paper code, Name of the Paper)

Student’s Academic and Attendance details (College roll number, Paper Code, Attendance, Marks in home examination).

- a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
- b) Design a query that will return the records (from the second table) along with the name of student from the first table, related to students who have more than 75% attendance and more than 60% marks in paper2.
- c) List all students who live in “Warangal” and have marks greater than 60 in paper1.
- d) Find the total attendance and total marks obtained by each student.
- e) List the name of student who has got the highest marks in paper2.

3. Create the following tables and answer the queries given below:

Customer (CustID, email, Name, Phone, ReferrerID)

Bicycle (BicycleID, DatePurchased, Color, CustID, ModelNo)

BicycleModel(ModelNo, Manufacturer, Style) Service (StartDate, BicycleID, EndDate)

- a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
 - b) List all the customers who have the bicycles manufactured by manufacturer "Honda".
 - c) List the bicycles purchased by the customers who have been referred by Customer "C1".
 - d) List the manufacturer of red colored bicycles.
 - e) List the models of the bicycles given for service.
4. Create the following tables, enter at least 5 records in each table and answer the queries given below.
- Employee (Person_Name, Street, City)
 Works (Person_Name, Company_Name, Salary)
 Company (Company_Name, City)
 Manages (Person_Name, Manager_Name)
- a) Identify primary and foreign keys.
 - b) Alter table employee, add a column "email" of type varchar(20).
 - c) Find the name of all managers who work for both Samba Bank and NCB Bank.
 - d) Find the names, street address and cities of residence and salary of all employees who work for "Samba Bank" and earn more than \$10,000.
 - e) Find the names of all employees who live in the same city as the company for which they work.
 - f) Find the highest salary, lowest salary and average salary paid by each company.
 - g) Find the sum of salary and number of employees in each company.
 - h) Find the name of the company that pays highest salary.
5. Create the following tables, enter at least 5 records in each table and answer the queries given below.
- Suppliers (SNo, Sname, Status, SCity)
 Parts (PNo, Pname, Colour, Weight, City)
 Project (JNo, Jname, Jcity)
 Shipment (Sno, Pno, Jno, Qunantity)
- a) Identify primary and foreign keys.
 - b) Get supplier numbers for suppliers in Paris with status>20.
 - c) Get suppliers details for suppliers who supply part P2. Display the supplier list in increasing order of supplier numbers.
 - d) Get suppliers names for suppliers who do not supply part P2.
 - e) For each shipment get full shipment details, including total shipment weights.
 - f) Get all the shipments where the quantity is in the range 300 to 750 inclusive.
 - g) Get part nos. for parts that either weigh more than 16 pounds or are supplied by suppliers S2, or both.
 - h) Get the names of cities that store more than five red parts.
 - i) Get full details of parts supplied by a supplier in Hyderabad.
 - j) Get part numbers for part supplied by a supplier in Warangal to a project in Chennai.
 - k) Get the total number of project supplied by a supplier (say, S1).
 - l) Get the total quantity of a part (say, P1) supplied by a supplier (say, S1).
6. Write a PL/SQL Program to demonstrate Procedure.
 7. Write a PL/SQL Program to demonstrate Function.
 8. Write a PL/SQL program to Handle Exceptions.
 9. Write a PL/SQL Program to perform a set of DML Operations.
10. Create a View using PL/SQL program.
 11. Write a PL/SQL Program on Statement Level Trigger.
 12. Write a PL/SQL Program on Row Level Trigger.

Course 3: Leadership and Management Skills

Context with Justification :

Leaders are foundations of the society, who face and win against adversities and odds of life. Through their words and deeds, they show path to others and transform into inspirational role models, affecting social life vividly. In the current times of cut-throat competitions, disbelief in values, techno-centric complex lifestyles, there is a dire need to emphasise the 'human' agency in community living. This can be done by cultivating and nurturing the innate leadership skills of the youth so that they may transform these challenges into opportunities and become torch bearers of the future by developing creative solutions.

Objectives :

The Module is designed to:

- Help students to develop essential skills to influence and motivate others
- Inculcate emotional and social intelligence and integrative thinking for effective leadership
- Create and maintain an effective and motivated team to work for the society
- Nurture a creative and entrepreneurial mindset
- Make students understand the personal values and apply ethical principles in professional and social contexts.

Expected Outcomes :

Upon completion of the course students will be able to:

1. Examine various leadership models and understand/assess their skills, strengths and abilities that affect their own leadership style and can create their leadership vision
2. Learn and demonstrate a set of practical skills such as time management, self management, handling conflicts, team leadership, etc.
3. Understand the basics of entrepreneurship and develop business plans
4. Apply the design thinking approach for leadership
5. Appreciate the importance of ethics and moral values for making of a balanced personality.

Credit: 02

Duration: 30 Hours

Number & Titles of Modules:

Module 1	Leadership Skills	6 Hours
Module 2	Managerial Skills	6 Hours
Module 3	Entrepreneurial Skills	6 Hours
Module 4	Innovative Leadership and Design Thinking	6 Hours
Module 5	Ethics and Integrity	6 Hours

Module Outline :

Module 1- Leadership Skills

6 Hours

a. Understanding Leadership and its Importance

- What is leadership?
- Why Leadership required?
- Whom do you consider as an ideal leader?

b. Traits and Models of Leadership

- Are leaders born or made?
- Key characteristics of an effective leader
- Leadership styles
- Perspectives of different leaders

c. Basic Leadership Skills

- Motivation
- Team work
- Negotiation
- Networking

Module 2 - Managerial Skills

6 Hours

a. Basic Managerial Skills

- Planning for effective management
- How to organise teams?
- Recruiting and retaining talent
- Delegation of tasks
- Learn to coordinate
- Conflict management

b. Self Management Skills

- Understanding self concept
- Developing self-awareness
- Self-examination
- Self-regulation

Module 3 - Entrepreneurial Skills

6 Hours

a. Basics of Entrepreneurship

- Meaning of entrepreneurship
- Classification and types of entrepreneurship
- Traits and competencies of entrepreneur

b. Creating Business Plan

- Problem identification and idea generation
- Idea validation
- Pitch making

Module 4 - Innovative Leadership and Design Thinking

6 Hours

a. Innovative Leadership

- Concept of emotional and social intelligence

- Synthesis of human and artificial intelligence
- Why does culture matter for today's global leaders

b. Design Thinking

- What is design thinking?
- Key elements of design thinking:
 - Discovery
 - Interpretation
 - Ideation
 - Experimentation
 - Evolution.
- How to transform challenges into opportunities?
- How to develop human-centric solutions for creating social good?

Module 5- Ethics and Integrity

6 Hours

a. Learning through Biographies

- What makes an individual great?
- Understanding the persona of a leader for deriving holistic inspiration
- Drawing insights for leadership
- How leaders sail through difficult situations?

b. Ethics and Conduct

- Importance of ethics
- Ethical decision making
- Personal and professional moral codes of conduct
- Creating a harmonious life

Pedagogy : Pedagogy for the modules is as follows:

1. Leadership Skills - Lectures (augmented with videos); role-plays for leadership models; team building games
2. Managerial Skills - Lectures (augmented with videos), case studies (AMUL, TESLA, Toyota, DMRC, Tata Group, Google, The Mumbai Dabbawala), SWOT analysis, Johari window
3. Entrepreneurial Skills - Lectures (augmented with videos), case studies and practicing business plans
4. Innovative Leadership and Design Thinking- Concept discussion through lecture and videos followed by role-plays and exercises for each set of intelligence, activities using 5 steps – discovery, interpretation, ideation, experimentation, and evolution (Ref.: Workbook of Design Thinking by IDEO)
5. Ethics and Integrity- Experiential learning through stories suggested list (Ahilya Bai, Holkar, Abdul Kalam, Raja Harishchandra, Mahatma Gandhi, Abraham Lincoln), audio visual augmented role plays and storytelling (leaders from varied fields like academics, corporate, social, sports, art, etc.)

Assessment : It can be combination of written evaluation and presentations, including simulations, case studies and business plan.

Bibliography and Suggested Readings :

Books

- Ashokan, M. S. (2015). *Karmayogi: A Biography of E. Sreedharan*. Penguin, UK.
- Brown, T. (2012). *Change by Design*. Harper Business
- Elkington, J., & Hartigan, P. (2008). *The Power of Unreasonable People: How Social Entrepreneurs Create Markets that Change the World*. Harvard Business Press.
- Goleman D. (1995). *Emotional Intelligence*. Bloomsbury Publishing India Private Limited
- Kalam A. A. (2003). *Ignited Minds: Unleashing the Power within India*. Penguin Books India
- Kelly T., Kelly D. (2014). *Creative Confidence: Unleashing the Creative Potential Within Us All*. William Collins
- Kurien V., & Salve G. (2012). *I Too Had a Dream*. Roli Books Private Limited
- Livermore D. A. (2010). *Leading with cultural intelligence: The New Secret to Success*. New York: American Management Association
- McCormack M. H. (1986). *What They Don't Teach You at Harvard Business School: Notes From A Street-Smart Executive*. RHUS
- O'Toole J. (2019) *The Enlightened Capitalists: Cautionary Tales of Business Pioneers Who Tried to Do Well by Doing Good*. Harpercollins
- Sinek S. (2009). *Start with Why: How Great Leaders Inspire Everyone to Take Action*. Penguin
- Sternberg R. J., Sternberg R. J., & Baltes P. B. (Eds.). (2004). *International Handbook of Intelligence*. Cambridge University Press.

E-Resources

- Fries, K. (2019). 8 Essential Qualities That Define Great Leadership. *Forbes*. Retrieved 2019-02-15 from <https://www.forbes.com/sites/kimberlyfries/2018/02/08/8-essential-qualities-that-define-great-leadership/#452ecc963b63>.
- How to Build Your Creative Confidence, Ted Talk by David Kelly - https://www.ted.com/talks/david_kelley_how_to_build_your_creative_confidence
- India's Hidden Hot Beds of Invention Ted Talk by Anil Gupta - https://www.ted.com/talks/anil_gupta_india_s_hidden_hotbeds_of_invention
- Knowledge@Wharton Interviews Former Indian President APJ Abdul Kalam - , "A Leader Should Know How to Manage Failure" <https://www.youtube.com/watch?v=laGZaS4sdeU>
- Martin, R. (2007). How Successful Leaders Think. *Harvard Business Review*, 85(6): 60.
- NPTEL Course on Leadership - <https://nptel.ac.in/courses/122105021/9>

Course 4: Universal Human Values

Context with Justification :

Human civilisation is known for the values that it cherishes and practices. Across various times and places, sages, saints and seers, drawing on their experience, developed practices that placed central importance on values, though the names used by them differed, as their languages varied but the spirit was same. Universal human values are values that human beings cherish and hold in common consciously and otherwise in most of the places and times and practice them.

Renunciation is the foundational value. Renunciation or greedlessness has two preconditions: love for all living beings and absence of selfishness. Renunciation is not self-directed but other-directed and is for life in all forms and shapes, for welfare of all. Renunciation begins when selfishness ends. Renunciation to run away from the problems of life is cowardice. Renunciation without action means parasitic life. Also, service can be practised only when renunciation with action begins. Unegoistical service is inconceivable without renunciation; and true service is possible only through love and compassion. Life and death are eternal truths, so is the truth as fact and truth as value. Truth exists between the two ends of life and death and is to be pursued.

Truth, Love, Peace, Non-Violence and Righteous Conduct are the Universal Human Values. Renunciation (sacrifice), Compassion and Service are also commonly acceptable human values, which at the operation level have been named differently as sincerity, honesty, righteousness, humility, gratitude, aspiration, prosperity, non-violence, trust, faith, forgiveness, mercy, peace and so on. These are needed for well-being of an individual, society and humanity and ultimately Peace in the world.

This course aims at making learners conscious about universal human values in an integral manner, without ignoring other aspects that are needed for learner's personality development.

Objectives :

The present course deals with meaning, purpose, and relevance of universal human values and how to inculcate and practice them consciously to be a good human being and realise one's potentials.

Learning outcomes :

By the end of the course the learners will be able to:

1. Know about universal human values and understand the importance of values in individual, social circles, career path, and national life.
2. Learn from case studies of lives of great and successful people who followed and practised human values and achieved self-actualisation.
3. Become conscious practitioners of human values.
4. Realise their potential as human beings and conduct themselves properly in the ways of the world.

Credit: 02

Duration: 30 Hours

Number & Titles of Modules:

Module 1: Love & Compassion

5 Hours

Module 2: Truth

5 Hours

Module 3: Non-Violence	5 Hours
Module 4: Righteousness	5 Hours
Module 5: Peace	4 Hours
Module 6: Service	3 Hours
Module 7: Renunciation (Sacrifice)	3 Hours

Module Outline :

Module 1: Love & Compassion **5 Hours**

- Introduction: What is love? Forms of love—for self, parents, family, friend, spouse, community, nation, humanity and other beings, both for living and non-living
- Love and compassion and inter-relatedness
- Love, compassion, empathy, sympathy and non-violence
- Individuals who are remembered in history for practicing compassion and love.
- Narratives and anecdotes from history, literature including local folklore
- Practicing love and compassion: What will learners learn gain if they practice love and compassion? What will learners lose if they don't practice love and compassion?
- Sharing learner's individual and/or group experience(s)
- Simulated Situations
- Case studies

Module 2: Truth **5 Hours**

- Introduction: What is truth? Universal truth, truth as value, truth as fact (veracity, sincerity, honesty among others)
- Individuals who are remembered in history for practicing this value
- Narratives and anecdotes from history, literature including local folklore
- Practicing Truth: What will learners learn/gain if they practice truth? What will learners lose if they don't practice it?
- Learners' individual and/or group experience(s)
- Simulated situations
- Case studies

Module 3: Non-Violence **5 Hours**

- Introduction: What is non-violence? Its need. Love, compassion, empathy sympathy for others as pre-requisites for non-violence
- Ahimsa as non-violence and non-killing
- Individuals and organisations that are known for their commitment to non-violence
- Narratives and anecdotes about non-violence from history, and literature including local folklore
- Practicing non-violence: What will learners learn/gain if they practice non-violence? What will learners lose if they don't practice it?
- Sharing learner's individual and/or group experience(s) about non-violence
- Simulated situations
- Case studies

Module 4: Righteousness**5 Hours**

- Introduction: What is righteousness?
- Righteousness and *dharm*a, Righteousness and Propriety
- Individuals who are remembered in history for practicing righteousness
- Narratives and anecdotes from history, literature including local folklore
- Practicing righteousness: What will learners learn/gain if they practice righteousness? What will learners lose if they don't practice it?
- Sharing learners' individual and/or group experience(s)
- Simulated situations
- Case studies

Module 5: Peace**4 hours**

- Introduction: What is peace? Its need, relation with harmony and balance
- Individuals and organisations that are known for their commitment to peace
- Narratives and Anecdotes about peace from history, and literature including local folklore
- Practicing peace: What will learners learn/gain if they practice peace? What will learners lose if they don't practice it?
- Sharing learner's individual and/or group experience(s) about peace
- Simulated situations
- Case studies

Module 5: Service**3 Hours**

- Introduction: What is service? Forms of service, for self, parents, family, friend, spouse, community, nation, humanity and other beings—living and non-living, persons in distress or disaster.
- Individuals who are remembered in history for practicing this value.
- Narratives and anecdotes dealing with instances of service from history, literature including local folklore
- Practicing service: What will learners learn/gain if they practice service? What will learners lose if they don't practice it?
- Sharing learners' individual and/or group experience(s) regarding service
- Simulated situations
- Case studies

Module 6: Renunciation (Sacrifice)**3 Hours**

- Introduction: What is renunciation? Renunciation and sacrifice. Self-restrain and Ways of overcoming greed. Renunciation with action as true renunciation
- Individuals who are remembered in history for practicing this value.
- Narratives and anecdotes from history and literature, including local folklore about individuals who are remembered for their sacrifice and renunciation.
- Practicing renunciation and sacrifice: What will learners learn/gain if they practice Renunciation and sacrifice? What will learners lose if they don't practice it?
- Sharing learners' individual and/or group experience(s)
- Simulated situations
- Case studies

ADDITIONAL PRACTICAL MODULES or OPERATIVE ELECTIVES:

NOTE: The faculty/institution may choose any/some of the following modules keeping in mind the level and specific needs of learners.

Module Outline :

MODULE A - Integral Human Well-Being

5 Hours

Importance of well-being, inter-relatedness of different kinds of well-being and definition of well-being (state of being comfortable, healthy, happy and equanimity)

Well-being and its Kinds

- (i) Physical (physical strength and endurance)
- (ii) Emotional (ability to respond to emotions and control them)
- (iii) Aesthetic (faculty to see and appreciate beauty in all beings)
- (iv) Intellectual (rational, logical well-being)
- (v) Relational well-being (obligation to self, parents, family society, nation humanity and other beings in the universe; living with others with their acceptance)
- (vi) Moral (difference between good and evil and practicing goodness; righteousness)
- (vii) Spiritual (thinking beyond self and journey from senses to spiritual level)

Establish and recognise various states of well-being, embedded in different creatures, but consciously understood by humans

Identify the most pronounced emotions in the individual through given activities

Anecdotes/video/activity to help identify different well-beings

Discussion of related values to well-beings: Aesthetics, ethics, gratitude, forgiveness, and spiritual health i.e., thinking beyond senses and self and for the welfare of others

Importance and practice of well-being through case study/ activity

Ways to attain different kinds of well-being

Activities

MODULE B - Yoga & Pranayama

5 Hours

Importance of Yoga and Pranayama

- Yoga and pranayama for integral well-being and balance in life
- Yoga & Pranayama: Introduction
- Mind - Body – Intellect
- Difference between Yoga and Pranayama and their inter-relatedness.

28
OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. Computer Applications
SEMESTER – IV
Python – II
(SEC – IV)

Theory

2 Hours/Week

2 Credits

Unit – I

Lists and Tuples: Sequences, Introduction to Lists, List slicing, Finding Items in Lists with the in Operator, List Methods and Useful Built-in Functions, Copying Lists, Processing Lists, Two-Dimensional Lists, Tuples.

Strings: Basic String Operations, String Slicing, Testing, Searching, and Manipulating Strings. Dictionaries and Sets: Dictionaries, Sets, Serializing Objects.

Recursion: Introduction, Problem Solving with Recursion, Examples of Recursive Algorithms.

Unit – II

Object-Oriented Programming: Procedural and Object-Oriented Programming, Classes, Working with Instances, Techniques for Designing Classes, Inheritance, Polymorphism.

GUI Programming: Graphical User Interfaces, Using the tkinter Module, Display text with Label Widgets, Organizing Widgets with Frames, Button Widgets and Info Dialog Boxes, Getting Input with Entry Widget, Using Labels as Output Fields, Radio Buttons, Check Buttons.

Text Tony Gaddis, *Starting Out With Python (3e)*

References

1. Kenneth A. Lambert, *Fundamentals of Python*
2. Clinton W. Brownley, *Foundations for Analytics with Python*
3. James Payne, *Beginning Python using Python 2.6 and Python 3*
4. Charles Dierach, *Introduction to Computer Science using Python*
5. Paul Gries, *Practical Programming: An Introduction to Computer Science using Python 3*

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Applications)
SEMESTER – IV
Multi Media Systems

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

Unit - I

Multimedia: Introduction, Definitions, Where to Use Multimedia- Multimedia in Business, Schools, Home, Public Places, Virtual Reality; Delivering Multimedia.

Text: Meaning, Fonts and Faces, Using Text in Multimedia, Computers and Text, Font Editing and Design Tools, Hypermedia and Hypertext.

Images: Before You Start to Create, Making Still Images, Color.

Unit - II

Sound: The Power of Sound, Digital Audio, MIDI Audio, MIDI vs. Digital Audio, Multimedia System Sounds, Audio File Formats, Adding Sound to Your Multimedia Project.

Animation: The Power of Motion, Principles of Animation, Animation by Computer, Making Animations.

Video: Using Video, How Video Works and Is Displayed, Digital Video Containers, Obtaining Video Clips, Shooting and Editing Video.

Unit - III

Making Multimedia: The Stages of a Multimedia Project, the Intangibles, Hardware, Software, Authoring Systems

Designing and producing: designing the structure, designing the user interface, a multimedia design case history, producing.

Unit - IV

The Internet and Multimedia: Internet History, Internetworking, Multimedia on the Web.

Designing for the World Wide Web: Developing for the Web, Text for the Web, Images for the Web, Sound for the Web, Animation for the Web, Video for the Web.

Delivering: Testing, Preparing for Delivery, Delivering on CD-ROM, DVD and World Wide Web, Wrapping.

Text Book:

1. Tay Vaughan, "Multimedia: Making it work", TMH, Eighth edition.

References:

1. Ralf Steinmetz and Klara Naharstedt, "Multimedia: Computing, Communications Applications", Pearson.
2. Keyes, "Multimedia Handbook", TMH.
3. K. Andleigh and K. Thakkar, "Multimedia System Design", PHI.
4. Spoken Tutorial on "GIMP" as E-resource for Learning:-<http://spoken-tutorial.org>
5. Spoken Tutorial on "Blender" as E-resource for Learning:-<http://spoken-tutorial.org>

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Applications)
SEMESTER – IV
Multi Media Systems Lab

Practical 3 Hours/Week 1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
- Faculty must take care about UG Standard Programs.
- In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.
- External Vice-Voce is compulsory.

Example programs:

Practical exercises based on concepts listed in theory using Presentation tools in office automation tool/ GIMP/Blender / Audacity/ Animation Tools/ Image Editors/ Video Editors.

Implement the followings using Blender -

1. Create an animation using the tools panel and the properties panel to draw the following –
Line,
Pen, oval, circle, rectangle, square, pencil, brush, lasso tool
2. Create an animation using text tool to set the font, size, color etc.
3. Create an animation using Free transform tool that should use followings-
Move Objects
Skew Objects
Stretch Objects
Rotate Objects
Stretch Objects while maintaining proportion
Rotate Objects after relocating the center dot
4. Create an animation using layers having following features-
Insert layer, Delete layer, guide layer, Mask layer.
5. Modify the document (changing background color etc.)Using the following tools
Eraser tool
Hand tool
Ink bottle tool
Zoom tool
Paint Bucket tool
Eyedropper tool
6. Create an animation for bus car race in which both starts from the same point and car wins the race.
7. Create an animation in which text Hello gets converted into GoodBye (using motion/shape tweening).
8. Create an animation having five images having fade-in fade-out effect.
9. Create an scene to show the sunrise (using multiple layers and motion tweening)
10. Create an animation to show the ripple effect.

11. Create an animation (using Shape tweening and shape hints) for transforming one shape into another.
12. Create an animation for bouncing ball (you may use motion guide layer).

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Applications)
SEMESTER – V

GE

Information Technologies

BS501

Theory

4 Hours/Week

4 credits

Unit – I

Information Technology Basics – introduction, Need for Information Storage and Processing, Information Technology Components , Role of information Technology, Information Technology and the Internet .

Emerging Trends in IT - Introduction , Electronic Commerce (E-Commerce), Electronic Data Interchange(EDI),

Smart Cards , Mobile Communication, Internet Protocol TV.

Unit – II

Computer Software: Introduction, Classification of Computer Software, System Software, Applications Software, Firmware, Middleware, Acquiring Computer Software.

Operating Systems: Introduction, Evolution of OS, Process Management, Memory Management, File Management, Device Management, Security Management, Command Interpreter, Windows, Linux.

Unit – III

Introduction to Algorithms and Programming Languages: Algorithm, Control Structures, Flowcharts, Pseudo code, Programming Languages, Generations of Programming Languages.

Database Systems: File Oriented Approach, Database Oriented Approach, Database Views, Three-Schema Architecture, Database Models, Components of DBMS, Introduction of SQL Queries.

Unit – IV

Computer Networks: Introduction, Connection Media, Data Transmission Mode, Data Multiplexing, Data Switching, Network Topologies, Types of Networks, Networking Devices, OSI Model.

The Internet: Internet Services, Types of Internet Connections, Internet Security.
Emerging Computer Technologies: Distributed Networking, Peer-to-peer Computing, Grid Computing, Cloud Computing, Utility Computing, OnDemand Computing, Wireless Network, Bluetooth, Artificial Intelligence.

Text

Wiley India Editorial Team, Fundamentals of Information Technology

Reema Thareja, *Fundamentals of Computers*

Reference s

P. K. sinha, *Computer Fundamentals*

Anita Goel, *Computer Fundamentals*

V. Rajaraman, *Fundamentals of Computers*

E. Balagurusamy, *Fundamentals of Computers*

J. Glenn Brookshear, Dennis Brylow, *Computer Science An Overview*

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Applications)
SEMESTER – V
Programming in Java

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

Unit - I

Introduction: Java Essentials, JVM, Java Features, Creation and Execution of Programs, Data Types, Structure of Java Program, Type Casting, Conditional Statements, Loops, Classes, Objects, Class Declaration, Creating Objects.

Unit - II

Method Declaration and Invocation, Method Overloading, Constructors – Parameterized Constructors, Constructor Overloading, Cleaning-up unused Objects. Class Variables & Method-static Keyword, this Keyword, One-Dimensional Arrays, Two-Dimensional Arrays, Command-Line Arguments, Inner Class.

Inheritance: Introduction, Types of Inheritance, extends Keyword, Examples, Method Overriding, super, final Keyword, Abstract classes, Interfaces, Abstract Classes Verses Interfaces.

Packages: Creating and Using Packages, Access Protection, Wrapper Classes, String Class, StringBuffer Class.

Unit - III

Exception: Introduction, Types, Exception Handling Techniques, User-Defined Exception.

Multithreading: Introduction, Main Thread and Creation of New Threads –By Inheriting the Thread Class or Implementing the Runnable Interface, Thread Lifecycle, Thread Priority and Synchronization.

Input/Output: Introduction, java.io Package, File Streams, FileInputStream Class, FileOutputStream Class, Scanner Class, BufferedInputStream Class, BufferedOutputStream Class, RandomAccessFile Class.

Unit - IV

Applets: Introduction, Example, Life Cycle, Applet Class, Common Methods Used in Displaying the Output (Graphics Class).

Event Handling: Introduction, Types of Events, Example.

AWT: Introduction, Components, Containers, Button, Label, Checkbox, Radio Buttons, Container Class, Layouts.

Swings: Introduction, Differences between Swing and AWT, JFrame, JApplet, JPanel, Components in Swings, Layout Managers, JTable.

Text Book:

1. Sachin Malhotra, Saurabh Choudhary, Programming in Java (2e)

References:

1. Bruce Eckel, Thinking in Java (4e)
2. Herbert Schildt, Java: The Complete Reference (9e)
3. Y. Daniel Liang, Introduction to Java Programming (10e)
4. Paul Deitel, Harvey Deitel, Java: How To Program (10e)
5. Cay S. Horstmann, Core Java Volume I –Fundamentals (10e)

OSMANIA UNIVERSITY

**FACULTY OF SCIENCE
B.Sc. (Computer Applications)
SEMESTER – V**

Programming in Java

Practical 3 Hours/Week 1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
 - Faculty must take care about UG Standard Programs.
 - In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.
 - External Vice-Voce is compulsory.
1. Write a program to find the largest of n natural numbers.
 2. Write a program to find whether a given number is prime or not.
 3. Write a menu driven program for following:
 - a. Display a Fibonacci series
 - b. Compute Factorial of a number
 4. Write a program to check whether a given number is odd or even.
 5. Write a program to check whether a given string is palindrome or not.
 6. Write a program to print the sum and product of digits of an Integer and reverse the Integer.
 7. Write a program to create an array of 10 integers. Accept values from the user in that Array. Input another number from the user and find out how many numbers are equal to the number passed, how many are greater and how many are less than the number passed.
 8. Write a program that will prompt the user for a list of 5 prices. Compute the average of the prices and find out all the prices that are higher than the calculated average.
 9. Write a program in java to input N numbers in an array and print out the Armstrong numbers from the set.
 10. Write a java program that computes the area of a circle, rectangle and a Cylinder using function overloading.
 11. Write a Java program for the implementation of multiple inheritance using interfaces to calculate the area of a rectangle and triangle.
 12. Write a java program to create a frame window in an Applet. Display your name, address and qualification in the frame window.
 13. Write a java program to draw a line between two coordinates in a window.
 14. Write a java program to display the following graphics in an applet window.
 - a. Rectangles
 - b. Circles
 - c. Ellipses
 - d. Arcs
 - e. Polygons
 15. Write a program that reads two integer numbers for the variables a and b. If any other character except number (0-9) is entered then the error is caught by NumberFormatException object. After that ex.getMessage () prints the information about the error occurring causes.
 16. Write a program for the following string operations:
 - a. Compare two strings
 - b. concatenate two strings
 - c. Compute length of a string

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Applications)
SEMESTER – VI
Web Technologies

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

Unit – I

Introduction To XHTML– Introduction, first HTML, Headings, Linking, Images, special characters and horizontal rules, Lists, Tables, Frames, Forms, internal linking, meta Elements.

Cascading Style Sheets – Introduction, Inline Styles, Embedded Style Sheets, Conflicting Styles, Linking external sheets, position Elements, box model and text flow, media types, building a CSS drop-down menu, user style sheets, CSS3.

Unit – II

Introduction To Java Scripting- introduction, simple program, prompt dialog and alert boxes, memory concepts, operators(arithmetic, relational, assignment, increment and decrement, logical), decision making, control structures, if... else statement, while, counter-controlled repetitions, switch statement, do... while statement, break and continue statements.

Unit – III

Functions – program modules in JavaScript, programmer–defined functions, functions definition, scope rules, global functions, Recursion. Arrays- introduction, declaring and allocating arrays, references and reference parameters, passing arrays to functions. Multidimensional arrays, Events – registering event handling, event onload, onmouseover, onmouseout, onfocus, onblur, onsubmit, onreset, event bubbling, more events.

Unit – IV

Java Script Objects – introduction to object technology, Math Object, String Object, Date Object, Boolean and Number Object, document and window Objects, using cookies.

XML - Introduction, XML Basics, Structuring Data, XML Namespaces, Document Type Definitions (DTDs), W3C XML Schema Documents, XML Vocabularies, Extensible Style sheet Language and XSL Transformations, Document Object Model (DOM).

Text Book:

1. Internet & World Wide Web: HOW TO PROGRAM- H. M. Deitel, P.J. Deitel, -Fourth Edition- Pearson edition.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Applications)
SEMESTER – VI
Web Technologies Lab

Practical 3 Hours/Week 1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
 - Faculty must take care about UG Standard Programs.
 - In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.
 - External Vice-Voce is compulsory.
1. Write a HTML program using basic text formatting tags, <p>,
, <pre>.
 2. Write a HTML program by using text formatting tags.
 3. Write a HTML program using presentational element tags , <i>, <strike>, <sup>, <sub>, <big>, <small>, <hr>
 4. Write a HTML program using phrase element tags <blockquote>, <cite>, <abbr>, <acronym>, <kbd>, <address>
 5. Write a HTML program using different list types.
 6. Create a HTML page that displays ingredients and instructions to prepare a recipe.
 7. Write a HTML program using grouping elements <div> and .
 8. Write a HTML Menu page for Example cafe site.
 9. Write a HTML program using images, audios, videos.
 10. Write a HTML program to create your time table.
 11. Write a HTML program to create a form using text inputs, password inputs, multiple line text input, buttons, check boxes, radio buttons, select boxes, file select boxes.
 12. Write a HTML program to create frames and links between frames.
 13. Write a HTML program to create different types of style sheets.
 14. Write a HTML program to create CSS on links, lists, tables and generated content.
 15. Write a HTML program to create your college web site using multi column layouts.
 16. Write a HTML program to create your college web site using for mobile device.
 17. Write a HTML program to create login form and verify username and password.
 18. Write a JavaScript program to calculate area of rectangle using function.
 19. Write a JavaScript program to wish good morning, good afternoon, good evening depending on the current time.
 20. Write a JavaScript program using switch case?
 21. Write a JavaScript program to print multiplication table of given number using loop.
 22. Write a JavaScript programs using any 5 events.
 23. Write a JavaScript program using JavaScript built in objects.
 24. Write a JavaScript program to create registration Form with Validations.
 25. Write a XML Program to represent Student Data using DTD.
 26. Write a XML Program to represent Data using XML Schema Definition.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. Computer Applications
SEMESTER – VI

Information Security and Cyber Laws

(Project/Optional)

Theory
Practical

3 Hours/Week
3 Hours/Week

3 Credit
1 Credit

Internal marks = 15
External Marks = 60

Unit – I

Introduction to Information System and Security: Computer Networks, Internet, Protocol, Network Core, Information System, Types of IS, Information Security, Need for Information Security, Information Assurance, Cyber security, Tools of the attacker, Scanning and spoofing, password cracking, malicious software, session hijacking.

Unit – II

Introduction to Cryptography and Applications: Introduction to Application Security, Data Security Considerations, Security Technologies, Important terms, Threat, Flaw, vulnerability, Attack, Cipher, Private Key Cryptography, Substitution Cipher (Caesar), Transposition (Rail-Fence), Security Threats to E-Commerce, E-Cash and Electronic Payment System, Credit/Debit/Smart Cards, forensics, Digital Signature

Unit – III

Introduction to Security Policies and Cyber Laws: Need for an Information Security Policy, Information Security Standards – ISO, Introducing Various Security Policies and Their Review Process, Introduction to Indian Cyber law, Objective and Scope of the IT Act, 2008, Intellectual Property Issues, Overview of Intellectual-Property- Related Legislation in India, Patent, Copyright, Software License

Text Book:

1. Introduction to Information Security and Cyber laws by SuryaPrakash Tripathi
2. Dr. Surya Prakash T, Ritendra G, Praveen Kumar S, KLSI, Introduction to information security and cyber laws (Dreamtech Publication)
3. S. Anderson, Ross, Security Engineering
4. G.R.F. Snyder, T. Pardoe, Network Security
5. Mark Stamp, Information Security: Principles and Practice
6. Basta, W.Halton, Computer Security: Concepts, Issues and Implementation
7. Mark S. Merkow, Jim Breithaupt, Information Security: Principles and Practice

Project work

Theory: 4 Hours/Week

Credits: 4

- The total allotted marks 100 are divided in to the following way
 - Internal Assessment (20 marks)
 - First seminar (10 marks – in between 25 to 30 days after commencement of class work) This seminar include the study of existing system, literature survey, problem definition.
 - Second seminar (10 marks – in between 55 to 60 days after commencement of class work)
This seminar include the requirements specification, analysis, design and partial implementation.
 - External Assessment (80 marks)
 - The students should submit one page of synopsis on the project work for display on the notice board.
 - The project presentation is for 10 minutes followed by 05 minutes for discussion.
 - The student should submit a technical write-up on the project.

At least two teachers will be associated with the project seminar to evaluate students for the award of sessional marks which will be on the basis of performance in all the 3 items (synopsis, presentation, technical write-up).

Dissertation	50M
Presentation	15M
Viva	15M

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. Computer Applications
SEMESTER – VI
Information Security and Cyber Laws Lab
(Project/Optional)

Project

3 Hours/Week

1 Credits

Marks: 25

- In the external lab examination student has to execute the project with compilation and deployment steps are necessary.
 - External Vice-Voce is compulsory.
-
1. Demonstrate the use of Network tools: ping, ipconfig, ifconfig, tracert, arp, netstat, whois
 2. Use of Password cracking tools: John the Ripper, Ophcrack.
 3. Verify the strength of passwords using these tools.
 4. Perform encryption and decryption of Caesar cipher. Write a script for performing these operations.
 5. Perform encryption and decryption of a Rail fence cipher. Write a script for performing these operations.
 6. Demonstrate sending of a protected word document.
 7. Demonstrate sending of a digitally signed document.
 8. Demonstrate sending of a protected worksheet.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
UG (B.Sc.) Scheme of Examinations
B.Sc. (Computer Applications)
(CBCS 2019-2020)

Elaborations

Paper	Credits	Theory Exam		Practical Exam
		University Exam	Internal Exam	
DSC	4+1	80 Marks	20 Marks	50 Marks
DSE	4+1	80 Marks	20 Marks	50 Marks
SEC	2	40 Marks	10 Marks	No Practical
GE	4	80 Marks	20 Marks	No Practical
AECC	2	40 Marks	10 Marks	No Practical
PO	3+1	60 Marks	15 Marks	25 Practical

DSC – Discipline specific core course

DSE – Discipline specific elective course

SEC – Skill enhancement course

GE – Generic Elective

AECC - Ability Enhancement Compulsory

P/O -Project/Optional

Model Question Paper

3 Hours

Max Marks -80

Credits -4

PART -A **Answer any eight questions in part –A 8X4 M = 32 Marks**

UNIT- I 1
 2
 3

UNIT- II 4
 5
 6

UNIT- III 7
 8
 9

UNIT- IV 10
 11
 12

Part – B **Answer all Questions 12MX4 = 48 Marks**

UNIT- I 13
 Or
 14

UNIT- II 15
 Or
 16

UNIT- III 17
 Or
 18

UNIT- IV 19
 Or
 20

**OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Applications)**

Internal Exam (Theory)

**Time: 1 Hr.
20**

Maximum marks:

- Two internal exams (one at the middle of the semester and the other at the end) of one-hour duration are to be conducted carrying 15 marks each.
- Average of the scores of two exams should be taken into account.
- Following is the examination pattern.
 - 10 MCQs (multiple choice questions) of half mark each,
 - 10 FIBs (Fill in the Blanks) of half mark each
 - 5 SAQs (short answered questions) of one mark each
 - Totaling 15 marks.
 - 5 marks meant for assignment.

**OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Applications)**

Practical Question Paper

3 Hours

Max Marks -50

Credits -1

Answer any Two

15M X 2 = 30 MARKS

UNIT – I	1 Program
UNIT- II	1 Program
UNIT-III	1 Program
UNIT-IV	1 Program

Viva - 10 Marks

Record – 10 Marks

**OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Applications)**

2 Credit (SEC) Paper

University Exam (Theory)

**Time: 2 Hrs.
40**

Maximum marks:

Section – A (4 X 4M = 16 Marks)

Answer any four of the following six questions. Each carries four marks.

- Q1. From Unit 1
- Q2. From Unit 1
- Q3. From Unit 1
- Q4. From Unit 2
- Q5. From Unit 2
- Q6. From Unit 2

Section – B (2 X 12M = 24 Marks)

Answer all the following two questions. Each carries fifteen marks.

- Q09. (a) or (b) from Unit 1
- Q10. (a) or (b) from Unit
2

Internal Exam (Theory)

**Time: 1/2 Hr.
10**

Maximum marks:

- One internal exam at the end of the semester, of half an hour duration is to be conducted carrying 10 marks.
- Following is the examination pattern.
 - 10 MCQs (multiple choice questions) of one mark each,
No assignment is required.

External Exam(Theory)

Model Question Paper for Semester VI (Project /optional) only

3 Hours

Max Marks -60

Credits -3

PART -A Answer any Six questions in part –A 6X4 M = 24Marks

UNIT- I 1

2

3

UNIT- II 4

5

6

UNIT- III 7

8

9

Part – B Answer all Questions 12MX3 = 36 Marks

UNIT- I 13

Or

14

UNIT- II 15

Or

16

UNIT- III 17

Or

18

Internal Exam for Semester VI (Project /optional) (Theory)

**Time: 1 Hr.
15**

Maximum marks:

- Two internal exams (one at the middle of the semester and the other at the end) of one-hour duration are to be conducted carrying 15 marks each.
- Average of the scores of two exams should be taken into account.
- Following is the examination pattern.
 - 10 MCQs (multiple choice questions) of half mark each,
 - 10 FIBs (Fill in the Blanks) of half mark each
 - 5 SAQs (short answered questions) of one mark each
 - Totaling 15 marks.
 - No assignment required.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Applications)

Practical Question Paper (Project /optional)

3 Hours

Max Marks -25

Credits -1

Answer any Two

6 X 2 = 12 MARKS

UNIT – I	1 Program
UNIT- II	1 Program
UNIT-III	1 Program
UNIT-I or UNIT-II or UNIT-III	1 Program

Viva - 8 Marks

Record – 5 Marks

MOOCs [Massive Online Open Courses] Free Resources

E-Learning:

- NPTEL :nptel.ac.in [Core Subjects Certification]
- C++ INSTITUTE :cppinstitute.org [C++ Certification]
- ORACLEEDUCATION :education.oracle.com [Java, DBMS Certification]
- BIG DATA UNIVERSITY :bigdatauniversity.com [Big Data Certification]
- COURSERA :coursera.org [Core Subjects Certification]
- CODEACADEMY :codecademy.com [Coding Certification]
- KHANACADEMY :khanacademy.org [Core Subjects Certification]
- PIXAR IN A BOX :khanacademy.org/partner-content/pixar
- VIDEOLECTURES :videlectures.net
- YOUTUBEEDU :plus.google.com/+YouTubeEDU/posts
- DISNEY RESEARCH :disneyresearch.com
- ALISON :alison.com [Core Subjects Certification]
- INTERNET ARCHIVE :archive.org

Freeware:

- SCILAB : scilab.org [MatLab Equivalent]
- GEOGEBRA :geogebra.org [Software for Class Room Teaching]

Search Engine:

- WOLFRAM ALPHA :wolframalpha.com [Computing Engine]
- CITSEER :citseerx.ist.psu.edu [Searching Research Articles]
- DOAJ :doaj.org [Open Access to Journals]

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
CBCS Pattern with Effect from the Academic Year 2019-2020

Structure of Curriculum

Course Title	Hours/Week		Credits
	Theory	Practical	
Semester –I			
Programming in C	4	3	4+1 = 5
Semester –II			
Programming in C++	4	3	4+1 = 5
Semester –III			
Data Structures using C++	4	3	4+1 = 5
Semester –IV			
Data Base Management Systems (DBMS)	4	3	4+1 = 5
Semester –V			
Programming in Java	4	3	4+1 = 5
Semester –VI			
Web Technologies	4	3	4+1 = 5

AECC			
	Hours/Week		Credits
	Theory		
Fundamentals of Computers	2		2
SEC			
Semester –III			
Communication Skills (or) Professional Skills (Sec –I)	2		2
Python –I (Sec –II)	2		2
Semester –IV			
Leadership & Management Skill (or) (Sec –III) Universal Human Values	2		2
Python –II (Sec –IV)	2		2
SEMESTER-V Generic Elective (GE)			
Information Technologies	4		4
Project/Optional			
Semester –VI			
PHP with MY SQL	Theory 3	Practical 3	3+1=4

Prof.G.Kamala
Chairperson Board of Studies in Computer Science, OU

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – I
Programming in C

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

Unit – I

Computer Fundamentals: Introduction of Computers, Classification of Computers, Anatomy of a Computer, Memory Hierarchy, Introduction to OS, Operational Overview of a CPU.

Program Fundamentals: Generation and Classification of Programming Languages, Compiling, Interpreting, Loading, Linking of a Program, Developing Program, Software Development.

Algorithms: Definitions, Different Ways of Stating Algorithms (Step-form, Pseudo-code, Flowchart), Strategy for Designing Algorithms, Structured Programming Concept.

Basics of C: Overview of C, Developing Programs in C, Parts of Simple C Program, Structure of a C Program, Comments, Program Statements, C Tokens, Keywords, Identifiers, Data Types, Variables, Constants, Operators and Expressions, Expression Evaluation–precedence and associativity, Type Conversions.

Unit – II

Input-Output: Non-formatted and Formatted Input and Output Functions, Escape Sequences, Control Statements: Selection Statements – if, if-else, nested if, nested if-else, comma operator, conditional operator, switch; Iterative Statements–while, for, do-while; Special Control Statement–goto, break, continue, return, exit.

Arrays and Strings: One-dimensional Arrays, Character Arrays, Functions from ctype.h, string.h, Multidimensional Arrays.

Unit – III

Functions: Concept of Function, Using Functions, Call-by-Value Vs Call-by-reference, Passing Arrays to Functions, Scope of Variables, Storage Classes, Inline Functions, and Recursion.

Pointers: Introduction, Address of Operator (&), Pointer, Uses of Pointers, Arrays and Pointers, Pointers and Strings, Pointers to Pointers, Array of Pointers, Pointer to Array, Dynamic Memory Allocation.

Unit – IV

User-defined Data Types: Declaring a Structure (Union) and its members, Initialization Structure (Union), Accessing members of a Structure (Union), Array of Structures (Union), Structures verses Unions, Enumeration Types.

Files: Introduction, Using Files in C, Working with Text Files, Working with Binary Files, Files of Records, Random Access to Files of Records, Other File Management Functions.

Textbook: Pradip Dey, Manas Ghosh, Computer Fundamentals and Programming in C (2e)

References:

1. Ivor Horton, Beginning C
2. Ashok Kamthane, Programming in C
3. Herbert Schildt, The Complete Reference C
4. Paul Deitel, Harvey Deitel, C How to Program
5. Byron S. Gottfried, Theory and Problems of Programming with C
6. Brian W. Kernighan, Dennis M. Ritchie, The C Programming Language
7. B. A. Forouzan, R. F. Gilberg, A Structured Programming Approach Using C

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – I
Programming in C Lab

Practical 3 Hours/Week 1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
- Faculty must take care about UG Standard Programs.
- In the external lab examination student has to execute two programs with compilation and deployment steps are necessary. Write the Pseudo Code and draw Flow Chart for the programs.
- Recommended to use Open Source Software: GCC on Linux; DevC++ (or) CodeBlocks on Windows10.
- External Vice-Voce is compulsory.

1. Write a program to find the largest two (three) numbers using if and conditional operator.
2. Write a program to print the reverse of a given number.
3. Write a program to print the prime number from 2 to n where n is given by user.
4. Write a program to find the roots of a quadratic equation using switch statement.
5. Write a program to print a triangle of stars as follows (take number of lines from user):

```
*  
* * *  
* * * * *  
* * * * * * *
```

6. Write a program to find largest and smallest elements in a given list of numbers.
7. Write a program to find the product of two matrices.
8. Write a program to find the GCD of two numbers using iteration and recursion.
9. Write a program to illustrate the use of storage classes.
10. Write a program to demonstrate the call by value and the call by reference concepts.
11. Write a program that prints a table indicating the number of occurrences of each alphabet in the text entered as command line arguments.
12. Write a program to illustrate use of data type enum.
13. Write a program to demonstrate use of string functions string.h header file.
14. Write a program that opens a file and counts the number of characters in a file.
15. Write a program to create a structure Student containing fields for Roll No., Name, Class, Year and Total Marks. Create 10 students and store them in a file.
16. Write a program that opens an existing text file and copies it to a new text file with all lowercase letters changed to capital letters and all other characters unchanged.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – II
Programming in C++

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

Unit – I

Introduction to C++: Applications, Example Programs, Tokens, Data Types, Operators, Expressions, Control Structures, Arrays, Strings, Pointers, Searching and Sorting Arrays.

Functions: Introduction, Prototype, Passing Data by Value, Reference Variables, Using Reference Variables as Parameters, Inline Functions, Default Arguments, Overloading Functions, Passing Arrays to Functions.

Object Oriented Programming: Procedural and Object-Oriented Programming, Terminology, Benefits, OOP Languages, and OOP Applications.

Unit – II

Classes: Introduction, Defining an Instance of a Class, Why Have Private Members? Separating Class Specification from Implementation, Inline Member Functions, Constructors, Passing Arguments to Constructors, Destructors, Overloading Constructors, Private Member Functions, Arrays of Objects, Instance and Static Members, Friends of Classes, Member-wise Assignment, Copy Constructors, Operator Overloading, Object Conversion, Aggregation.

Unit – III

Inheritance: Introduction, Protected Members and Class Access, Base Class Access Specification, Constructors and Destructors in Base and Derived Classes, Class Hierarchies, Polymorphism-Function Overloading, Function Overriding and Virtual Member Functions, Abstract Base Classes and Pure Virtual Functions, Multiple Inheritance.

C++ Streams: Stream Classes, Unformatted I/O Operations, Formatted I/O Operations.

Unit – IV

Exceptions: Introduction, Throwing an Exception, Handling an Exception, Object-Oriented Exception Handling with Classes, Multiple Exceptions, Extracting Data from the Exception Class, Re-throwing an Exception.

Templates: Function Templates–Introduction, Function Templates with Multiple Type, Overloading with Function Templates, Class Templates – Introduction, Defining Objects of the Class Template, Class Templates and Inheritance, , Introduction to the STL.

Textbook: Tony Gaddis, Starting out with C++: from control structures through objects (7e)

References:

1. B. Lippman, C++ Primer
2. Bruce Eckel, Thinking in C++
3. K.R. Venugopal, Mastering C++
4. Herbert Schildt, C++: The Complete Reference
5. Bjarne Stroustrup, The C++ Programming Language
6. Sourav Sahay, Object Oriented Programming with C++TEXT BOOK:
7. Object Oriented Programming with C++ Sixth edition, E.Balaguruswamy.
8. A Structured Approach Using C++ By B.A.Forouzan & Rf Gilberg (Thomson Business Information India)
9. Herbert Schilbt, C++ - The Complete Reference, TMH 2002
10. J.P. Cohoon and J.W. Davidson, C++ program design – An Introduction To Programming and Object Oriented Design.- MGH 1999.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – II
Programming in C++ Lab

Practical 3 Hours/Week 1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
 - Faculty must take care about UG Standard Programs.
 - In the external lab examination student has to execute two programs with compilation and deployment steps are necessary. Write the Pseudo Code and draw Flow Chart for the programs.
 - Recommended to use Open Source Software: GCC on Linux; DevC++ (or) CodeBlocks on Windows10.
 - External Vice-Voce is compulsory.
1. Write a program to.
 - a. Print the sum of digits of a given number.
 - b. Check whether the given number is Armstrong or not
 - c. Print the prime number from 2 to n where n is natural number given.
 2. Write a program to find largest and smallest elements in a given list of numbers and sort the given list.
 3. Write a program to read the student name, roll no, marks and display the same using class and object.
 4. Write a program to implement the dynamic memory allocation and de-allocation using new and delete operators using class and object.
 5. Write a program to find area of a rectangle, circle, and square using constructors.
 6. Write a program to implement copy constructor.
 7. Write a program using friend functions and friend class.
 8. Write a program to implement constructors
 - a. Default Constructor, Parameterized Constructor, Copy Constructor
 - b. Define the constructor inside/outside of the class
 - c. Implement all three constructors within a single class as well as use multiple classes(individual classes)
 9. Write a program to implement the following concepts using class and object
 - a. Function overloading
 - b. Operator overloading (unary/binary(+ and -))
 10. Write a program to demonstrate single inheritance, multilevel inheritance and multiple inheritances.
 11. Write a program to implement the overloaded constructors in inheritance.
 12. Write a program to implement the polymorphism and the following concepts using class and object.
 - a. Virtual functions
 - b. Pure virtual functions
 13. Write a program to implement the virtual concepts for following concepts
 - a. Constructor (not applied)
 - b. Destructor (applied)
 14. Write a program to demonstrate static polymorphism using method overloading.
 15. Write a program to demonstrate dynamic polymorphism using method overriding and dynamic method dispatch.
 16. Write a program to implement the template (generic) concepts
 - a. Without template class and object
 - b. With template class and object

OSMANIA UNIVERSITY
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B.Sc. (Computer Science)
SEMESTER – III
Data Structures using C++

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

Unit - I

Basic data Structure: Introduction to Data Structures, Types of Data Structures, and Introduction to Algorithms, Pseudo code, and Relationship among data, data structures, and algorithms, Implementation of data structures, Analysis of Algorithms.

Stacks: Concept of Stacks and Queues, Stacks, Stack Abstract Data Type, Representation of Stacks Using Sequential Organization (Arrays), Multiple Stacks, Applications of Stack, Expression Evaluation and Conversion, Polish notation and expression conversion, Processing of Function Calls, Reversing a String with a Stack, Recursion.

Unit - II

Recursion: Introduction, Recurrence, Use of Stack in Recursion, Variants of Recursion, Recursive Functions, Iteration versus Recursion.

Queues: Concept of Queues, Queue as Abstract Data Type, Realization of Queues Using Arrays, Circular Queue, Multi-queues, Dequeue, Priority Queue, Applications of Queues,

Linked Lists: Introduction, Linked List, Linked List Abstract Data Type, Linked List Variants, Doubly Linked List, Circular Linked List, Representation of Sparse Matrix Using Linked List, Linked Stack, Linked Queue.

Unit - III

Trees: Introduction, Types of Trees, Binary Tree, Binary Tree Abstract Data Type, Realization of a Binary Tree, Insertion of a Node in Binary Tree, Binary Tree Traversal, Other Tree Operations, Binary Search Tree, Threaded Binary Tree, Applications of Binary Trees.

Searching and Sorting: Search Techniques-Linear Search, Binary Search, Sorting Techniques- Selection Sort, Bubble Sort, Insertion Sort, Merge Sort, Quick Sort, Comparison of All Sorting Methods, Search Trees: Symbol Table, Optimal Binary Search Tree, AVL Tree (Height-balanced Tree).

Unit - IV

Graphs: Introduction, Representation of Graphs, Graph Traversal – Depth First Search, Breadth First Search, Spanning Tree, Prim’s Algorithm, Kruskal’s Algorithm.

Hashing: Introduction, Key Terms and Issues, Hash Functions, Collision Resolution Strategies, Hash Table Overflow, Extendible Hashing

Heaps: Basic Concepts, Implementation of Heap, Heap as Abstract Data Type, Heap Sort, Heap Applications.

Text books:

1. Varsha H. Patil “Data structures using C++” Oxford University press, 2012
2. M.T. Goodrich, R. Tamassia and D. Mount, Data Structures and Algorithms in C++, John Wiley and Sons, Inc., 2011.

References:

1. Adam Drozdek “Data structures and algorithm in C++” Second edition, 2001
2. T.H. Cormen, C.E. Leiserson, R.L. Rivest and C. Stein, Introduction to Algorithms, 2nd Ed., Prentice-Hall of India, 2006.
3. Robert L. Kruse and A.J. Ryba, Data Structures and Program Design in C++, Prentice Hall, Inc., NJ, 1998.
4. B. Stroustrup, The C++ Programming Language, Addison Wesley, 2004
5. D.E. Knuth, Fundamental Algorithms (Vol. I), Addison Wesley, 1997

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B.Sc. (Computer Science)
SEMESTER – III

Data Structures using C++ Lab

Practical

3 Hours/Week

1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
 - In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.
 - External Vice-Voce is compulsory.
1. Write C++ programs to implement the following using an array
 - a) Stack ADT
 - b) Queue ADT
 2. Write a C++ program to implement Circular queue using array.
 3. Write C++ programs to implement the following using a single linked list.
 - a) Stack ADT
 - b) Queue ADT
 4. Write a C++ program to implement Circular queue using Single linked list.
 5. Write a C++ program to implement the double ended queue ADT using double linked list.
 6. Write a C++ program to solve tower of Hanoi problem recursively
 7. Write C++ program to perform the following operations:
 - a) Insert an element into a binary search tree.
 - b) Delete an element from binary search tree.
 - c) Search for a key in a binary search tree.
 8. Write C++ programs for the implementation tree traversal technique BFS.
 9. Write a C++ program that uses recursive functions to traverse a binary search tree.
 - a) Pre-order
 - b) In-order
 - c) Post-order
 10. Write a C++ program to find height of a tree.
 - 11 Write a C++ program to find MIN and MAX element of a BST.
 - 12 Write a C++ program to find Inorder Successor of a given node.
 13. Write C++ programs to perform the following operations on B-Trees and AVL Trees.
 - a) Insertion
 - b) Deletion
 - 14 Write C++ programs for sorting a given list of elements in ascending order using the following sorting methods.
 - a) Quick sort
 - b) Merge sort
 15. Write a C++ program to find optimal ordering of matrix multiplication.
 16. Write a C++ program that uses dynamic programming algorithm to solve the optimal binary search tree problem
 17. Write a C++ program to implement Hash Table
 18. Write C++ programs to perform the following on Heap
 - a) Build Heap
 - b) Insertion
 - c) Deletion
 19. Write C++ programs to perform following operations on Skip List
 - a) Insertion
 - b) Deletion
 20. Write a C++ Program to Create a Graph using Adjacency Matrix Representation.
 21. Write a C++ program to implement graph traversal techniques
 - a) BFS
 - b) DFS
 22. Write a C++ program to Heap sort using tree structure.

OSMANIA UNIVERSITY
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B.Sc. (Computer Science)
SEMESTER – IV
Data Base Management Systems

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

Unit - I

Introduction: Database-System Applications, Purpose of Database Systems, View of Data, Database Languages, Relational Databases, Database Design, Data Storage and Querying, Transaction Management, Database Architecture, Database Users and Administrators.

Introduction to the Relational Model: Structure of Relational Databases, Database Schema, Keys, Schema Diagrams, Relational Query Languages, Relational Operations.

Unit - II

Database Design and the E-R Model: Overview of the Design Process, The Entity-Relationship Model, Constraints, Removing Redundant Attributes in Entity Sets, Entity-Relationship Diagrams, Reduction to Relational Schemas, Entity-Relationship Design Issues, Extended E-R Features, Alternative Notations for Modeling Data, Other Aspects of Database Design.

Relational Database Design: Features of Good Relational Designs, Atomic Domains and First Normal Form, Decomposition Using Functional Dependencies, Functional- Dependency Theory, Decomposition Using Multivalued Dependencies, Normal Forms-2 NF, 3 NF, BCNF, The Database Design Methodology for Relational Databases.

Unit - III

Introduction to SQL: Overview of the SQL Query Language, SQL Data Definition, Basic Structure of SQL Queries, Additional Basic Operations, Set Operations, Null Values, Aggregate Functions, Nested Subqueries, Modification of the Database.

Intermediate SQL: Join Expressions, Views, Transactions, Integrity Constraints, SQL Data Types and Schemas, Authorization.

Advanced SQL: Accessing SQL from a Programming Language, Functions and Procedures, Triggers, Recursive Queries.

Unit - IV

Transaction Management: Transaction Support–Properties of Transactions, Database Architecture, Concurrency Control–The Need for Concurrency Control, Serializability and Recoverability, Locking Methods, Deadlock, Time Stamping Methods, Multi-version Timestamp Ordering, Optimistic Techniques, Granularity of Data Items, Database Recovery–The Need for Recovery, Transactions and Recovery, Recovery Facilities, Recovery Techniques, Nested Transaction Model. Security: Database Security–Threats, Computer-Based Controls–Authorization, Access Controls, Views, Backup and Recovery, Integrity, Encryption, RAID.

Text book:

1. Silberschatz, H. Korth and S. Sudarshan, Database System Concepts, 6th Ed., Tata McGraw Hill, 2011
2. Thomas M. Connolly, Carolyn E. Begg, Database Systems–A Practical Approach to Design, Implementation, and Management (6e)

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – IV
Data Base Management Systems Lab

Practical 3 Hours/Week 1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
 - In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.
 - External Vice-Voce is compulsory.
1. Create a database having two tables with the specified fields, to computerize a library system of a University College.
LibraryBooks (Accession number, Title, Author, Department, PurchaseDate, Price), IssuedBooks (Accession number, Borrower)
 - a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
 - b) Delete the record of book titled “Database System Concepts”.
 - c) Change the Department of the book titled “Discrete Maths” to “CS”.
 - d) List all books that belong to “CS” department.
 - e) List all books that belong to “CS” department and are written by author “Navathe”.
 - f) List all computer (Department=“CS”) that have been issued.
 - g) List all books which have a price less than 500 or purchased between “01/01/1999” and “01/01/2004”.
 2. Create a database having three tables to store the details of students of Computer Department in your college.
Personal information about Student (College roll number, Name of student, Date of birth, Address, Marks(rounded off to whole number) in percentage at 10 + 2, Phone number)
Paper Details (Paper code, Name of the Paper)
Student’s Academic and Attendance details (College roll number, Paper Code, Attendance, Marks in home examination).
 - a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
 - b) Design a query that will return the records (from the second table) along with the name of student from the first table, related to students who have more than 75% attendance and more than 60% marks in paper2.
 - c) List all students who live in “Warangal” and have marks greater than 60 in paper1.
 - d) Find the total attendance and total marks obtained by each student.
 - e) List the name of student who has got the highest marks in paper2.
 3. Create the following tables and answer the queries given below:
Customer (CustID, email, Name, Phone, ReferrerID)
Bicycle (BicycleID, DatePurchased, Color, CustID, ModelNo)
BicycleModel(ModelNo, Manufacturer, Style)
Service (StartDate, BicycleID, EndDate)

- a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
 - b) List all the customers who have the bicycles manufactured by manufacturer "Honda".
 - c) List the bicycles purchased by the customers who have been referred by Customer "C1".
 - d) List the manufacturer of red colored bicycles.
 - e) List the models of the bicycles given for service.
4. Create the following tables, enter at least 5 records in each table and answer the queries given below.

Employee (Person_Name, Street, City)

Works (Person_Name, Company_Name, Salary)

Company (Company_Name, City)

Manages (Person_Name, Manager_Name)

- a) Identify primary and foreign keys.
- b) Alter table employee, add a column "email" of type varchar(20).
- c) Find the name of all managers who work for both Samba Bank and NCB Bank.
- d) Find the names, street address and cities of residence and salary of all employees who work for "Samba Bank" and earn more than \$10,000.
- e) Find the names of all employees who live in the same city as the company for which they work.
- f) Find the highest salary, lowest salary and average salary paid by each company.
- g) Find the sum of salary and number of employees in each company.
- h) Find the name of the company that pays highest salary.

5. Create the following tables, enter at least 5 records in each table and answer the queries given below.

Suppliers (SNo, Sname, Status, SCity)

Parts (PNo, Pname, Colour, Weight, City)

Project (JNo, Jname, Jcity)

Shipment (Sno, Pno, Jno, Qunatity)

- a) Identify primary and foreign keys.
 - b) Get supplier numbers for suppliers in Paris with status>20.
 - c) Get suppliers details for suppliers who supply part P2. Display the supplier list in increasing order of supplier numbers.
 - d) Get suppliers names for suppliers who do not supply part P2.
 - e) For each shipment get full shipment details, including total shipment weights.
 - f) Get all the shipments where the quantity is in the range 300 to 750 inclusive.
 - g) Get part nos. for parts that either weigh more than 16 pounds or are supplied by suppliers S2, or both.
 - h) Get the names of cities that store more than five red parts.
 - i) Get full details of parts supplied by a supplier in Hyderabad.
 - j) Get part numbers for part supplied by a supplier in Warangal to a project in Chennai.
 - k) Get the total number of project supplied by a supplier (say, S1).
 - l) Get the total quantity of a part (say, P1) supplied by a supplier (say, S1).
6. Write a PL/SQL Program to demonstrate Procedure.
7. Write a PL/SQL Program to demonstrate Function.

8. Write a PL/SQL program to Handle Exceptions.
9. Write a PL/SQL Program to perform a set of DML Operations.
10. Create a View using PL/SQL program.
11. Write a PL/SQL Program on Statement Level Trigger.
12. Write a PL/SQL Program on Row Level Trigger.

OSMANIA UNIVERSITY
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B.Sc. (Computer Science)
SEMESTER – V
Programming in Java

Theory
Practical

4 Hours/Week
3 Hours/Week

4 Credit
1 Credit

Internal marks = 20
External Marks = 80

Unit - I

Introduction: Java Essentials, JVM, Java Features, Creation and Execution of Programs, Data Types, Structure of Java Program, Type Casting, Conditional Statements, Loops, Classes, Objects, Class Declaration, Creating Objects.

Unit - II

Method Declaration and Invocation, Method Overloading, Constructors – Parameterized Constructors, Constructor Overloading, Cleaning-up unused Objects. Class Variables & Method-static Keyword, this Keyword, One-Dimensional Arrays, Two-Dimensional Arrays, Command-Line Arguments, Inner Class.

Inheritance: Introduction, Types of Inheritance, extends Keyword, Examples, Method Overriding, super, final Keyword, Abstract classes, Interfaces, Abstract Classes Verses Interfaces.

Packages: Creating and Using Packages, Access Protection, Wrapper Classes, String Class, StringBuffer Class.

Unit - III

Exception: Introduction, Types, Exception Handling Techniques, User-Defined Exception.

Multithreading: Introduction, Main Thread and Creation of New Threads –By Inheriting the Thread Class or Implementing the Runnable Interface, Thread Lifecycle, Thread Priority and Synchronization.

Input/Output: Introduction, java.io Package, File Streams, FileInputStream Class, FileOutputStream Class, Scanner Class, BufferedInputStream Class, BufferedOutputStream Class, RandomAccessFile Class.

Unit - IV

Applets: Introduction, Example, Life Cycle, Applet Class, Common Methods Used in Displaying the Output (Graphics Class).

Event Handling: Introduction, Types of Events, Example.

AWT: Introduction, Components, Containers, Button, Label, Checkbox, Radio Buttons, Container Class, Layouts.

Swings: Introduction, Differences between Swing and AWT, JFrame, JApplet, JPanel, Components in Swings, Layout Managers, JTable.

Text Book:

1. Sachin Malhotra, Saurabh Choudhary, Programming in Java (2e)

References:

1. Bruce Eckel, Thinking in Java (4e)
2. Herbert Schildt, Java: The Complete Reference (9e)
3. Y. Daniel Liang, Introduction to Java Programming (10e)
4. Paul Deitel, Harvey Deitel, Java: How To Program (10e)
5. Cay S. Horstmann, Core Java Volume I –Fundamentals (10e)

OSMANIA UNIVERSITY
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B.Sc. (Computer Science)
SEMESTER – V
Programming in Java Lab

Practical 3 Hours/Week 1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
 - In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.
 - External Vice-Voce is compulsory.
1. Write a program to find the largest of n natural numbers.
 2. Write a program to find whether a given number is prime or not.
 3. Write a menu driven program for following:
 - a. Display a Fibonacci series
 - b. Compute Factorial of a number
 4. Write a program to check whether a given number is odd or even.
 5. Write a program to check whether a given string is palindrome or not.
 6. Write a program to print the sum and product of digits of an Integer and reverse the Integer.
 7. Write a program to create an array of 10 integers. Accept values from the user in that Array. Input another number from the user and find out how many numbers are equal to the number passed, how many are greater and how many are less than the number passed.
 8. Write a program that will prompt the user for a list of 5 prices. Compute the average of the prices and find out all the prices that are higher than the calculated average.
 9. Write a program in java to input N numbers in an array and print out the Armstrong numbers from the set.
 10. Write java program for the following matrix operations:
 - a. Addition of two matrices
 - b. Transpose of a matrix
 11. Write a java program that computes the area of a circle, rectangle and a Cylinder using function overloading.
 12. Write a Java program for the implementation of multiple inheritance using interfaces to calculate the area of a rectangle and triangle.
 13. Write a java program to create a frame window in an Applet. Display your name, address and qualification in the frame window.
 14. Write a java program to draw a line between two coordinates in a window.
 15. Write a java program to display the following graphics in an applet window.
 - a. Rectangles
 - b. Circles
 - c. Ellipses
 - d. Arcs
 - e. Polygons
 16. Write a program that reads two integer numbers for the variables a and b. If any other character except number (0-9) is entered then the error is caught by NumberFormatException object. After that ex.getMessage () prints the information about the error occurring causes.
 17. Write a program for the following string operations:
 - a. Compare two strings
 - b. concatenate two strings
 - c. Compute length of a string
 18. Create a class called Fraction that can be used to represent the ratio of two integers. Include appropriate constructors and methods. If the denominator becomes zero, throw and handle an exception.

OSMANIA UNIVERSITY
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B.Sc. (Computer Science)
SEMESTER – VI
Web Technologies

Theory
Practical

4 Hours/Week
3 Hours/Week

4 Credit
1 Credit

Internal marks = 20
External Marks = 80

Unit – I

Introduction To XHTML– Introduction, first HTML, Headings, Linking, Images, special characters and horizontal rules, Lists, Tables, Frames, Forms, internal linking, meta Elements. CASCADING STYLE SHEETS – Introduction, Inline Styles, Embedded Style Sheets, Conflicting Styles, Linking external sheets, position Elements, box model and text flow, media types, building a CSS drop-down menu, user style sheets, CSS3.

Unit – II

Introduction To Java Scripting- introduction, simple program, prompt dialog and alert boxes, memory concepts, operators, decision making, control structures, if... else statement, while, counter-controlled repetitions, switch statement, do... while statement, *break* and *continue* statements. Functions – program modules in JavaScript, programmer-defined functions, functions definition, scope rules, global functions, Recursion.

Unit – III

Arrays- introduction, declaring and allocating arrays, references and reference parameters, passing arrays to functions. Multidimensional arrays, **EVENTS** – registering event handling, event onload, onmouseover, onmouseout, onfocus, onblur, onsubmit, onreset, event bubbling, more events. **JAVA SCRIPT OBJECTS** – introduction to object technology, Math Object, String Object, Date Object, Boolean and Number Object, document and window Objects, using cookies.

Unit – IV

XML - Introduction, XML Basics, Structuring Data, XML Namespaces, Document Type Definitions (DTDs), W3C XML Schema Documents, XML Vocabularies, Extensible Style sheet Language and XSL Transformations, Document Object Model (DOM).

Ajax-Enabled Rich Internet Applications: introduction, history of Ajax, traditional web applications Vs Ajax Applications, RIAs with Ajax, Ajax example using XMLHttpRequest object, XML and DOM, creating full scale Ajax-enabled application, Dojo Toolkit.

Text Book:

1. Internet & World Wide Web: HOW TO PROGRAM- H. M. Deitel, P.J. Deitel, - Fourth Edition- Pearson edition.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – VI
Web Technologies Lab

Practical 3 Hours/Week 1 Credit Marks: 50

1. Write a HTML program using basic text formatting tags, <p>,
, <pre>.
2. Write a HTML program by using text formatting tags.
3. Write a HTML program using presentational element tags , <i>, <strike>, <sup>, <sub>, <big>, <small>, <hr>
4. Write a HTML program using phrase element tags <blockquote>, <cite>, <abbr>, <acronym>, <kbd>, <address>
5. Write a HTML program using different list types.
6. Create a HTML page that displays ingredients and instructions to prepare a recipe.
7. Write a HTML program using grouping elements <div> and .
8. Write a HTML Menu page for Example cafe site.
9. Write a HTML program using images, audios, videos.
10. Write a HTML program to create your time table.
11. Write a HTML program to create a form using text inputs, password inputs, multiple line text input, buttons, check boxes, radio buttons, select boxes, file select boxes.
12. Write a HTML program to create frames and links between frames.
13. Write a HTML program to create different types of style sheets.
14. Write a HTML program to create CSS on links, lists, tables and generated content.
15. Write a HTML program to create your college web site using multi column layouts.
16. Write a HTML program to create your college web site using for mobile device.
17. Write a HTML program to create login form and verify username and password.
18. Write a JavaScript program to calculate area of rectangle using function.
19. Write a JavaScript program to wish good morning, good afternoon, good evening depending on the current time.
20. Write a JavaScript program using switch case?
21. Write a JavaScript program to print multiplication table of given number using loop.
22. Write a JavaScript programs using any 5 events.
23. Write a JavaScript program using JavaScript built in objects.
24. Write a JavaScript program to create registration Form with Validations.
25. Write a XML Program to represent Student Data using DTD.
26. Write a XML Program to represent Data using XML Schema Definition.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. Computer Science
Semester-I
AECC

Fundamentals of Computers

Theory

2 Hours/Week

2Credits

Unit-I

Introduction to Computers: what is a computer, characteristics of Computers, Generations of Computers, Classifications of Computers, Basic Computer organization, Applications of Computers. Input and Output Devices: Input devices, Output devices, Softcopy devices, Hard copy devices. Computer Memory and Processors: Introduction, Memory Hierarchy, Processor, Registers, Cache memory, primary memory, secondary storage devices, magnetic tapes, floppy disks, hard disks, optical drives, USB flash drivers, Memory cards, Mass storage devices, Basic processors architecture.

Unit-II

Number System and Computer Codes: Binary number system, working with binary numbers, octal number system, hexadecimal number system, working with fractions, signed number representation in binary form, BCD code, other codes. Boolean algebra and logic gates: Boolean algebra, Venn diagrams, representation of Boolean functions, logic gates, logic diagrams and Boolean expressions using karnaugh map. Computer Software: Introduction to computer software, classification of computer software, system software, application software, firmware, middleware, acquiring computer software, design and implementation of correct, efficient and maintainable programs.

Text Book:

Reema Thareja, Fundamentals of Computers.

References:

1. V.Rajaraman, 6th Edition Fundamentals of Computers, Neeharika Adabala.
2. Anita Goel, Computer Fundamentals.

Course 1: Communication Skills

Context and Justification :

Communication plays an important role in shaping an individual's life, personal as well as professional. Also it is the backbone of any organisation/institution. Success in life to a considerable extent depends on effective communication skills. In today's world of computers and digital media, a strong communication skill base is essential for learners and for smooth functioning of an organisation.

Objectives :

This course has been developed with the following objectives:

1. Identify common communication problems that may be holding learners back
2. Identify what their non-verbal messages are communicating to others
3. Understand role of communication in teaching-learning process
4. Learning to communicate through the digital media
5. Understand the importance of empathetic listening
6. Explore communication beyond language.

Expected Outcome :

By the end of this program participants should have a clear understanding of what good communication skills are and what they can do to improve their abilities.

Credit: 02

Duration: 30 Hours

Number & Titles of Modules:

Total of 7 Modules

Module 1	Listening	4 Hours
Module 2	Speaking	6 Hours
Module 3	Reading	3 Hours
Module 4	Writing and different modes of writing	4 Hours
Module 5	Digital Literacy	4 Hours
Module 6	Effective use of Social Media	4 Hours
Module 7	Non-verbal communication	5 Hours

Module Outline :

Module 1: Listening

4 Hours

- Techniques of effective listening
- Listening and comprehension
- Probing questions
- Barriers to listening

Module 2: Speaking

6 Hours

- Pronunciation
- Enunciation
- Vocabulary
- Fluency
- Common Errors

Module 3: Reading

3 Hours

- Techniques of effective reading
- Gathering ideas and information from a given text
 - i. Identify the main claim of the text
 - ii. Identify the purpose of the text
 - iii. Identify the context of the text
 - iv. Identify the concepts mentioned
- Evaluating these ideas and information
 - i. Identify the arguments employed in the text
 - ii. Identify the theories employed or assumed in the text
- Interpret the text
 - i. To understand what a text says
 - ii. To understand what a text does
 - iii. To understand what a text means

Module 4: Writing and different modes of writing

4 Hours

- Clearly state the claims
- Avoid ambiguity, vagueness, unwanted generalisations and oversimplification of issues
- Provide background information
- Effectively argue the claim
- Provide evidence for the claims
- Use examples to explain concepts
- Follow convention
- Be properly sequenced
- Use proper signposting techniques
- Be well structured
 - i. Well-knit logical sequence
 - ii. Narrative sequence
 - iii. Category groupings

- Different modes of Writing
 - i. E-mails
 - ii. Proposal writing for Higher Studies
 - iii. Recording the proceedings of meetings
 - iv. Any other mode of writing relevant for learners

Module 5: Digital Literacy**4 Hours**

- Role of Digital literacy in professional life
- Trends and opportunities in using digital technology in workplace
- Internet Basics
- Introduction to MS Office tools
 - i. Paint
 - ii. Office
 - iii. Excel
 - iv. Powerpoint

Module 6: Effective use of Social Media**4 Hours**

- Introduction to social media websites
- Advantages of social media
- Ethics and etiquettes of social media
- How to use Google search better
- Effective ways of using Social Media
- Introduction to Digital Marketing

Module 7: Non-verbal communication**5 Hours**

- Meaning of non-verbal communication
- Introduction to modes of non-verbal communication
- Breaking the misbeliefs
- Open and Closed Body language
- Eye Contact and Facial Expression
- Hand Gestures
- Do's and Don'ts
- Learning from experts
- Activities-Based Learning

Pedagogy : Instructor-Led Training, Supplemented by Online Platform (SWAYAM)

Materials : Teaching & Learning

Assessment : Paper-Based or Online Assessment

Bibliography & Suggested Reading including audio video material :

Books

- Sen Madhucchanda (2010), *An Introduction to Critical Thinking*, Pearson, Delhi
- Silvia P. J. (2007), *How to Read a Lot*, American Psychological Association, Washington DC

Course 2: Professional Skills

Context with Justification :

One of the significant outcomes of Higher Education is to prepare an individual for entering the job/employment market. Besides knowledge and skills required for a particular job/occupation, professional skills are also required for an individual to be gainfully employed for a successful and satisfied life. Professional skills are part of life skills. An individual should be able to demonstrate professional skills involving the use of intuitive, logical and critical thinking, communication and interpersonal skills, not limited to cognitive/creative skills. These skills, behaviour and quality of output enhance employability.

The career skills empower an individual with ability in preparing an appropriate resume, addressing the necessary gaps for facing interviews and actively and effectively participating in group discussion thereof, etc. It is also of significant importance that students /individuals possess the know-how to explore career opportunities for themselves, considering their innate strengths and weaknesses.

It is important that the students/individuals are well prepared to take on new challenges and opportunities. With the increasing use of technology in the way we live, learn and work, it is critical for students/individuals to be able to utilise basic computing concepts and also have and espouse excellent Team Skills. Collaborating and working together can assist in resolving complex problems, which allow/offer individuals an opportunity to articulate new ideas and perspectives. It further allows learner / individuals design, develop, problem solve and to adapt to situations based on their experience and skills.

Credit: 02

Duration:30 hours

The Course Professional Skills is divided into two parts:

- a) Career Skills
- b) Team Skills

A. Career Skills

Objectives :

The Objectives of the course are to help students/candidates:

1. Acquire career skills and fully pursue to partake in a successful career path
2. Prepare good resume, prepare for interviews and group discussions
3. Explore desired career opportunities in the employment market in consideration of an individual SWOT.

Expected Outcomes :

At the end of this course the students will be able to:

1. Prepare their resume in an appropriate template without grammatical and other errors and using proper syntax
2. Participate in a simulated interview
3. Actively participate in group discussions towards gainful employment
4. Capture a self - interview simulation video regarding the job role concerned
5. Enlist the common errors generally made by candidates in an interview
6. Perform appropriately and effectively in group discussions
7. Explore sources (online/offline) of career opportunities
8. Identify career opportunities in consideration of their own potential and aspirations
9. Use the necessary components required to prepare for a career in an identified occupation (as a case study).

Duration: 15 Hours

Number & Titles of Modules:

Module 1	Resume Skills	3 Hours
Module 2	Interview Skills	5 Hours
Module 3	Group Discussion Skills	4 Hours
Module 4	Exploring Career Opportunities	3 Hours

Module Outline :

Module 1: Resume Skills **3 Hours**

- i. Resume Skills : Preparation and Presentation**
 - Introduction of resume and its importance
 - Difference between a CV, Resume and Bio data
 - Essential components of a good resume
- ii. Resume skills : common errors**
 - Common errors people generally make in preparing their resume
 - Prepare a good resume of her/his considering all essential components

Module 2: Interview Skills **5 Hours**

- i. Interview Skills : Preparation and Presentation**
 - Meaning and types of interview (F2F, telephonic, video, etc.)
 - Dress Code, Background Research, Do's and Don'ts
 - Situation, Task, Approach and Response (STAR Approach) for facing an interview
 - Interview procedure (opening, listening skills, closure, etc.)
 - Important questions generally asked in a job interview (open and closed ended questions)

- ii. **Interview Skills : Simulation**
 - Observation of exemplary interviews
 - Comment critically on simulated interviews
- iii. **Interview Skills : Common Errors**
 - Discuss the common errors generally candidates make in interview
 - Demonstrate an ideal interview

Module 3: Group Discussion Skills **4 Hours**

- Meaning and methods of Group Discussion
- Procedure of Group Discussion
- Group Discussion- Simulation
- Group Discussion - Common Errors

Module 4: Exploring Career Opportunities **3 Hours**

- Knowing yourself – personal characteristics
- Knowledge about the world of work, requirements of jobs including self-employment.
- Sources of career information
- Preparing for a career based on their potentials and availability of opportunities

Pedagogy : Besides Face to Face lectures (theory would be limited only to 20% of the component and remaining 80% would be practical oriented), the focus would be primarily on blended /hybrid learning. This could include a flipped classroom approach that leverages project-based learning, demonstration, group discussion, simulations etc.

Materials : Audio video materials, Online Platform (SWAYAM), FutureSkills Platform, Used Cases & Case Studies etc.

Assessment: Online evaluation, demonstration, assignments : Some components could be aligned to NOS (SSC/N9005) IT-ITeS Sector . The questions posed to the students would be a mix of MCQs, scenario-based, logical reasoning, comprehension, simulations, etc. Do check the assessment model and sample assessment at (<http://nac.nasscom.in/>)

Bibliography & Suggested Reading including audio video material :
Please check IT-ITeS Sector Skills Council readiness programs namely

- Foundation Skills In IT (FSIT) - Refer the websites like <https://www.sscnasscom.com/ssc-projects/capacity-building-and-development/training/fsit/> and
- Global Business Foundation Skills (GBFS) – Refer websites like <https://www.sscnasscom.com/ssc-projects/capacity-building-and-development/training/gbfs/>

B. Team Skills

Objectives :

The objectives of the course is to make learners:

1. Understand the significance of Team Skills and help them in acquiring them
2. To help them design, develop and adapt to situations as an individual and as a team.

Expected Outcomes :

By the end of this course the learners/candidates will be able to:

1. Use common technology messaging tools that are used in enterprises for flow of information and transition from command and control to informal communication during an online/offline team session
2. Actively use and operate online team communication tools: Webinar, Skype, Zoom, Google hangout etc
3. Appreciate and demonstrate Team Skills
4. Participate in a digital lifestyle conversant with computers, applications, Internet and nuances of cyber security
5. Explore (online) and identify career opportunities in consideration of their own potential and aspirations.
6. Discuss and articulate the key requirements of an entrepreneurial exercise
7. Empathise and trust colleagues for improving interpersonal relations
8. Engage in effective communication by respecting diversity and embracing good listening skills
9. Distinguish the guiding principles for communication in a diverse, smaller internal world
10. Practice interpersonal skills for better relations with seniors, juniors, peers and stakeholders
11. Project a good personal image and social etiquette so as to have a positive impact on building of one's chosen career
12. Generate, share and maximise new ideas with the concept of brainstorming and the documentation of key critical ideas/thoughts articulated and action points to be implemented with timelines in a team discussion (as MOM) in identified applicable templates.

Duration: 15 Hours

Number & Titles of Modules:

Module 1	Presentation Skills	5 Hours
Module 2	Trust and Collaboration	2 Hour
Module 3	Listening as a Team Skill	2 hour
Module 4	Brainstorming	2 Hour
Module 5	Social and Cultural Etiquettes	2 Hour
Module 6	Internal Communication	2 Hour

Module Outline :

Module 1: Presentation Skills **5 Hours**

- Types of presentations
- Internal and external presentation
- Knowing the purpose
- Knowing the audience
- Opening and closing a presentation
- Using presentation tools
- Handling questions
- Presentation to heterogenic group
- Ways to improve presentation skills over time

Module 2: Trust and Collaboration **2 Hours**

- Explain the importance of trust in creating a collaborative team
- Agree to Disagree and Disagree to Agree – Spirit of Team work
- Understanding fear of being judged and strategies to overcome fear

Module 3: Listening as a Team Skill **2 Hours**

- Advantages of Effective Listening
- Listening as a team member and team leader. Use of active listening strategies to encourage sharing of ideas (full and undivided attention, no interruptions, no pre-think, use empathy, listen to tone and voice modulation, recapitulate points, etc.).

Module 4: Brainstorming**2 Hour**

- Use of group and individual brainstorming techniques to promote idea generation.
- Learning and showcasing the principles of documentation of team session outcomes

Module 5: Social and Cultural Etiquette**2 Hour**

- Need for etiquette (impression, image, earn respect, appreciation, etc)
- Aspects of social and cultural/corporate etiquette in promoting teamwork
- Importance of time, place, propriety and adaptability to diverse cultures

Module 6: Internal Communication**2 Hour**

- Use of various channels of transmitting information including digital and physical, to team members.

Pedagogy : Besides Face to Face Lectures (as theory would be limited only to 20% of the component and remaining 80% would be practical oriented), the focus would be primarily on blended learning/hybrid learning. This could include a flipped classroom approach that leverage project based learning, demonstration, group discussion, simulation as well as coaching, seminars and tutorials.

Materials : Audio video materials, Online Platform (SWAYAM), Future Skills platform

Assessment: Written evaluation, demonstration, assignments:

Some components aligned to NOS (SSC/N9005) IT-ITeS . The questions posed to the students would be a mix of MCQs, Scenario-based, logical reasoning, comprehension, simulations, etc. Do check the assessment at website like (<http://nac.nasscom.in/>)

Bibliography & Suggested Reading including audio video material :

Please check IT-ITeS Sector Skills Council readiness program namely Global Business Foundation Skills (GBFS) in website (<https://www.sscnasscom.com/ssc-projects/capacity-building-and-development/training/gbfs/>),and Generic and the entrepreneurial NOS at NSQF Level 4 -7.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – III

Python – I
(SEC – II)

Theory

2 Hours/Week

2Credits

Unit – I

Introduction to Python Programming: How a Program Works, Using Python, Program Development Cycle, Input, Processing, and Output, Displaying Output with the Print Function, Comments, Variables, Reading Input from the Keyboard, Performing Calculations (Operators. Type conversions, Expressions), More about Data Output. Decision Structures and Boolean Logic: if, if-else, if-elif-else Statements, Nested Decision Structures, Comparing Strings, Logical Operators, Boolean Variables. Repetition Structures: Introduction, while loop, for loop, Calculating a Running Total, Input Validation Loops, Nested Loops.

Unit – II

Functions: Introduction, Defining and Calling a Void Function, Designing a Program to Use Functions,

Local Variables, Passing Arguments to Functions, Global Variables and Global Constants, Value-Returning Functions- Generating Random Numbers, Writing Our Own Value-Returning Functions, The math Module, Storing Functions in Modules. File and Exceptions: Introduction to File Input and Output, Using Loops to Process Files, Processing Records, Exceptions.

Text Book:

Tony Gaddis, Starting Out With Python (3e)

References:

1. Kenneth A. Lambert, Fundamentals of Python
2. Clinton W. Brownley, Foundations for Analytics with Python
3. James Payne, Beginning Python using Python 2.6 and Python 3
4. Charles Dierach, Introduction to Computer Science using Python
5. Paul Gries, Practical Programming: An Introduction to Computer Science using Python 3

Course 3: Leadership and Management Skills

Context with Justification :

Leaders are foundations of the society, who face and win against adversities and odds of life. Through their words and deeds, they show path to others and transform into inspirational role models, affecting social life vividly. In the current times of cut-throat competitions, disbelief in values, techno-centric complex lifestyles, there is a dire need to emphasise the 'human' agency in community living. This can be done by cultivating and nurturing the innate leadership skills of the youth so that they may transform these challenges into opportunities and become torch bearers of the future by developing creative solutions.

Objectives :

The Module is designed to:

- Help students to develop essential skills to influence and motivate others
- Inculcate emotional and social intelligence and integrative thinking for effective leadership
- Create and maintain an effective and motivated team to work for the society
- Nurture a creative and entrepreneurial mindset
- Make students understand the personal values and apply ethical principles in professional and social contexts.

Expected Outcomes :

Upon completion of the course students will be able to:

1. Examine various leadership models and understand/assess their skills, strengths and abilities that affect their own leadership style and can create their leadership vision
2. Learn and demonstrate a set of practical skills such as time management, self management, handling conflicts, team leadership, etc.
3. Understand the basics of entrepreneurship and develop business plans
4. Apply the design thinking approach for leadership
5. Appreciate the importance of ethics and moral values for making of a balanced personality.

Credit: 02

Duration: 30 Hours

Number & Titles of Modules:

Module 1	Leadership Skills	6 Hours
Module 2	Managerial Skills	6 Hours
Module 3	Entrepreneurial Skills	6 Hours
Module 4	Innovative Leadership and Design Thinking	6 Hours
Module 5	Ethics and Integrity	6 Hours

Module Outline :

Module 1- Leadership Skills

6 Hours

a. Understanding Leadership and its Importance

- What is leadership?
- Why Leadership required?
- Whom do you consider as an ideal leader?

b. Traits and Models of Leadership

- Are leaders born or made?
- Key characteristics of an effective leader
- Leadership styles
- Perspectives of different leaders

c. Basic Leadership Skills

- Motivation
- Team work
- Negotiation
- Networking

Module 2 - Managerial Skills

6 Hours

a. Basic Managerial Skills

- Planning for effective management
- How to organise teams?
- Recruiting and retaining talent
- Delegation of tasks
- Learn to coordinate
- Conflict management

b. Self Management Skills

- Understanding self concept
- Developing self-awareness
- Self-examination
- Self-regulation

Module 3 - Entrepreneurial Skills

6 Hours

a. Basics of Entrepreneurship

- Meaning of entrepreneurship
- Classification and types of entrepreneurship
- Traits and competencies of entrepreneur

b. Creating Business Plan

- Problem identification and idea generation
- Idea validation
- Pitch making

Module 4 - Innovative Leadership and Design Thinking

6 Hours

a. Innovative Leadership

- Concept of emotional and social intelligence

- Synthesis of human and artificial intelligence
- Why does culture matter for today's global leaders

b. Design Thinking

- What is design thinking?
- Key elements of design thinking:
 - Discovery
 - Interpretation
 - Ideation
 - Experimentation
 - Evolution.
- How to transform challenges into opportunities?
- How to develop human-centric solutions for creating social good?

Module 5- Ethics and Integrity

6 Hours

a. Learning through Biographies

- What makes an individual great?
- Understanding the persona of a leader for deriving holistic inspiration
- Drawing insights for leadership
- How leaders sail through difficult situations?

b. Ethics and Conduct

- Importance of ethics
- Ethical decision making
- Personal and professional moral codes of conduct
- Creating a harmonious life

Pedagogy : Pedagogy for the modules is as follows:

1. Leadership Skills - Lectures (augmented with videos); role-plays for leadership models; team building games
2. Managerial Skills - Lectures (augmented with videos), case studies (AMUL, TESLA, Toyota, DMRC, Tata Group, Google, The Mumbai Dabbawala), SWOT analysis, Johari window
3. Entrepreneurial Skills - Lectures (augmented with videos), case studies and practicing business plans
4. Innovative Leadership and Design Thinking- Concept discussion through lecture and videos followed by role-plays and exercises for each set of intelligence, activities using 5 steps – discovery, interpretation, ideation, experimentation, and evolution (Ref.: Workbook of Design Thinking by IDEO)
5. Ethics and Integrity- Experiential learning through stories suggested list (Ahilya Bai, Holkar, Abdul Kalam, Raja Harishchandra, Mahatma Gandhi, Abraham Lincoln), audio visual augmented role plays and storytelling (leaders from varied fields like academics, corporate, social, sports, art, etc.)

Assessment : It can be combination of written evaluation and presentations, including simulations, case studies and business plan.

Bibliography and Suggested Readings :

Books

- Ashokan, M. S. (2015). *Karmayogi: A Biography of E. Sreedharan*. Penguin, UK.
- Brown, T. (2012). *Change by Design*. Harper Business
- Elkington, J., & Hartigan, P. (2008). *The Power of Unreasonable People: How Social Entrepreneurs Create Markets that Change the World*. Harvard Business Press.
- Goleman D. (1995). *Emotional Intelligence*. Bloomsbury Publishing India Private Limited
- Kalam A. A. (2003). *Ignited Minds: Unleashing the Power within India*. Penguin Books India
- Kelly T., Kelly D. (2014). *Creative Confidence: Unleashing the Creative Potential Within Us All*. William Collins
- Kurien V., & Salve G. (2012). *I Too Had a Dream*. Roli Books Private Limited
- Livermore D. A. (2010). *Leading with cultural intelligence: The New Secret to Success*. New York: American Management Association
- McCormack M. H. (1986). *What They Don't Teach You at Harvard Business School: Notes From A Street-Smart Executive*. RHUS
- O'Toole J. (2019) *The Enlightened Capitalists: Cautionary Tales of Business Pioneers Who Tried to Do Well by Doing Good*. Harpercollins
- Sinek S. (2009). *Start with Why: How Great Leaders Inspire Everyone to Take Action*. Penguin
- Sternberg R. J., Sternberg R. J., & Baltes P. B. (Eds.). (2004). *International Handbook of Intelligence*. Cambridge University Press.

E-Resources

- Fries, K. (2019). 8 Essential Qualities That Define Great Leadership. *Forbes*. Retrieved 2019-02-15 from <https://www.forbes.com/sites/kimberlyfries/2018/02/08/8-essential-qualities-that-define-great-leadership/#452ecc963b63>.
- How to Build Your Creative Confidence, Ted Talk by David Kelly - https://www.ted.com/talks/david_kelley_how_to_build_your_creative_confidence
- India's Hidden Hot Beds of Invention Ted Talk by Anil Gupta - https://www.ted.com/talks/anil_gupta_india_s_hidden_hotbeds_of_invention
- Knowledge@Wharton Interviews Former Indian President APJ Abdul Kalam - , "A Leader Should Know How to Manage Failure" <https://www.youtube.com/watch?v=laGZaS4sdeU>
- Martin, R. (2007). How Successful Leaders Think. *Harvard Business Review*, 85(6): 60.
- NPTEL Course on Leadership - <https://nptel.ac.in/courses/122105021/9>

Course 4: Universal Human Values

Context with Justification :

Human civilisation is known for the values that it cherishes and practices. Across various times and places, sages, saints and seers, drawing on their experience, developed practices that placed central importance on values, though the names used by them differed, as their languages varied but the spirit was same. Universal human values are values that human beings cherish and hold in common consciously and otherwise in most of the places and times and practice them.

Renunciation is the foundational value. Renunciation or greedlessness has two preconditions: love for all living beings and absence of selfishness. Renunciation is not self-directed but other-directed and is for life in all forms and shapes, for welfare of all. Renunciation begins when selfishness ends. Renunciation to run away from the problems of life is cowardice. Renunciation without action means parasitic life. Also, service can be practised only when renunciation with action begins. Unegoistical service is inconceivable without renunciation; and true service is possible only through love and compassion. Life and death are eternal truths, so is the truth as fact and truth as value. Truth exists between the two ends of life and death and is to be pursued.

Truth, Love, Peace, Non-Violence and Righteous Conduct are the Universal Human Values. Renunciation (sacrifice), Compassion and Service are also commonly acceptable human values, which at the operation level have been named differently as sincerity, honesty, righteousness, humility, gratitude, aspiration, prosperity, non-violence, trust, faith, forgiveness, mercy, peace and so on. These are needed for well-being of an individual, society and humanity and ultimately Peace in the world.

This course aims at making learners conscious about universal human values in an integral manner, without ignoring other aspects that are needed for learner's personality development.

Objectives :

The present course deals with meaning, purpose, and relevance of universal human values and how to inculcate and practice them consciously to be a good human being and realise one's potentials.

Learning outcomes :

By the end of the course the learners will be able to:

1. Know about universal human values and understand the importance of values in individual, social circles, career path, and national life.
2. Learn from case studies of lives of great and successful people who followed and practised human values and achieved self-actualisation.
3. Become conscious practitioners of human values.
4. Realise their potential as human beings and conduct themselves properly in the ways of the world.

Credit: 02

Duration: 30 Hours

Number & Titles of Modules:

Module 1: Love & Compassion

5 Hours

Module 2: Truth

5 Hours

Module 3: Non-Violence	5 Hours
Module 4: Righteousness	5 Hours
Module 5: Peace	4 Hours
Module 6: Service	3 Hours
Module 7: Renunciation (Sacrifice)	3 Hours

Module Outline :

Module 1: Love & Compassion **5 Hours**

- Introduction: What is love? Forms of love—for self, parents, family, friend, spouse, community, nation, humanity and other beings, both for living and non-living
- Love and compassion and inter-relatedness
- Love, compassion, empathy, sympathy and non-violence
- Individuals who are remembered in history for practicing compassion and love.
- Narratives and anecdotes from history, literature including local folklore
- Practicing love and compassion: What will learners learn gain if they practice love and compassion? What will learners lose if they don't practice love and compassion?
- Sharing learner's individual and/or group experience(s)
- Simulated Situations
- Case studies

Module 2: Truth **5 Hours**

- Introduction: What is truth? Universal truth, truth as value, truth as fact (veracity, sincerity, honesty among others)
- Individuals who are remembered in history for practicing this value
- Narratives and anecdotes from history, literature including local folklore
- Practicing Truth: What will learners learn/gain if they practice truth? What will learners lose if they don't practice it?
- Learners' individual and/or group experience(s)
- Simulated situations
- Case studies

Module 3: Non-Violence **5 Hours**

- Introduction: What is non-violence? Its need. Love, compassion, empathy sympathy for others as pre-requisites for non-violence
- Ahimsa as non-violence and non-killing
- Individuals and organisations that are known for their commitment to non-violence
- Narratives and anecdotes about non-violence from history, and literature including local folklore
- Practicing non-violence: What will learners learn/gain if they practice non-violence? What will learners lose if they don't practice it?
- Sharing learner's individual and/or group experience(s) about non-violence
- Simulated situations
- Case studies

Module 4: Righteousness**5 Hours**

- Introduction: What is righteousness?
- Righteousness and *dharm*a, Righteousness and Propriety
- Individuals who are remembered in history for practicing righteousness
- Narratives and anecdotes from history, literature including local folklore
- Practicing righteousness: What will learners learn/gain if they practice righteousness? What will learners lose if they don't practice it?
- Sharing learners' individual and/or group experience(s)
- Simulated situations
- Case studies

Module 5: Peace**4 hours**

- Introduction: What is peace? Its need, relation with harmony and balance
- Individuals and organisations that are known for their commitment to peace
- Narratives and Anecdotes about peace from history, and literature including local folklore
- Practicing peace: What will learners learn/gain if they practice peace? What will learners lose if they don't practice it?
- Sharing learner's individual and/or group experience(s) about peace
- Simulated situations
- Case studies

Module 5: Service**3 Hours**

- Introduction: What is service? Forms of service, for self, parents, family, friend, spouse, community, nation, humanity and other beings—living and non-living, persons in distress or disaster.
- Individuals who are remembered in history for practicing this value.
- Narratives and anecdotes dealing with instances of service from history, literature including local folklore
- Practicing service: What will learners learn/gain if they practice service? What will learners lose if they don't practice it?
- Sharing learners' individual and/or group experience(s) regarding service
- Simulated situations
- Case studies

Module 6: Renunciation (Sacrifice)**3 Hours**

- Introduction: What is renunciation? Renunciation and sacrifice. Self-restrain and Ways of overcoming greed. Renunciation with action as true renunciation
- Individuals who are remembered in history for practicing this value.
- Narratives and anecdotes from history and literature, including local folklore about individuals who are remembered for their sacrifice and renunciation.
- Practicing renunciation and sacrifice: What will learners learn/gain if they practice Renunciation and sacrifice? What will learners lose if they don't practice it?
- Sharing learners' individual and/or group experience(s)
- Simulated situations
- Case studies

ADDITIONAL PRACTICAL MODULES or OPERATIVE ELECTIVES:

NOTE: The faculty/institution may choose any/some of the following modules keeping in mind the level and specific needs of learners.

Module Outline :

MODULE A - Integral Human Well-Being

5 Hours

Importance of well-being, inter-relatedness of different kinds of well-being and definition of well-being (state of being comfortable, healthy, happy and equanimity)

Well-being and its Kinds

- (i) Physical (physical strength and endurance)
- (ii) Emotional (ability to respond to emotions and control them)
- (iii) Aesthetic (faculty to see and appreciate beauty in all beings)
- (iv) Intellectual (rational, logical well-being)
- (v) Relational well-being (obligation to self, parents, family society, nation humanity and other beings in the universe; living with others with their acceptance)
- (vi) Moral (difference between good and evil and practicing goodness; righteousness)
- (vii) Spiritual (thinking beyond self and journey from senses to spiritual level)

Establish and recognise various states of well-being, embedded in different creatures, but consciously understood by humans

Identify the most pronounced emotions in the individual through given activities

Anecdotes/video/activity to help identify different well-beings

Discussion of related values to well-beings: Aesthetics, ethics, gratitude, forgiveness, and spiritual health i.e., thinking beyond senses and self and for the welfare of others

Importance and practice of well-being through case study/ activity

Ways to attain different kinds of well-being

Activities

MODULE B - Yoga & Pranayama

5 Hours

Importance of Yoga and Pranayama

- Yoga and pranayama for integral well-being and balance in life
- Yoga & Pranayama: Introduction
- Mind - Body – Intellect
- Difference between Yoga and Pranayama and their inter-relatedness.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – IV

Python – II

(SEC – IV)

Theory

2 Hours/Week

2Credits

Unit – I

Lists and Tuples: Sequences, Introduction to Lists, List slicing, Finding Items in Lists with the in Operator, List Methods and Useful Built-in Functions, Copying Lists, Processing Lists, Two-Dimensional Lists, Tuples. Strings: Basic String Operations, String Slicing, Testing, Searching, and Manipulating Strings. Dictionaries and Sets: Dictionaries, Sets, Serializing Objects.

Recursion: Introduction, Problem Solving with Recursion, Examples of Recursive Algorithms.

Unit – II

Object-Oriented Programming: Procedural and Object-Oriented Programming, Classes, Working with Instances, Techniques for Designing Classes, Inheritance, Polymorphism.

GUI Programming: Graphical User Interfaces, Using the tkinter Module, Display text with Label Widgets, Organizing Widgets with Frames, Button Widgets and Info Dialog Boxes, Getting Input with Entry Widget, Using Labels as Output Fields, Radio Buttons, Check Buttons.

Text Book:

Tony Gaddis, Starting Out With Python (3e)

References:

1. Kenneth A. Lambert, Fundamentals of Python
2. Clinton W. Brownley, Foundations for Analytics with Python
3. James Payne, Beginning Python using Python 2.6 and Python 3
4. Charles Dierach, Introduction to Computer Science using Python
5. Paul Gries, Practical Programming: An Introduction to Computer Science using Python 3

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – V
Information Technologies
(General Elective)

Theory

4 Hours/Week

4Credits

Unit – I

Computer Networks: Introduction, Connection Media, Data Transmission Mode, Data Multiplexing, Data Switching, Network Topologies, Types of Networks, Networking Devices, OSI Model.
The Internet: Internet Services, Types of Internet Connections, Internet Security.

Unit – II

Introduction to Emerging Computer Technologies: Distributed Networking, Peer-to-peer Computing, Grid Computing, Cloud Computing, Utility Computing, On-demand Computing, Wireless Network, Bluetooth, Artificial Intelligence.

Unit – III

Email, Functions of Email, Browser, Web Browser, Internet Service Providers.
Introduction to Information Security – Need for Information Security, Threats to Information Systems, Information Assurance, Cyber Security.

Unit – IV

Introduction to Application Security and Counter Measures – Introduction to Application Security, Data Security Considerations, Security Technologies, Security Threats, Security Threats to E-Commerce, E-Cash and Electronic Payment System.

Text Books:

Dr. Surya Prakash T, Ritendra G, Praveen Kumar S, KLSI, Introduction to Information Security and Cyber Laws (Dreamtech Publication)

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FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – VI
PHP with MY SQL
(PROJECT/Optional)

Theory
Practical

3 Hours/Week
3 Hours/Week

3 Credit
1 Credit

Internal marks = 15
External Marks = 60

Unit – I

Introducing PHP – What is PHP? Why use PHP? Evolution of PHP, Installing PHP, Other ways to run PHP, Creating your first script. PHP Language Basics – Using variables, Understanding Data Types, Operators and Expressions, Constants. Decisions and Loops – Making Decisions, Doing Repetitive Tasks with Looping, Mixing Decisions and Looping with HTML. Strings – Creating and Accessing Strings, Searching Strings, Replacing Text with Strings, Dealing with Upper and Lowercase, Formatting Strings. Arrays – Creating Arrays, Accessing Array Elements, Looping through Arrays with for-each, Creating Function, Reading Data in Web pages: setting up web pages to communicate with PHP, Handling Text Fields, Text Areas, Checkboxes, Radio Buttons, List Boxes, Password Controls, Image Maps, File Uploads, Buttons, and PHP Browser.

Unit – II

Object oriented programming: creating Classes and objects, setting access to properties and methods, constructors, destructors, Inheritance, overriding and overloading methods, auto loading classes. Advanced OOP: Static members and inheritance, Abstract classes, Interfaces, object iteration, comparing objects, class constants, final keyword, reflection.

File Handling: fopen, feof, fgets, closing a file, fgetc, file_get_contents, reading a file into an array with file, file_exists, filesize, fread, fscanf, parse_ini_file, stat, fseek, copy, unlink, fwrite, reading and writing binary files, appending a file, file_put_contents, locking files

Unit – III

Introducing Databases and SQL – Deciding How to Store Data, Understanding Relational Databases, Setting Up MySQL, A Quick Play with MySQL, Connecting MySQL from PHP. Retrieving Data from MySQL with PHP, Retrieving Data with SELECT, Creating a Member Record Viewer. Manipulating MySQL Data with PHP – Inserting, Updating, and Deleting Records, Building a Member Registration Application. Sessions, Cookies and FTP.

Text Books:

1. Steven Holzner, "PHP: The Complete Reference Paperback", McGraw Hill Education (India), 2007.
2. Timothy Boronczyk, Martin E. Psinas, "PHP and MYSQL (Create-Modify-Reuse)", Wiley India Private Limited, 2008.

Project work

Theory: 4 Hours/Week

Credits: 4

- **The total allotted marks 100 are divided in to the following way**
- Internal Assessment (20 marks)
 - First seminar (10 marks – in between 25 to 30 days after commencement of class work) This seminar include the study of existing system, literature survey, problem definition.
 - Second seminar (10 marks – in between 55 to 60 days after commencement of class work)
This seminar include the requirements specification, analysis, design and partial implementation.
- External Assessment (80 marks)
 - The students should submit one page of synopsis on the project work for display on the notice board.
 - The project presentation is for 10 minutes followed by 05 minutes for discussion.
 - The student should submit a technical write-up on the project.

At least two teachers will be associated with the project seminar to evaluate students for the award of sessional marks which will be on the basis of performance in all the 3 items (synopsis, presentation, technical write-up).

Dissertation 50M

Presentation 15M

Viva 15M

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FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – VI
PHP with MY SQL Lab

Practical 3 Hours/Week 1 Credit Marks: 25

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
 - External Vice-Voce is compulsory.
1. Write a PHP script to display the Fibonacci sequence with HTML page.
 2. Write a PHP script to create a chess board.
 3. Write a PHP script using built-in string function like strstr(), strpos(), substr_count(), etc...
 4. Write a PHP script to transform a string to uppercase, lowercase letters, make a string's first Character uppercase.
 5. Write a PHP script to count number of elements in an array and display a range of array elements.
 6. Write a PHP script using a function to display the entered string in reverse.
 7. Write a PHP script to demonstrate inheritance.
 8. Write a PHP script to demonstrate the object overloading with _get(), _set(), and _call().
 9. Write a PHP script to demonstrate the method overloading and method overriding mechanisms.
 10. Write a PHP script to demonstrate the use of final classes and final methods.
 11. Write a PHP script to demonstrate the use of interfaces.
 12. Write a PHP script using constructors and destructors.
 13. Write a PHP application to handling HTML forms with PHP script.
 14. Write a PHP script to create a file, write data into file and display the file's data.
 15. Write a PHP script to check and change file permissions, copying, renaming and deleting files.
 16. Write a PHP application for connecting to MySQL and reading data from database table.
 17. Write a PHP application for inserting, updating, deleting records in the database table.
 18. Develop a PHP application for student registration form.
 19. Develop a PHP application for creating, updating, reading and deleting the Student records from MYSQL Database.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
UG (B.Sc.) Scheme of Examinations
B.Sc. (Computer Science)
(CBCS 2019-2020)

Elaborations

Paper	Credits	Theory Exam		Practical Exam
		University Exam	Internal Exam	
DSC	4+1	80 Marks	20 Marks	50 Marks
DSE	4+1	80 Marks	20 Marks	50 Marks
SEC	2	40 Marks	10 Marks	No Practical
GE	4	80 Marks	20 Marks	No Practical
AECC	2	40 Marks	10 Marks	No Practical
PO	3+1	60 Marks	15 Marks	25 Practical

DSC – Discipline specific core course

DSE – Discipline specific elective course

SEC – Skill enhancement course

GE – Generic Elective

AECC - Ability Enhancement Compulsory

P/O -Project/Optional

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)

Model Question Paper

3 Hours

Max Marks -80

Credits -4

PART -A

Answer any eight questions in part –A 8X4 M = 32 Marks

UNIT- I 1
2
3

UNIT- II 4
5
6

UNIT- III 7
8
9

UNIT- IV 10
11
12

Part – B

Answer all Questions 12MX4 = 48 Marks

UNIT- I 13
Or
14

UNIT- II 15
Or
16

UNIT- III 17
Or
18

UNIT- IV 19
Or
20

**OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)**

Internal Exam (Theory)

Time: 1 Hr.

Maximum marks: 20

- Two internal exams (one at the middle of the semester and the other at the end) of one-hour duration are to be conducted carrying 15 marks each.
- Average of the scores of two exams should be taken into account.
- Following is the examination pattern.
 - 10 MCQs (multiple choice questions) of half mark each,
 - 10 FIBs (Fill in the Blanks) of half mark each
 - 5 SAQs (short answered questions) of one mark each
 - Totaling 15 marks.
 - 5 marks meant for assignment.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)

Practical Question Paper

3 Hours

Max Marks -50

Credits -1

Answer any Two

15X 2 = 30 MARKS

UNIT – I	1 Program
UNIT- II	1 Program
UNIT-III	1 Program
UNIT-IV	1 Program

Viva - 10 Marks

Record – 10 Marks

**OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)**

2 Credit (SEC) Paper

University Exam (Theory)

Time: 2 Hrs.

Maximum marks: 40

Section – A (4 X 4M = 16 Marks)

Answer any four of the following six questions. Each carries four marks.

- Q1. From Unit 1
- Q2. From Unit 1
- Q3. From Unit 1
- Q4. From Unit 2
- Q5. From Unit 2
- Q6. From Unit 2

Section – B (2 X 12M = 24 Marks)

Answer all the following two questions. Each carries fifteen marks.

- Q09. (a) or (b) from Unit 1
- Q10. (a) or (b) from Unit 2

Internal Exam (Theory)

Time: 1/2 Hr.

Maximum marks: 10

- One internal exam at the end of the semester, of half an hour duration is to be conducted carrying 10 marks.
- Following is the examination pattern.
 - 10 MCQs (multiple choice questions) of one mark each,
No assignment is required.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
Model Question Paper for Semester VI Project/optional only

3 Hours

Max Marks -60

Credits -3

PART -A **Answer any Six questions in part –A 6X4 M = 24 Marks**

UNIT- I 1
 2
 3

UNIT- II 4
 5
 6

UNIT- III 7
 8
 9

Part – B **Answer all Questions 12MX3 = 36 Marks**

UNIT- I 13
 Or
 14

UNIT- II 15
 Or
 16

UNIT- III 17
 Or
 18

Internal Exam for Semester VI (Project /optional) (Theory)

Time: 1 Hr.

Maximum marks: 15

- Two internal exams (one at the middle of the semester and the other at the end) of one-hour duration are to be conducted carrying 15 marks each.
- Average of the scores of two exams should be taken into account.
- Following is the examination pattern.
 - 10 MCQs (multiple choice questions) of half mark each,
 - 10 FIBs (Fill in the Blanks) of half mark each
 - 5 SAQs (short answered questions) of one mark each
 - Totaling 15 marks.
 - No assignment required.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)

Practical Question Paper for Project/ Optional

3 Hours

Max Marks -25

Credits -1

Answer any Two

6X 2 = 12 MARKS

UNIT – I 1 Program

UNIT- II 1 Program

UNIT-III 1 Program

Viva - 8 Marks

Record – 5 Marks

MOOCs [Massive Online Open Courses] Free Resources

E-Learning:

- NPTEL :nptel.ac.in [Core Subjects Certification]
- C++ INSTITUTE :cppinstitute.org [C++ Certification]
- ORACLEEDUCATION :education.oracle.com [Java, DBMS Certification]
- BIG DATA UNIVERSITY :bigdatauniversity.com [Big Data Certification]
- COURSERA :coursera.org [Core Subjects Certification]
- CODEACADEMY :codecademy.com [Coding Certification]
- KHANACADEMY :khanacademy.org [Core Subjects Certification]
- PIXAR IN A BOX :khanacademy.org/partner-content/pixar
- VIDEOLECTURES :videlectures.net
- YOUTUBEEDU :plus.google.com/+YouTubeEDU/posts
- DISNEY RESEARCH :disneyresearch.com
- ALISON :alison.com [Core Subjects Certification]
- INTERNET ARCHIVE :archive.org

Freeware:

- SCILAB : scilab.org [MatLab Equivalent]
- GEOGEBRA :geogebra.org [Software for Class Room Teaching]

Search Engine:

- WOLFRAM ALPHA :wolframalpha.com [Computing Engine]
- CITSEER :citseerx.ist.psu.edu [Searching Research Articles]
- DOAJ :doaj.org [Open Access to Journals]

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
CBCS Pattern with Effect from the Academic Year 2019-2020

Structure of Curriculum

Course Title	Hours/Week		Credits
	Theory	Practical	
Semester –I			
Programming in C	4	3	4+1 = 5
Semester –II			
Programming in C++	4	3	4+1 = 5
Semester –III			
Data Structures using C++	4	3	4+1 = 5
Semester –IV			
Data Base Management Systems (DBMS)	4	3	4+1 = 5
Semester –V			
Programming in Java	4	3	4+1 = 5
Semester –VI			
Web Technologies	4	3	4+1 = 5

AECC			
	Hours/Week		Credits
	Theory		
Fundamentals of Computers	2		2
SEC			
Semester –III			
Communication Skills (or) Professional Skills (Sec –I)	2		2
Python –I (Sec –II)	2		2
Semester –IV			
Leadership & Management Skill (or) (Sec –III) Universal Human Values	2		2
Python –II (Sec –IV)	2		2
SEMESTER-V Generic Elective (GE)			
Information Technologies	4		4
Project/Optional			
Semester –VI			
PHP with MY SQL	Theory 3	Practical 3	3+1=4

Prof.G.Kamala
Chairperson Board of Studies in Computer Science, OU

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – I
Programming in C

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

Unit – I

Computer Fundamentals: Introduction of Computers, Classification of Computers, Anatomy of a Computer, Memory Hierarchy, Introduction to OS, Operational Overview of a CPU.

Program Fundamentals: Generation and Classification of Programming Languages, Compiling, Interpreting, Loading, Linking of a Program, Developing Program, Software Development.

Algorithms: Definitions, Different Ways of Stating Algorithms (Step-form, Pseudo-code, Flowchart), Strategy for Designing Algorithms, Structured Programming Concept.

Basics of C: Overview of C, Developing Programs in C, Parts of Simple C Program, Structure of a C Program, Comments, Program Statements, C Tokens, Keywords, Identifiers, Data Types, Variables, Constants, Operators and Expressions, Expression Evaluation–precedence and associativity, Type Conversions.

Unit – II

Input-Output: Non-formatted and Formatted Input and Output Functions, Escape Sequences, Control Statements: Selection Statements – if, if-else, nested if, nested if-else, comma operator, conditional operator, switch; Iterative Statements–while, for, do-while; Special Control Statement–goto, break, continue, return, exit.

Arrays and Strings: One-dimensional Arrays, Character Arrays, Functions from ctype.h, string.h, Multidimensional Arrays.

Unit – III

Functions: Concept of Function, Using Functions, Call-by-Value Vs Call-by-reference, Passing Arrays to Functions, Scope of Variables, Storage Classes, Inline Functions, and Recursion.

Pointers: Introduction, Address of Operator (&), Pointer, Uses of Pointers, Arrays and Pointers, Pointers and Strings, Pointers to Pointers, Array of Pointers, Pointer to Array, Dynamic Memory Allocation.

Unit – IV

User-defined Data Types: Declaring a Structure (Union) and its members, Initialization Structure (Union), Accessing members of a Structure (Union), Array of Structures (Union), Structures verses Unions, Enumeration Types.

Files: Introduction, Using Files in C, Working with Text Files, Working with Binary Files, Files of Records, Random Access to Files of Records, Other File Management Functions.

Textbook: Pradip Dey, Manas Ghosh, Computer Fundamentals and Programming in C (2e)

References:

1. Ivor Horton, Beginning C
2. Ashok Kamthane, Programming in C
3. Herbert Schildt, The Complete Reference C
4. Paul Deitel, Harvey Deitel, C How to Program
5. Byron S. Gottfried, Theory and Problems of Programming with C
6. Brian W. Kernighan, Dennis M. Ritchie, The C Programming Language
7. B. A. Forouzan, R. F. Gilberg, A Structured Programming Approach Using C

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – I
Programming in C Lab

Practical 3 Hours/Week 1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
- Faculty must take care about UG Standard Programs.
- In the external lab examination student has to execute two programs with compilation and deployment steps are necessary. Write the Pseudo Code and draw Flow Chart for the programs.
- Recommended to use Open Source Software: GCC on Linux; DevC++ (or) CodeBlocks on Windows10.
- External Vice-Voce is compulsory.

1. Write a program to find the largest two (three) numbers using if and conditional operator.
2. Write a program to print the reverse of a given number.
3. Write a program to print the prime number from 2 to n where n is given by user.
4. Write a program to find the roots of a quadratic equation using switch statement.
5. Write a program to print a triangle of stars as follows (take number of lines from user):

```
*  
* * *  
* * * * *  
* * * * * * *
```

6. Write a program to find largest and smallest elements in a given list of numbers.
7. Write a program to find the product of two matrices.
8. Write a program to find the GCD of two numbers using iteration and recursion.
9. Write a program to illustrate the use of storage classes.
10. Write a program to demonstrate the call by value and the call by reference concepts.
11. Write a program that prints a table indicating the number of occurrences of each alphabet in the text entered as command line arguments.
12. Write a program to illustrate use of data type enum.
13. Write a program to demonstrate use of string functions string.h header file.
14. Write a program that opens a file and counts the number of characters in a file.
15. Write a program to create a structure Student containing fields for Roll No., Name, Class, Year and Total Marks. Create 10 students and store them in a file.
16. Write a program that opens an existing text file and copies it to a new text file with all lowercase letters changed to capital letters and all other characters unchanged.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – II
Programming in C++

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

Unit – I

Introduction to C++: Applications, Example Programs, Tokens, Data Types, Operators, Expressions, Control Structures, Arrays, Strings, Pointers, Searching and Sorting Arrays.

Functions: Introduction, Prototype, Passing Data by Value, Reference Variables, Using Reference Variables as Parameters, Inline Functions, Default Arguments, Overloading Functions, Passing Arrays to Functions.

Object Oriented Programming: Procedural and Object-Oriented Programming, Terminology, Benefits, OOP Languages, and OOP Applications.

Unit – II

Classes: Introduction, Defining an Instance of a Class, Why Have Private Members? Separating Class Specification from Implementation, Inline Member Functions, Constructors, Passing Arguments to Constructors, Destructors, Overloading Constructors, Private Member Functions, Arrays of Objects, Instance and Static Members, Friends of Classes, Member-wise Assignment, Copy Constructors, Operator Overloading, Object Conversion, Aggregation.

Unit – III

Inheritance: Introduction, Protected Members and Class Access, Base Class Access Specification, Constructors and Destructors in Base and Derived Classes, Class Hierarchies, Polymorphism-Function Overloading, Function Overriding and Virtual Member Functions, Abstract Base Classes and Pure Virtual Functions, Multiple Inheritance.

C++ Streams: Stream Classes, Unformatted I/O Operations, Formatted I/O Operations.

Unit – IV

Exceptions: Introduction, Throwing an Exception, Handling an Exception, Object-Oriented Exception Handling with Classes, Multiple Exceptions, Extracting Data from the Exception Class, Re-throwing an Exception.

Templates: Function Templates–Introduction, Function Templates with Multiple Type, Overloading with Function Templates, Class Templates – Introduction, Defining Objects of the Class Template, Class Templates and Inheritance, , Introduction to the STL.

Textbook: Tony Gaddis, Starting out with C++: from control structures through objects (7e)

References:

1. B. Lippman, C++ Primer
2. Bruce Eckel, Thinking in C++
3. K.R. Venugopal, Mastering C++
4. Herbert Schildt, C++: The Complete Reference
5. Bjarne Stroustrup, The C++ Programming Language
6. Sourav Sahay, Object Oriented Programming with C++TEXT BOOK:
7. Object Oriented Programming with C++ Sixth edition, E.Balaguruswamy.
8. A Structured Approach Using C++ By B.A.Forouzan & Rf Gilberg (Thomson Business Information India)
9. Herbert Schilbt, C++ - The Complete Reference, TMH 2002
10. J.P. Cohoon and J.W. Davidson, C++ program design – An Introduction To Programming and Object Oriented Design.- MGH 1999.

OSMANIA UNIVERSITY
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B.Sc. (Computer Science)
SEMESTER – II
Programming in C++ Lab

Practical 3 Hours/Week 1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
 - Faculty must take care about UG Standard Programs.
 - In the external lab examination student has to execute two programs with compilation and deployment steps are necessary. Write the Pseudo Code and draw Flow Chart for the programs.
 - Recommended to use Open Source Software: GCC on Linux; DevC++ (or) CodeBlocks on Windows10.
 - External Vice-Voce is compulsory.
1. Write a program to.
 - a. Print the sum of digits of a given number.
 - b. Check whether the given number is Armstrong or not
 - c. Print the prime number from 2 to n where n is natural number given.
 2. Write a program to find largest and smallest elements in a given list of numbers and sort the given list.
 3. Write a program to read the student name, roll no, marks and display the same using class and object.
 4. Write a program to implement the dynamic memory allocation and de-allocation using new and delete operators using class and object.
 5. Write a program to find area of a rectangle, circle, and square using constructors.
 6. Write a program to implement copy constructor.
 7. Write a program using friend functions and friend class.
 8. Write a program to implement constructors
 - a. Default Constructor, Parameterized Constructor, Copy Constructor
 - b. Define the constructor inside/outside of the class
 - c. Implement all three constructors within a single class as well as use multiple classes(individual classes)
 9. Write a program to implement the following concepts using class and object
 - a. Function overloading
 - b. Operator overloading (unary/binary(+ and -))
 10. Write a program to demonstrate single inheritance, multilevel inheritance and multiple inheritances.
 11. Write a program to implement the overloaded constructors in inheritance.
 12. Write a program to implement the polymorphism and the following concepts using class and object.
 - a. Virtual functions
 - b. Pure virtual functions
 13. Write a program to implement the virtual concepts for following concepts
 - a. Constructor (not applied)
 - b. Destructor (applied)
 14. Write a program to demonstrate static polymorphism using method overloading.
 15. Write a program to demonstrate dynamic polymorphism using method overriding and dynamic method dispatch.
 16. Write a program to implement the template (generic) concepts
 - a. Without template class and object
 - b. With template class and object

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – III
Data Structures using C++

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

Unit - I

Basic data Structure: Introduction to Data Structures, Types of Data Structures, and Introduction to Algorithms, Pseudo code, and Relationship among data, data structures, and algorithms, Implementation of data structures, Analysis of Algorithms.

Stacks: Concept of Stacks and Queues, Stacks, Stack Abstract Data Type, Representation of Stacks Using Sequential Organization (Arrays), Multiple Stacks, Applications of Stack, Expression Evaluation and Conversion, Polish notation and expression conversion, Processing of Function Calls, Reversing a String with a Stack, Recursion.

Unit - II

Recursion: Introduction, Recurrence, Use of Stack in Recursion, Variants of Recursion, Recursive Functions, Iteration versus Recursion.

Queues: Concept of Queues, Queue as Abstract Data Type, Realization of Queues Using Arrays, Circular Queue, Multi-queues, Dequeue, Priority Queue, Applications of Queues,

Linked Lists: Introduction, Linked List, Linked List Abstract Data Type, Linked List Variants, Doubly Linked List, Circular Linked List, Representation of Sparse Matrix Using Linked List, Linked Stack, Linked Queue.

Unit - III

Trees: Introduction, Types of Trees, Binary Tree, Binary Tree Abstract Data Type, Realization of a Binary Tree, Insertion of a Node in Binary Tree, Binary Tree Traversal, Other Tree Operations, Binary Search Tree, Threaded Binary Tree, Applications of Binary Trees.

Searching and Sorting: Search Techniques-Linear Search, Binary Search, Sorting Techniques- Selection Sort, Bubble Sort, Insertion Sort, Merge Sort, Quick Sort, Comparison of All Sorting Methods, Search Trees: Symbol Table, Optimal Binary Search Tree, AVL Tree (Height-balanced Tree).

Unit - IV

Graphs: Introduction, Representation of Graphs, Graph Traversal – Depth First Search, Breadth First Search, Spanning Tree, Prim’s Algorithm, Kruskal’s Algorithm.

Hashing: Introduction, Key Terms and Issues, Hash Functions, Collision Resolution Strategies, Hash Table Overflow, Extendible Hashing

Heaps: Basic Concepts, Implementation of Heap, Heap as Abstract Data Type, Heap Sort, Heap Applications.

Text books:

1. Varsha H. Patil “Data structures using C++” Oxford University press, 2012
2. M.T. Goodrich, R. Tamassia and D. Mount, Data Structures and Algorithms in C++, John Wiley and Sons, Inc., 2011.

References:

1. Adam Drozdek “Data structures and algorithm in C++” Second edition, 2001
2. T.H. Cormen, C.E. Leiserson, R.L. Rivest and C. Stein, Introduction to Algorithms, 2nd Ed., Prentice-Hall of India, 2006.
3. Robert L. Kruse and A.J. Ryba, Data Structures and Program Design in C++, Prentice Hall, Inc., NJ, 1998.
4. B. Stroustrup, The C++ Programming Language, Addison Wesley, 2004
5. D.E. Knuth, Fundamental Algorithms (Vol. I), Addison Wesley, 1997

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – III

Data Structures using C++ Lab

Practical

3 Hours/Week

1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
 - In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.
 - External Vice-Voce is compulsory.
1. Write C++ programs to implement the following using an array
 - a) Stack ADT
 - b) Queue ADT
 2. Write a C++ program to implement Circular queue using array.
 3. Write C++ programs to implement the following using a single linked list.
 - a) Stack ADT
 - b) Queue ADT
 4. Write a C++ program to implement Circular queue using Single linked list.
 5. Write a C++ program to implement the double ended queue ADT using double linked list.
 6. Write a C++ program to solve tower of Hanoi problem recursively
 7. Write C++ program to perform the following operations:
 - a) Insert an element into a binary search tree.
 - b) Delete an element from binary search tree.
 - c) Search for a key in a binary search tree.
 8. Write C++ programs for the implementation tree traversal technique BFS.
 9. Write a C++ program that uses recursive functions to traverse a binary search tree.
 - a) Pre-order
 - b) In-order
 - c) Post-order
 10. Write a C++ program to find height of a tree.
 - 11 Write a C++ program to find MIN and MAX element of a BST.
 - 12 Write a C++ program to find Inorder Successor of a given node.
 13. Write C++ programs to perform the following operations on B-Trees and AVL Trees.
 - a) Insertion
 - b) Deletion
 - 14 Write C++ programs for sorting a given list of elements in ascending order using the following sorting methods.
 - a) Quick sort
 - b) Merge sort
 15. Write a C++ program to find optimal ordering of matrix multiplication.
 16. Write a C++ program that uses dynamic programming algorithm to solve the optimal binary search tree problem
 17. Write a C++ program to implement Hash Table
 18. Write C++ programs to perform the following on Heap
 - a) Build Heap
 - b) Insertion
 - c) Deletion
 19. Write C++ programs to perform following operations on Skip List
 - a) Insertion
 - b) Deletion
 20. Write a C++ Program to Create a Graph using Adjacency Matrix Representation.
 21. Write a C++ program to implement graph traversal techniques
 - a) BFS
 - b) DFS
 22. Write a C++ program to Heap sort using tree structure.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – IV
Data Base Management Systems

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

Unit - I

Introduction: Database-System Applications, Purpose of Database Systems, View of Data, Database Languages, Relational Databases, Database Design, Data Storage and Querying, Transaction Management, Database Architecture, Database Users and Administrators.

Introduction to the Relational Model: Structure of Relational Databases, Database Schema, Keys, Schema Diagrams, Relational Query Languages, Relational Operations.

Unit - II

Database Design and the E-R Model: Overview of the Design Process, The Entity-Relationship Model, Constraints, Removing Redundant Attributes in Entity Sets, Entity-Relationship Diagrams, Reduction to Relational Schemas, Entity-Relationship Design Issues, Extended E-R Features, Alternative Notations for Modeling Data, Other Aspects of Database Design.

Relational Database Design: Features of Good Relational Designs, Atomic Domains and First Normal Form, Decomposition Using Functional Dependencies, Functional- Dependency Theory, Decomposition Using Multivalued Dependencies, Normal Forms-2 NF, 3 NF, BCNF, The Database Design Methodology for Relational Databases.

Unit - III

Introduction to SQL: Overview of the SQL Query Language, SQL Data Definition, Basic Structure of SQL Queries, Additional Basic Operations, Set Operations, Null Values, Aggregate Functions, Nested Subqueries, Modification of the Database.

Intermediate SQL: Join Expressions, Views, Transactions, Integrity Constraints, SQL Data Types and Schemas, Authorization.

Advanced SQL: Accessing SQL from a Programming Language, Functions and Procedures, Triggers, Recursive Queries.

Unit - IV

Transaction Management: Transaction Support–Properties of Transactions, Database Architecture, Concurrency Control–The Need for Concurrency Control, Serializability and Recoverability, Locking Methods, Deadlock, Time Stamping Methods, Multi-version Timestamp Ordering, Optimistic Techniques, Granularity of Data Items, Database Recovery–The Need for Recovery, Transactions and Recovery, Recovery Facilities, Recovery Techniques, Nested Transaction Model. Security: Database Security–Threats, Computer-Based Controls–Authorization, Access Controls, Views, Backup and Recovery, Integrity, Encryption, RAID.

Text book:

1. Silberschatz, H. Korth and S. Sudarshan, Database System Concepts, 6th Ed., Tata McGraw Hill, 2011
2. Thomas M. Connolly, Carolyn E. Begg, Database Systems–A Practical Approach to Design, Implementation, and Management (6e)

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – IV
Data Base Management Systems Lab

Practical 3 Hours/Week 1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
 - In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.
 - External Vice-Voce is compulsory.
1. Create a database having two tables with the specified fields, to computerize a library system of a University College.
LibraryBooks (Accession number, Title, Author, Department, PurchaseDate, Price), IssuedBooks (Accession number, Borrower)
 - a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
 - b) Delete the record of book titled “Database System Concepts”.
 - c) Change the Department of the book titled “Discrete Maths” to “CS”.
 - d) List all books that belong to “CS” department.
 - e) List all books that belong to “CS” department and are written by author “Navathe”.
 - f) List all computer (Department=“CS”) that have been issued.
 - g) List all books which have a price less than 500 or purchased between “01/01/1999” and “01/01/2004”.
 2. Create a database having three tables to store the details of students of Computer Department in your college.
Personal information about Student (College roll number, Name of student, Date of birth, Address, Marks(rounded off to whole number) in percentage at 10 + 2, Phone number)
Paper Details (Paper code, Name of the Paper)
Student’s Academic and Attendance details (College roll number, Paper Code, Attendance, Marks in home examination).
 - a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
 - b) Design a query that will return the records (from the second table) along with the name of student from the first table, related to students who have more than 75% attendance and more than 60% marks in paper2.
 - c) List all students who live in “Warangal” and have marks greater than 60 in paper1.
 - d) Find the total attendance and total marks obtained by each student.
 - e) List the name of student who has got the highest marks in paper2.
 3. Create the following tables and answer the queries given below:
Customer (CustID, email, Name, Phone, ReferrerID)
Bicycle (BicycleID, DatePurchased, Color, CustID, ModelNo)
BicycleModel(ModelNo, Manufacturer, Style)
Service (StartDate, BicycleID, EndDate)

- a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
 - b) List all the customers who have the bicycles manufactured by manufacturer "Honda".
 - c) List the bicycles purchased by the customers who have been referred by Customer "C1".
 - d) List the manufacturer of red colored bicycles.
 - e) List the models of the bicycles given for service.
4. Create the following tables, enter at least 5 records in each table and answer the queries given below.

Employee (Person_Name, Street, City)

Works (Person_Name, Company_Name, Salary)

Company (Company_Name, City)

Manages (Person_Name, Manager_Name)

- a) Identify primary and foreign keys.
- b) Alter table employee, add a column "email" of type varchar(20).
- c) Find the name of all managers who work for both Samba Bank and NCB Bank.
- d) Find the names, street address and cities of residence and salary of all employees who work for "Samba Bank" and earn more than \$10,000.
- e) Find the names of all employees who live in the same city as the company for which they work.
- f) Find the highest salary, lowest salary and average salary paid by each company.
- g) Find the sum of salary and number of employees in each company.
- h) Find the name of the company that pays highest salary.

5. Create the following tables, enter at least 5 records in each table and answer the queries given below.

Suppliers (SNo, Sname, Status, SCity)

Parts (PNo, Pname, Colour, Weight, City)

Project (JNo, Jname, Jcity)

Shipment (Sno, Pno, Jno, Qunatity)

- a) Identify primary and foreign keys.
 - b) Get supplier numbers for suppliers in Paris with status>20.
 - c) Get suppliers details for suppliers who supply part P2. Display the supplier list in increasing order of supplier numbers.
 - d) Get suppliers names for suppliers who do not supply part P2.
 - e) For each shipment get full shipment details, including total shipment weights.
 - f) Get all the shipments where the quantity is in the range 300 to 750 inclusive.
 - g) Get part nos. for parts that either weigh more than 16 pounds or are supplied by suppliers S2, or both.
 - h) Get the names of cities that store more than five red parts.
 - i) Get full details of parts supplied by a supplier in Hyderabad.
 - j) Get part numbers for part supplied by a supplier in Warangal to a project in Chennai.
 - k) Get the total number of project supplied by a supplier (say, S1).
 - l) Get the total quantity of a part (say, P1) supplied by a supplier (say, S1).
6. Write a PL/SQL Program to demonstrate Procedure.
7. Write a PL/SQL Program to demonstrate Function.

8. Write a PL/SQL program to Handle Exceptions.
9. Write a PL/SQL Program to perform a set of DML Operations.
10. Create a View using PL/SQL program.
11. Write a PL/SQL Program on Statement Level Trigger.
12. Write a PL/SQL Program on Row Level Trigger.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – V
Programming in Java

Theory
Practical

4 Hours/Week
3 Hours/Week

4 Credit
1 Credit

Internal marks = 20
External Marks = 80

Unit - I

Introduction: Java Essentials, JVM, Java Features, Creation and Execution of Programs, Data Types, Structure of Java Program, Type Casting, Conditional Statements, Loops, Classes, Objects, Class Declaration, Creating Objects.

Unit - II

Method Declaration and Invocation, Method Overloading, Constructors – Parameterized Constructors, Constructor Overloading, Cleaning-up unused Objects. Class Variables & Method-static Keyword, this Keyword, One-Dimensional Arrays, Two-Dimensional Arrays, Command-Line Arguments, Inner Class.

Inheritance: Introduction, Types of Inheritance, extends Keyword, Examples, Method Overriding, super, final Keyword, Abstract classes, Interfaces, Abstract Classes Verses Interfaces.

Packages: Creating and Using Packages, Access Protection, Wrapper Classes, String Class, StringBuffer Class.

Unit - III

Exception: Introduction, Types, Exception Handling Techniques, User-Defined Exception.

Multithreading: Introduction, Main Thread and Creation of New Threads –By Inheriting the Thread Class or Implementing the Runnable Interface, Thread Lifecycle, Thread Priority and Synchronization.

Input/Output: Introduction, java.io Package, File Streams, FileInputStream Class, FileOutputStream Class, Scanner Class, BufferedInputStream Class, BufferedOutputStream Class, RandomAccessFile Class.

Unit - IV

Applets: Introduction, Example, Life Cycle, Applet Class, Common Methods Used in Displaying the Output (Graphics Class).

Event Handling: Introduction, Types of Events, Example.

AWT: Introduction, Components, Containers, Button, Label, Checkbox, Radio Buttons, Container Class, Layouts.

Swings: Introduction, Differences between Swing and AWT, JFrame, JApplet, JPanel, Components in Swings, Layout Managers, JTable.

Text Book:

1. Sachin Malhotra, Saurabh Choudhary, Programming in Java (2e)

References:

1. Bruce Eckel, Thinking in Java (4e)
2. Herbert Schildt, Java: The Complete Reference (9e)
3. Y. Daniel Liang, Introduction to Java Programming (10e)
4. Paul Deitel, Harvey Deitel, Java: How To Program (10e)
5. Cay S. Horstmann, Core Java Volume I –Fundamentals (10e)

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – V
Programming in Java Lab

Practical 3 Hours/Week 1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
 - In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.
 - External Vice-Voce is compulsory.
1. Write a program to find the largest of n natural numbers.
 2. Write a program to find whether a given number is prime or not.
 3. Write a menu driven program for following:
 - a. Display a Fibonacci series
 - b. Compute Factorial of a number
 4. Write a program to check whether a given number is odd or even.
 5. Write a program to check whether a given string is palindrome or not.
 6. Write a program to print the sum and product of digits of an Integer and reverse the Integer.
 7. Write a program to create an array of 10 integers. Accept values from the user in that Array. Input another number from the user and find out how many numbers are equal to the number passed, how many are greater and how many are less than the number passed.
 8. Write a program that will prompt the user for a list of 5 prices. Compute the average of the prices and find out all the prices that are higher than the calculated average.
 9. Write a program in java to input N numbers in an array and print out the Armstrong numbers from the set.
 10. Write java program for the following matrix operations:
 - a. Addition of two matrices
 - b. Transpose of a matrix
 11. Write a java program that computes the area of a circle, rectangle and a Cylinder using function overloading.
 12. Write a Java program for the implementation of multiple inheritance using interfaces to calculate the area of a rectangle and triangle.
 13. Write a java program to create a frame window in an Applet. Display your name, address and qualification in the frame window.
 14. Write a java program to draw a line between two coordinates in a window.
 15. Write a java program to display the following graphics in an applet window.
 - a. Rectangles
 - b. Circles
 - c. Ellipses
 - d. Arcs
 - e. Polygons
 16. Write a program that reads two integer numbers for the variables a and b. If any other character except number (0-9) is entered then the error is caught by NumberFormatException object. After that ex.getMessage () prints the information about the error occurring causes.
 17. Write a program for the following string operations:
 - a. Compare two strings
 - b. concatenate two strings
 - c. Compute length of a string
 18. Create a class called Fraction that can be used to represent the ratio of two integers. Include appropriate constructors and methods. If the denominator becomes zero, throw and handle an exception.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – VI
Web Technologies

Theory
Practical

4 Hours/Week
3 Hours/Week

4 Credit
1 Credit

Internal marks = 20
External Marks = 80

Unit – I

Introduction To XHTML– Introduction, first HTML, Headings, Linking, Images, special characters and horizontal rules, Lists, Tables, Frames, Forms, internal linking, meta Elements. CASCADING STYLE SHEETS – Introduction, Inline Styles, Embedded Style Sheets, Conflicting Styles, Linking external sheets, position Elements, box model and text flow, media types, building a CSS drop-down menu, user style sheets, CSS3.

Unit – II

Introduction To Java Scripting- introduction, simple program, prompt dialog and alert boxes, memory concepts, operators, decision making, control structures, if... else statement, while, counter-controlled repetitions, switch statement, do... while statement, *break* and *continue* statements. Functions – program modules in JavaScript, programmer–defined functions, functions definition, scope rules, global functions, Recursion.

Unit – III

Arrays- introduction, declaring and allocating arrays, references and reference parameters, passing arrays to functions. Multidimensional arrays, **EVENTS** – registering event handling, event onload, onmouseover, onmouseout, onfocus, onblur, onsubmit, onreset, event bubbling, more events. **JAVA SCRIPT OBJECTS** – introduction to object technology, Math Object, String Object, Date Object, Boolean and Number Object, document and window Objects, using cookies.

Unit – IV

XML - Introduction, XML Basics, Structuring Data, XML Namespaces, Document Type Definitions (DTDs), W3C XML Schema Documents, XML Vocabularies, Extensible Style sheet Language and XSL Transformations, Document Object Model (DOM).

Ajax-Enabled Rich Internet Applications: introduction, history of Ajax, traditional web applications Vs Ajax Applications, RIAs with Ajax, Ajax example using XMLHttpRequest object, XML and DOM, creating full scale Ajax-enabled application, Dojo Toolkit.

Text Book:

1. Internet & World Wide Web: HOW TO PROGRAM- H. M. Deitel, P.J. Deitel, - Fourth Edition- Pearson edition.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – VI
Web Technologies Lab

Practical 3 Hours/Week 1 Credit Marks: 50

1. Write a HTML program using basic text formatting tags, <p>,
, <pre>.
2. Write a HTML program by using text formatting tags.
3. Write a HTML program using presentational element tags , <i>, <strike>, <sup>, <sub>, <big>, <small>, <hr>
4. Write a HTML program using phrase element tags <blockquote>, <cite>, <abbr>, <acronym>, <kbd>, <address>
5. Write a HTML program using different list types.
6. Create a HTML page that displays ingredients and instructions to prepare a recipe.
7. Write a HTML program using grouping elements <div> and .
8. Write a HTML Menu page for Example cafe site.
9. Write a HTML program using images, audios, videos.
10. Write a HTML program to create your time table.
11. Write a HTML program to create a form using text inputs, password inputs, multiple line text input, buttons, check boxes, radio buttons, select boxes, file select boxes.
12. Write a HTML program to create frames and links between frames.
13. Write a HTML program to create different types of style sheets.
14. Write a HTML program to create CSS on links, lists, tables and generated content.
15. Write a HTML program to create your college web site using multi column layouts.
16. Write a HTML program to create your college web site using for mobile device.
17. Write a HTML program to create login form and verify username and password.
18. Write a JavaScript program to calculate area of rectangle using function.
19. Write a JavaScript program to wish good morning, good afternoon, good evening depending on the current time.
20. Write a JavaScript program using switch case?
21. Write a JavaScript program to print multiplication table of given number using loop.
22. Write a JavaScript programs using any 5 events.
23. Write a JavaScript program using JavaScript built in objects.
24. Write a JavaScript program to create registration Form with Validations.
25. Write a XML Program to represent Student Data using DTD.
26. Write a XML Program to represent Data using XML Schema Definition.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. Computer Science
Semester-I
AECC

Fundamentals of Computers

Theory

2 Hours/Week

2Credits

Unit-I

Introduction to Computers: what is a computer, characteristics of Computers, Generations of Computers, Classifications of Computers, Basic Computer organization, Applications of Computers. Input and Output Devices: Input devices, Output devices, Softcopy devices, Hard copy devices. Computer Memory and Processors: Introduction, Memory Hierarchy, Processor, Registers, Cache memory, primary memory, secondary storage devices, magnetic tapes, floppy disks, hard disks, optical drives, USB flash drivers, Memory cards, Mass storage devices, Basic processors architecture.

Unit-II

Number System and Computer Codes: Binary number system, working with binary numbers, octal number system, hexadecimal number system, working with fractions, signed number representation in binary form, BCD code, other codes. Boolean algebra and logic gates: Boolean algebra, Venn diagrams, representation of Boolean functions, logic gates, logic diagrams and Boolean expressions using karnaugh map. Computer Software: Introduction to computer software, classification of computer software, system software, application software, firmware, middleware, acquiring computer software, design and implementation of correct, efficient and maintainable programs.

Text Book:

Reema Thareja, Fundamentals of Computers.

References:

1. V.Rajaraman, 6th Edition Fundamentals of Computers, Neeharika Adabala.
2. Anita Goel, Computer Fundamentals.

Course 1: Communication Skills

Context and Justification :

Communication plays an important role in shaping an individual's life, personal as well as professional. Also it is the backbone of any organisation/institution. Success in life to a considerable extent depends on effective communication skills. In today's world of computers and digital media, a strong communication skill base is essential for learners and for smooth functioning of an organisation.

Objectives :

This course has been developed with the following objectives:

1. Identify common communication problems that may be holding learners back
2. Identify what their non-verbal messages are communicating to others
3. Understand role of communication in teaching-learning process
4. Learning to communicate through the digital media
5. Understand the importance of empathetic listening
6. Explore communication beyond language.

Expected Outcome :

By the end of this program participants should have a clear understanding of what good communication skills are and what they can do to improve their abilities.

Credit: 02

Duration: 30 Hours

Number & Titles of Modules:

Total of 7 Modules

Module 1	Listening	4 Hours
Module 2	Speaking	6 Hours
Module 3	Reading	3 Hours
Module 4	Writing and different modes of writing	4 Hours
Module 5	Digital Literacy	4 Hours
Module 6	Effective use of Social Media	4 Hours
Module 7	Non-verbal communication	5 Hours

Module Outline :

Module 1: Listening

4 Hours

- Techniques of effective listening
- Listening and comprehension
- Probing questions
- Barriers to listening

Module 2: Speaking

6 Hours

- Pronunciation
- Enunciation
- Vocabulary
- Fluency
- Common Errors

Module 3: Reading

3 Hours

- Techniques of effective reading
- Gathering ideas and information from a given text
 - i. Identify the main claim of the text
 - ii. Identify the purpose of the text
 - iii. Identify the context of the text
 - iv. Identify the concepts mentioned
- Evaluating these ideas and information
 - i. Identify the arguments employed in the text
 - ii. Identify the theories employed or assumed in the text
- Interpret the text
 - i. To understand what a text says
 - ii. To understand what a text does
 - iii. To understand what a text means

Module 4: Writing and different modes of writing

4 Hours

- Clearly state the claims
- Avoid ambiguity, vagueness, unwanted generalisations and oversimplification of issues
- Provide background information
- Effectively argue the claim
- Provide evidence for the claims
- Use examples to explain concepts
- Follow convention
- Be properly sequenced
- Use proper signposting techniques
- Be well structured
 - i. Well-knit logical sequence
 - ii. Narrative sequence
 - iii. Category groupings

- Different modes of Writing
 - i. E-mails
 - ii. Proposal writing for Higher Studies
 - iii. Recording the proceedings of meetings
 - iv. Any other mode of writing relevant for learners

Module 5: Digital Literacy**4 Hours**

- Role of Digital literacy in professional life
- Trends and opportunities in using digital technology in workplace
- Internet Basics
- Introduction to MS Office tools
 - i. Paint
 - ii. Office
 - iii. Excel
 - iv. Powerpoint

Module 6: Effective use of Social Media**4 Hours**

- Introduction to social media websites
- Advantages of social media
- Ethics and etiquettes of social media
- How to use Google search better
- Effective ways of using Social Media
- Introduction to Digital Marketing

Module 7: Non-verbal communication**5 Hours**

- Meaning of non-verbal communication
- Introduction to modes of non-verbal communication
- Breaking the misbeliefs
- Open and Closed Body language
- Eye Contact and Facial Expression
- Hand Gestures
- Do's and Don'ts
- Learning from experts
- Activities-Based Learning

Pedagogy : Instructor-Led Training, Supplemented by Online Platform (SWAYAM)

Materials : Teaching & Learning

Assessment : Paper-Based or Online Assessment

Bibliography & Suggested Reading including audio video material :

Books

- Sen Madhucchanda (2010), *An Introduction to Critical Thinking*, Pearson, Delhi
- Silvia P. J. (2007), *How to Read a Lot*, American Psychological Association, Washington DC

Course 2: Professional Skills

Context with Justification :

One of the significant outcomes of Higher Education is to prepare an individual for entering the job/employment market. Besides knowledge and skills required for a particular job/occupation, professional skills are also required for an individual to be gainfully employed for a successful and satisfied life. Professional skills are part of life skills. An individual should be able to demonstrate professional skills involving the use of intuitive, logical and critical thinking, communication and interpersonal skills, not limited to cognitive/creative skills. These skills, behaviour and quality of output enhance employability.

The career skills empower an individual with ability in preparing an appropriate resume, addressing the necessary gaps for facing interviews and actively and effectively participating in group discussion thereof, etc. It is also of significant importance that students /individuals possess the know-how to explore career opportunities for themselves, considering their innate strengths and weaknesses.

It is important that the students/individuals are well prepared to take on new challenges and opportunities. With the increasing use of technology in the way we live, learn and work, it is critical for students/individuals to be able to utilise basic computing concepts and also have and espouse excellent Team Skills. Collaborating and working together can assist in resolving complex problems, which allow/offer individuals an opportunity to articulate new ideas and perspectives. It further allows learner / individuals design, develop, problem solve and to adapt to situations based on their experience and skills.

Credit: 02

Duration:30 hours

The Course Professional Skills is divided into two parts:

- a) Career Skills
- b) Team Skills

A. Career Skills

Objectives :

The Objectives of the course are to help students/candidates:

1. Acquire career skills and fully pursue to partake in a successful career path
2. Prepare good resume, prepare for interviews and group discussions
3. Explore desired career opportunities in the employment market in consideration of an individual SWOT.

Expected Outcomes :

At the end of this course the students will be able to:

1. Prepare their resume in an appropriate template without grammatical and other errors and using proper syntax
2. Participate in a simulated interview
3. Actively participate in group discussions towards gainful employment
4. Capture a self - interview simulation video regarding the job role concerned
5. Enlist the common errors generally made by candidates in an interview
6. Perform appropriately and effectively in group discussions
7. Explore sources (online/offline) of career opportunities
8. Identify career opportunities in consideration of their own potential and aspirations
9. Use the necessary components required to prepare for a career in an identified occupation (as a case study).

Duration: 15 Hours

Number & Titles of Modules:

Module 1	Resume Skills	3 Hours
Module 2	Interview Skills	5 Hours
Module 3	Group Discussion Skills	4 Hours
Module 4	Exploring Career Opportunities	3 Hours

Module Outline :

Module 1: Resume Skills **3 Hours**

- i. Resume Skills : Preparation and Presentation**
 - Introduction of resume and its importance
 - Difference between a CV, Resume and Bio data
 - Essential components of a good resume
- ii. Resume skills : common errors**
 - Common errors people generally make in preparing their resume
 - Prepare a good resume of her/his considering all essential components

Module 2: Interview Skills **5 Hours**

- i. Interview Skills : Preparation and Presentation**
 - Meaning and types of interview (F2F, telephonic, video, etc.)
 - Dress Code, Background Research, Do's and Don'ts
 - Situation, Task, Approach and Response (STAR Approach) for facing an interview
 - Interview procedure (opening, listening skills, closure, etc.)
 - Important questions generally asked in a job interview (open and closed ended questions)

- ii. **Interview Skills : Simulation**
 - Observation of exemplary interviews
 - Comment critically on simulated interviews
- iii. **Interview Skills : Common Errors**
 - Discuss the common errors generally candidates make in interview
 - Demonstrate an ideal interview

Module 3: Group Discussion Skills **4 Hours**

- Meaning and methods of Group Discussion
- Procedure of Group Discussion
- Group Discussion- Simulation
- Group Discussion - Common Errors

Module 4: Exploring Career Opportunities **3 Hours**

- Knowing yourself – personal characteristics
- Knowledge about the world of work, requirements of jobs including self-employment.
- Sources of career information
- Preparing for a career based on their potentials and availability of opportunities

Pedagogy : Besides Face to Face lectures (theory would be limited only to 20% of the component and remaining 80% would be practical oriented), the focus would be primarily on blended /hybrid learning. This could include a flipped classroom approach that leverages project-based learning, demonstration, group discussion, simulations etc.

Materials : Audio video materials, Online Platform (SWAYAM), FutureSkills Platform, Used Cases & Case Studies etc.

Assessment: Online evaluation, demonstration, assignments : Some components could be aligned to NOS (SSC/N9005) IT-ITeS Sector . The questions posed to the students would be a mix of MCQs, scenario-based, logical reasoning, comprehension, simulations, etc. Do check the assessment model and sample assessment at (<http://nac.nasscom.in/>)

Bibliography & Suggested Reading including audio video material :
Please check IT-ITeS Sector Skills Council readiness programs namely

- Foundation Skills In IT (FSIT) - Refer the websites like <https://www.sscnasscom.com/ssc-projects/capacity-building-and-development/training/fsit/> and
- Global Business Foundation Skills (GBFS) – Refer websites like <https://www.sscnasscom.com/ssc-projects/capacity-building-and-development/training/gbfs/>

B. Team Skills

Objectives :

The objectives of the course is to make learners:

1. Understand the significance of Team Skills and help them in acquiring them
2. To help them design, develop and adapt to situations as an individual and as a team.

Expected Outcomes :

By the end of this course the learners/candidates will be able to:

1. Use common technology messaging tools that are used in enterprises for flow of information and transition from command and control to informal communication during an online/offline team session
2. Actively use and operate online team communication tools: Webinar, Skype, Zoom, Google hangout etc
3. Appreciate and demonstrate Team Skills
4. Participate in a digital lifestyle conversant with computers, applications, Internet and nuances of cyber security
5. Explore (online) and identify career opportunities in consideration of their own potential and aspirations.
6. Discuss and articulate the key requirements of an entrepreneurial exercise
7. Empathise and trust colleagues for improving interpersonal relations
8. Engage in effective communication by respecting diversity and embracing good listening skills
9. Distinguish the guiding principles for communication in a diverse, smaller internal world
10. Practice interpersonal skills for better relations with seniors, juniors, peers and stakeholders
11. Project a good personal image and social etiquette so as to have a positive impact on building of one's chosen career
12. Generate, share and maximise new ideas with the concept of brainstorming and the documentation of key critical ideas/thoughts articulated and action points to be implemented with timelines in a team discussion (as MOM) in identified applicable templates.

Duration: 15 Hours

Number & Titles of Modules:

Module 1	Presentation Skills	5 Hours
Module 2	Trust and Collaboration	2 Hour
Module 3	Listening as a Team Skill	2 hour
Module 4	Brainstorming	2 Hour
Module 5	Social and Cultural Etiquettes	2 Hour
Module 6	Internal Communication	2 Hour

Module Outline :

Module 1: Presentation Skills **5 Hours**

- Types of presentations
- Internal and external presentation
- Knowing the purpose
- Knowing the audience
- Opening and closing a presentation
- Using presentation tools
- Handling questions
- Presentation to heterogenic group
- Ways to improve presentation skills over time

Module 2: Trust and Collaboration **2 Hours**

- Explain the importance of trust in creating a collaborative team
- Agree to Disagree and Disagree to Agree – Spirit of Team work
- Understanding fear of being judged and strategies to overcome fear

Module 3: Listening as a Team Skill **2 Hours**

- Advantages of Effective Listening
- Listening as a team member and team leader. Use of active listening strategies to encourage sharing of ideas (full and undivided attention, no interruptions, no pre-think, use empathy, listen to tone and voice modulation, recapitulate points, etc.).

Module 4: Brainstorming**2 Hour**

- Use of group and individual brainstorming techniques to promote idea generation.
- Learning and showcasing the principles of documentation of team session outcomes

Module 5: Social and Cultural Etiquette**2 Hour**

- Need for etiquette (impression, image, earn respect, appreciation, etc)
- Aspects of social and cultural/corporate etiquette in promoting teamwork
- Importance of time, place, propriety and adaptability to diverse cultures

Module 6: Internal Communication**2 Hour**

- Use of various channels of transmitting information including digital and physical, to team members.

Pedagogy : Besides Face to Face Lectures (as theory would be limited only to 20% of the component and remaining 80% would be practical oriented), the focus would be primarily on blended learning/hybrid learning. This could include a flipped classroom approach that leverage project based learning, demonstration, group discussion, simulation as well as coaching, seminars and tutorials.

Materials : Audio video materials, Online Platform (SWAYAM), Future Skills platform

Assessment: Written evaluation, demonstration, assignments:

Some components aligned to NOS (SSC/N9005) IT-ITeS . The questions posed to the students would be a mix of MCQs, Scenario-based, logical reasoning, comprehension, simulations, etc. Do check the assessment at website like (<http://nac.nasscom.in/>)

Bibliography & Suggested Reading including audio video material :

Please check IT-ITeS Sector Skills Council readiness program namely Global Business Foundation Skills (GBFS) in website (<https://www.sscnasscom.com/ssc-projects/capacity-building-and-development/training/gbfs/>),and Generic and the entrepreneurial NOS at NSQF Level 4 -7.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – III

Python – I
(SEC – II)

Theory

2 Hours/Week

2Credits

Unit – I

Introduction to Python Programming: How a Program Works, Using Python, Program Development Cycle, Input, Processing, and Output, Displaying Output with the Print Function, Comments, Variables, Reading Input from the Keyboard, Performing Calculations (Operators. Type conversions, Expressions), More about Data Output. Decision Structures and Boolean Logic: if, if-else, if-elif-else Statements, Nested Decision Structures, Comparing Strings, Logical Operators, Boolean Variables. Repetition Structures: Introduction, while loop, for loop, Calculating a Running Total, Input Validation Loops, Nested Loops.

Unit – II

Functions: Introduction, Defining and Calling a Void Function, Designing a Program to Use Functions,

Local Variables, Passing Arguments to Functions, Global Variables and Global Constants, Value-Returning Functions- Generating Random Numbers, Writing Our Own Value-Returning Functions, The math Module, Storing Functions in Modules. File and Exceptions: Introduction to File Input and Output, Using Loops to Process Files, Processing Records, Exceptions.

Text Book:

Tony Gaddis, Starting Out With Python (3e)

References:

1. Kenneth A. Lambert, Fundamentals of Python
2. Clinton W. Brownley, Foundations for Analytics with Python
3. James Payne, Beginning Python using Python 2.6 and Python 3
4. Charles Dierach, Introduction to Computer Science using Python
5. Paul Gries, Practical Programming: An Introduction to Computer Science using Python 3

Course 3: Leadership and Management Skills

Context with Justification :

Leaders are foundations of the society, who face and win against adversities and odds of life. Through their words and deeds, they show path to others and transform into inspirational role models, affecting social life vividly. In the current times of cut-throat competitions, disbelief in values, techno-centric complex lifestyles, there is a dire need to emphasise the 'human' agency in community living. This can be done by cultivating and nurturing the innate leadership skills of the youth so that they may transform these challenges into opportunities and become torch bearers of the future by developing creative solutions.

Objectives :

The Module is designed to:

- Help students to develop essential skills to influence and motivate others
- Inculcate emotional and social intelligence and integrative thinking for effective leadership
- Create and maintain an effective and motivated team to work for the society
- Nurture a creative and entrepreneurial mindset
- Make students understand the personal values and apply ethical principles in professional and social contexts.

Expected Outcomes :

Upon completion of the course students will be able to:

1. Examine various leadership models and understand/assess their skills, strengths and abilities that affect their own leadership style and can create their leadership vision
2. Learn and demonstrate a set of practical skills such as time management, self management, handling conflicts, team leadership, etc.
3. Understand the basics of entrepreneurship and develop business plans
4. Apply the design thinking approach for leadership
5. Appreciate the importance of ethics and moral values for making of a balanced personality.

Credit: 02

Duration: 30 Hours

Number & Titles of Modules:

Module 1	Leadership Skills	6 Hours
Module 2	Managerial Skills	6 Hours
Module 3	Entrepreneurial Skills	6 Hours
Module 4	Innovative Leadership and Design Thinking	6 Hours
Module 5	Ethics and Integrity	6 Hours

Module Outline :

Module 1- Leadership Skills

6 Hours

a. Understanding Leadership and its Importance

- What is leadership?
- Why Leadership required?
- Whom do you consider as an ideal leader?

b. Traits and Models of Leadership

- Are leaders born or made?
- Key characteristics of an effective leader
- Leadership styles
- Perspectives of different leaders

c. Basic Leadership Skills

- Motivation
- Team work
- Negotiation
- Networking

Module 2 - Managerial Skills

6 Hours

a. Basic Managerial Skills

- Planning for effective management
- How to organise teams?
- Recruiting and retaining talent
- Delegation of tasks
- Learn to coordinate
- Conflict management

b. Self Management Skills

- Understanding self concept
- Developing self-awareness
- Self-examination
- Self-regulation

Module 3 - Entrepreneurial Skills

6 Hours

a. Basics of Entrepreneurship

- Meaning of entrepreneurship
- Classification and types of entrepreneurship
- Traits and competencies of entrepreneur

b. Creating Business Plan

- Problem identification and idea generation
- Idea validation
- Pitch making

Module 4 - Innovative Leadership and Design Thinking

6 Hours

a. Innovative Leadership

- Concept of emotional and social intelligence

- Synthesis of human and artificial intelligence
- Why does culture matter for today's global leaders

b. Design Thinking

- What is design thinking?
- Key elements of design thinking:
 - Discovery
 - Interpretation
 - Ideation
 - Experimentation
 - Evolution.
- How to transform challenges into opportunities?
- How to develop human-centric solutions for creating social good?

Module 5- Ethics and Integrity

6 Hours

a. Learning through Biographies

- What makes an individual great?
- Understanding the persona of a leader for deriving holistic inspiration
- Drawing insights for leadership
- How leaders sail through difficult situations?

b. Ethics and Conduct

- Importance of ethics
- Ethical decision making
- Personal and professional moral codes of conduct
- Creating a harmonious life

Pedagogy : Pedagogy for the modules is as follows:

1. Leadership Skills - Lectures (augmented with videos); role-plays for leadership models; team building games
2. Managerial Skills - Lectures (augmented with videos), case studies (AMUL, TESLA, Toyota, DMRC, Tata Group, Google, The Mumbai Dabbawala), SWOT analysis, Johari window
3. Entrepreneurial Skills - Lectures (augmented with videos), case studies and practicing business plans
4. Innovative Leadership and Design Thinking- Concept discussion through lecture and videos followed by role-plays and exercises for each set of intelligence, activities using 5 steps – discovery, interpretation, ideation, experimentation, and evolution (Ref.: Workbook of Design Thinking by IDEO)
5. Ethics and Integrity- Experiential learning through stories suggested list (Ahilya Bai, Holkar, Abdul Kalam, Raja Harishchandra, Mahatma Gandhi, Abraham Lincoln), audio visual augmented role plays and storytelling (leaders from varied fields like academics, corporate, social, sports, art, etc.)

Assessment : It can be combination of written evaluation and presentations, including simulations, case studies and business plan.

Bibliography and Suggested Readings :

Books

- Ashokan, M. S. (2015). *Karmayogi: A Biography of E. Sreedharan*. Penguin, UK.
- Brown, T. (2012). *Change by Design*. Harper Business
- Elkington, J., & Hartigan, P. (2008). *The Power of Unreasonable People: How Social Entrepreneurs Create Markets that Change the World*. Harvard Business Press.
- Goleman D. (1995). *Emotional Intelligence*. Bloomsbury Publishing India Private Limited
- Kalam A. A. (2003). *Ignited Minds: Unleashing the Power within India*. Penguin Books India
- Kelly T., Kelly D. (2014). *Creative Confidence: Unleashing the Creative Potential Within Us All*. William Collins
- Kurien V., & Salve G. (2012). *I Too Had a Dream*. Roli Books Private Limited
- Livermore D. A. (2010). *Leading with cultural intelligence: The New Secret to Success*. New York: American Management Association
- McCormack M. H. (1986). *What They Don't Teach You at Harvard Business School: Notes From A Street-Smart Executive*. RHUS
- O'Toole J. (2019) *The Enlightened Capitalists: Cautionary Tales of Business Pioneers Who Tried to Do Well by Doing Good*. Harpercollins
- Sinek S. (2009). *Start with Why: How Great Leaders Inspire Everyone to Take Action*. Penguin
- Sternberg R. J., Sternberg R. J., & Baltes P. B. (Eds.). (2004). *International Handbook of Intelligence*. Cambridge University Press.

E-Resources

- Fries, K. (2019). 8 Essential Qualities That Define Great Leadership. *Forbes*. Retrieved 2019-02-15 from <https://www.forbes.com/sites/kimberlyfries/2018/02/08/8-essential-qualities-that-define-great-leadership/#452ecc963b63>.
- How to Build Your Creative Confidence, Ted Talk by David Kelly - https://www.ted.com/talks/david_kelley_how_to_build_your_creative_confidence
- India's Hidden Hot Beds of Invention Ted Talk by Anil Gupta - https://www.ted.com/talks/anil_gupta_india_s_hidden_hotbeds_of_invention
- Knowledge@Wharton Interviews Former Indian President APJ Abdul Kalam - , "A Leader Should Know How to Manage Failure" <https://www.youtube.com/watch?v=laGZaS4sdeU>
- Martin, R. (2007). How Successful Leaders Think. *Harvard Business Review*, 85(6): 60.
- NPTEL Course on Leadership - <https://nptel.ac.in/courses/122105021/9>

Course 4: Universal Human Values

Context with Justification :

Human civilisation is known for the values that it cherishes and practices. Across various times and places, sages, saints and seers, drawing on their experience, developed practices that placed central importance on values, though the names used by them differed, as their languages varied but the spirit was same. Universal human values are values that human beings cherish and hold in common consciously and otherwise in most of the places and times and practice them.

Renunciation is the foundational value. Renunciation or greedlessness has two preconditions: love for all living beings and absence of selfishness. Renunciation is not self-directed but other-directed and is for life in all forms and shapes, for welfare of all. Renunciation begins when selfishness ends. Renunciation to run away from the problems of life is cowardice. Renunciation without action means parasitic life. Also, service can be practised only when renunciation with action begins. Unegoistical service is inconceivable without renunciation; and true service is possible only through love and compassion. Life and death are eternal truths, so is the truth as fact and truth as value. Truth exists between the two ends of life and death and is to be pursued.

Truth, Love, Peace, Non-Violence and Righteous Conduct are the Universal Human Values. Renunciation (sacrifice), Compassion and Service are also commonly acceptable human values, which at the operation level have been named differently as sincerity, honesty, righteousness, humility, gratitude, aspiration, prosperity, non-violence, trust, faith, forgiveness, mercy, peace and so on. These are needed for well-being of an individual, society and humanity and ultimately Peace in the world.

This course aims at making learners conscious about universal human values in an integral manner, without ignoring other aspects that are needed for learner's personality development.

Objectives :

The present course deals with meaning, purpose, and relevance of universal human values and how to inculcate and practice them consciously to be a good human being and realise one's potentials.

Learning outcomes :

By the end of the course the learners will be able to:

1. Know about universal human values and understand the importance of values in individual, social circles, career path, and national life.
2. Learn from case studies of lives of great and successful people who followed and practised human values and achieved self-actualisation.
3. Become conscious practitioners of human values.
4. Realise their potential as human beings and conduct themselves properly in the ways of the world.

Credit: 02

Duration: 30 Hours

Number & Titles of Modules:

Module 1: Love & Compassion

5 Hours

Module 2: Truth

5 Hours

Module 3: Non-Violence	5 Hours
Module 4: Righteousness	5 Hours
Module 5: Peace	4 Hours
Module 6: Service	3 Hours
Module 7: Renunciation (Sacrifice)	3 Hours

Module Outline :

Module 1: Love & Compassion **5 Hours**

- Introduction: What is love? Forms of love—for self, parents, family, friend, spouse, community, nation, humanity and other beings, both for living and non-living
- Love and compassion and inter-relatedness
- Love, compassion, empathy, sympathy and non-violence
- Individuals who are remembered in history for practicing compassion and love.
- Narratives and anecdotes from history, literature including local folklore
- Practicing love and compassion: What will learners learn gain if they practice love and compassion? What will learners lose if they don't practice love and compassion?
- Sharing learner's individual and/or group experience(s)
- Simulated Situations
- Case studies

Module 2: Truth **5 Hours**

- Introduction: What is truth? Universal truth, truth as value, truth as fact (veracity, sincerity, honesty among others)
- Individuals who are remembered in history for practicing this value
- Narratives and anecdotes from history, literature including local folklore
- Practicing Truth: What will learners learn/gain if they practice truth? What will learners lose if they don't practice it?
- Learners' individual and/or group experience(s)
- Simulated situations
- Case studies

Module 3: Non-Violence **5 Hours**

- Introduction: What is non-violence? Its need. Love, compassion, empathy sympathy for others as pre-requisites for non-violence
- Ahimsa as non-violence and non-killing
- Individuals and organisations that are known for their commitment to non-violence
- Narratives and anecdotes about non-violence from history, and literature including local folklore
- Practicing non-violence: What will learners learn/gain if they practice non-violence? What will learners lose if they don't practice it?
- Sharing learner's individual and/or group experience(s) about non-violence
- Simulated situations
- Case studies

Module 4: Righteousness**5 Hours**

- Introduction: What is righteousness?
- Righteousness and *dharm*a, Righteousness and Propriety
- Individuals who are remembered in history for practicing righteousness
- Narratives and anecdotes from history, literature including local folklore
- Practicing righteousness: What will learners learn/gain if they practice righteousness? What will learners lose if they don't practice it?
- Sharing learners' individual and/or group experience(s)
- Simulated situations
- Case studies

Module 5: Peace**4 hours**

- Introduction: What is peace? Its need, relation with harmony and balance
- Individuals and organisations that are known for their commitment to peace
- Narratives and Anecdotes about peace from history, and literature including local folklore
- Practicing peace: What will learners learn/gain if they practice peace? What will learners lose if they don't practice it?
- Sharing learner's individual and/or group experience(s) about peace
- Simulated situations
- Case studies

Module 5: Service**3 Hours**

- Introduction: What is service? Forms of service, for self, parents, family, friend, spouse, community, nation, humanity and other beings—living and non-living, persons in distress or disaster.
- Individuals who are remembered in history for practicing this value.
- Narratives and anecdotes dealing with instances of service from history, literature including local folklore
- Practicing service: What will learners learn/gain if they practice service? What will learners lose if they don't practice it?
- Sharing learners' individual and/or group experience(s) regarding service
- Simulated situations
- Case studies

Module 6: Renunciation (Sacrifice)**3 Hours**

- Introduction: What is renunciation? Renunciation and sacrifice. Self-restrain and Ways of overcoming greed. Renunciation with action as true renunciation
- Individuals who are remembered in history for practicing this value.
- Narratives and anecdotes from history and literature, including local folklore about individuals who are remembered for their sacrifice and renunciation.
- Practicing renunciation and sacrifice: What will learners learn/gain if they practice Renunciation and sacrifice? What will learners lose if they don't practice it?
- Sharing learners' individual and/or group experience(s)
- Simulated situations
- Case studies

ADDITIONAL PRACTICAL MODULES or OPERATIVE ELECTIVES:

NOTE: The faculty/institution may choose any/some of the following modules keeping in mind the level and specific needs of learners.

Module Outline :

MODULE A - Integral Human Well-Being

5 Hours

Importance of well-being, inter-relatedness of different kinds of well-being and definition of well-being (state of being comfortable, healthy, happy and equanimity)

Well-being and its Kinds

- (i) Physical (physical strength and endurance)
- (ii) Emotional (ability to respond to emotions and control them)
- (iii) Aesthetic (faculty to see and appreciate beauty in all beings)
- (iv) Intellectual (rational, logical well-being)
- (v) Relational well-being (obligation to self, parents, family society, nation humanity and other beings in the universe; living with others with their acceptance)
- (vi) Moral (difference between good and evil and practicing goodness; righteousness)
- (vii) Spiritual (thinking beyond self and journey from senses to spiritual level)

Establish and recognise various states of well-being, embedded in different creatures, but consciously understood by humans

Identify the most pronounced emotions in the individual through given activities

Anecdotes/video/activity to help identify different well-beings

Discussion of related values to well-beings: Aesthetics, ethics, gratitude, forgiveness, and spiritual health i.e., thinking beyond senses and self and for the welfare of others

Importance and practice of well-being through case study/ activity

Ways to attain different kinds of well-being

Activities

MODULE B - Yoga & Pranayama

5 Hours

Importance of Yoga and Pranayama

- Yoga and pranayama for integral well-being and balance in life
- Yoga & Pranayama: Introduction
- Mind - Body – Intellect
- Difference between Yoga and Pranayama and their inter-relatedness.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – IV

Python – II

(SEC – IV)

Theory

2 Hours/Week

2Credits

Unit – I

Lists and Tuples: Sequences, Introduction to Lists, List slicing, Finding Items in Lists with the in Operator, List Methods and Useful Built-in Functions, Copying Lists, Processing Lists, Two-Dimensional Lists, Tuples. Strings: Basic String Operations, String Slicing, Testing, Searching, and Manipulating Strings. Dictionaries and Sets: Dictionaries, Sets, Serializing Objects.

Recursion: Introduction, Problem Solving with Recursion, Examples of Recursive Algorithms.

Unit – II

Object-Oriented Programming: Procedural and Object-Oriented Programming, Classes, Working with Instances, Techniques for Designing Classes, Inheritance, Polymorphism.

GUI Programming: Graphical User Interfaces, Using the tkinter Module, Display text with Label Widgets, Organizing Widgets with Frames, Button Widgets and Info Dialog Boxes, Getting Input with Entry Widget, Using Labels as Output Fields, Radio Buttons, Check Buttons.

Text Book:

Tony Gaddis, Starting Out With Python (3e)

References:

1. Kenneth A. Lambert, Fundamentals of Python
2. Clinton W. Brownley, Foundations for Analytics with Python
3. James Payne, Beginning Python using Python 2.6 and Python 3
4. Charles Dierach, Introduction to Computer Science using Python
5. Paul Gries, Practical Programming: An Introduction to Computer Science using Python 3

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SEMESTER – V
Information Technologies
(General Elective)

Theory

4 Hours/Week

4Credits

Unit – I

Computer Networks: Introduction, Connection Media, Data Transmission Mode, Data Multiplexing, Data Switching, Network Topologies, Types of Networks, Networking Devices, OSI Model.
The Internet: Internet Services, Types of Internet Connections, Internet Security.

Unit – II

Introduction to Emerging Computer Technologies: Distributed Networking, Peer-to-peer Computing, Grid Computing, Cloud Computing, Utility Computing, On-demand Computing, Wireless Network, Bluetooth, Artificial Intelligence.

Unit – III

Email, Functions of Email, Browser, Web Browser, Internet Service Providers.
Introduction to Information Security – Need for Information Security, Threats to Information Systems, Information Assurance, Cyber Security.

Unit – IV

Introduction to Application Security and Counter Measures – Introduction to Application Security, Data Security Considerations, Security Technologies, Security Threats, Security Threats to E-Commerce, E-Cash and Electronic Payment System.

Text Books:

Dr. Surya Prakash T, Ritendra G, Praveen Kumar S, KLSI, Introduction to Information Security and Cyber Laws (Dreamtech Publication)

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B.Sc. (Computer Science)
SEMESTER – VI
PHP with MY SQL
(PROJECT/Optional)

Theory
Practical

3 Hours/Week
3 Hours/Week

3 Credit
1 Credit

Internal marks = 15
External Marks = 60

Unit – I

Introducing PHP – What is PHP? Why use PHP? Evolution of PHP, Installing PHP, Other ways to run PHP, Creating your first script. PHP Language Basics – Using variables, Understanding Data Types, Operators and Expressions, Constants. Decisions and Loops – Making Decisions, Doing Repetitive Tasks with Looping, Mixing Decisions and Looping with HTML. Strings – Creating and Accessing Strings, Searching Strings, Replacing Text with Strings, Dealing with Upper and Lowercase, Formatting Strings. Arrays – Creating Arrays, Accessing Array Elements, Looping through Arrays with for-each, Creating Function, Reading Data in Web pages: setting up web pages to communicate with PHP, Handling Text Fields, Text Areas, Checkboxes, Radio Buttons, List Boxes, Password Controls, Image Maps, File Uploads, Buttons, and PHP Browser.

Unit – II

Object oriented programming: creating Classes and objects, setting access to properties and methods, constructors, destructors, Inheritance, overriding and overloading methods, auto loading classes. Advanced OOP: Static members and inheritance, Abstract classes, Interfaces, object iteration, comparing objects, class constants, final keyword, reflection.

File Handling: fopen, feof, fgets, closing a file, fgetc, file_get_contents, reading a file into an array with file, file_exists, filesize, fread, fscanf, parse_ini_file, stat, fseek, copy, unlink, fwrite, reading and writing binary files, appending a file, file_put_contents, locking files

Unit – III

Introducing Databases and SQL – Deciding How to Store Data, Understanding Relational Databases, Setting Up MySQL, A Quick Play with MySQL, Connecting MySQL from PHP. Retrieving Data from MySQL with PHP, Retrieving Data with SELECT, Creating a Member Record Viewer. Manipulating MySQL Data with PHP – Inserting, Updating, and Deleting Records, Building a Member Registration Application. Sessions, Cookies and FTP.

Text Books:

1. Steven Holzner, "PHP: The Complete Reference Paperback", McGraw Hill Education (India), 2007.
2. Timothy Boronczyk, Martin E. Psinas, "PHP and MYSQL (Create-Modify-Reuse)", Wiley India Private Limited, 2008.

Project work

Theory: 4 Hours/Week

Credits: 4

- **The total allotted marks 100 are divided in to the following way**
- Internal Assessment (20 marks)
 - First seminar (10 marks – in between 25 to 30 days after commencement of class work) This seminar include the study of existing system, literature survey, problem definition.
 - Second seminar (10 marks – in between 55 to 60 days after commencement of class work)
This seminar include the requirements specification, analysis, design and partial implementation.
- External Assessment (80 marks)
 - The students should submit one page of synopsis on the project work for display on the notice board.
 - The project presentation is for 10 minutes followed by 05 minutes for discussion.
 - The student should submit a technical write-up on the project.

At least two teachers will be associated with the project seminar to evaluate students for the award of sessional marks which will be on the basis of performance in all the 3 items (synopsis, presentation, technical write-up).

Dissertation 50M

Presentation 15M

Viva 15M

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B.Sc. (Computer Science)
SEMESTER – VI
PHP with MY SQL Lab

Practical 3 Hours/Week 1 Credit Marks: 25

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
 - External Vice-Voce is compulsory.
1. Write a PHP script to display the Fibonacci sequence with HTML page.
 2. Write a PHP script to create a chess board.
 3. Write a PHP script using built-in string function like strstr(), strpos(), substr_count(), etc...
 4. Write a PHP script to transform a string to uppercase, lowercase letters, make a string's first Character uppercase.
 5. Write a PHP script to count number of elements in an array and display a range of array elements.
 6. Write a PHP script using a function to display the entered string in reverse.
 7. Write a PHP script to demonstrate inheritance.
 8. Write a PHP script to demonstrate the object overloading with _get(), _set(), and _call().
 9. Write a PHP script to demonstrate the method overloading and method overriding mechanisms.
 10. Write a PHP script to demonstrate the use of final classes and final methods.
 11. Write a PHP script to demonstrate the use of interfaces.
 12. Write a PHP script using constructors and destructors.
 13. Write a PHP application to handling HTML forms with PHP script.
 14. Write a PHP script to create a file, write data into file and display the file's data.
 15. Write a PHP script to check and change file permissions, copying, renaming and deleting files.
 16. Write a PHP application for connecting to MySQL and reading data from database table.
 17. Write a PHP application for inserting, updating, deleting records in the database table.
 18. Develop a PHP application for student registration form.
 19. Develop a PHP application for creating, updating, reading and deleting the Student records from MYSQL Database.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
UG (B.Sc.) Scheme of Examinations
B.Sc. (Computer Science)
(CBCS 2019-2020)

Elaborations

Paper	Credits	Theory Exam		Practical Exam
		University Exam	Internal Exam	
DSC	4+1	80 Marks	20 Marks	50 Marks
DSE	4+1	80 Marks	20 Marks	50 Marks
SEC	2	40 Marks	10 Marks	No Practical
GE	4	80 Marks	20 Marks	No Practical
AECC	2	40 Marks	10 Marks	No Practical
PO	3+1	60 Marks	15 Marks	25 Practical

DSC – Discipline specific core course

DSE – Discipline specific elective course

SEC – Skill enhancement course

GE – Generic Elective

AECC - Ability Enhancement Compulsory

P/O -Project/Optional

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FACULTY OF SCIENCE
B.Sc. (Computer Science)

Model Question Paper

3 Hours

Max Marks -80

Credits -4

PART -A

Answer any eight questions in part –A 8X4 M = 32 Marks

UNIT- I 1
2
3

UNIT- II 4
5
6

UNIT- III 7
8
9

UNIT- IV 10
11
12

Part – B

Answer all Questions 12MX4 = 48 Marks

UNIT- I 13
Or
14

UNIT- II 15
Or
16

UNIT- III 17
Or
18

UNIT- IV 19
Or
20

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FACULTY OF SCIENCE
B.Sc. (Computer Science)**

Internal Exam (Theory)

Time: 1 Hr.

Maximum marks: 20

- Two internal exams (one at the middle of the semester and the other at the end) of one-hour duration are to be conducted carrying 15 marks each.
- Average of the scores of two exams should be taken into account.
- Following is the examination pattern.
 - 10 MCQs (multiple choice questions) of half mark each,
 - 10 FIBs (Fill in the Blanks) of half mark each
 - 5 SAQs (short answered questions) of one mark each
 - Totaling 15 marks.
 - 5 marks meant for assignment.

**OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)**

Practical Question Paper

3 Hours

Max Marks -50

Credits -1

Answer any Two

15X 2 = 30 MARKS

UNIT – I	1 Program
UNIT- II	1 Program
UNIT-III	1 Program
UNIT-IV	1 Program

Viva - 10 Marks

Record – 10 Marks

**OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)**

2 Credit (SEC) Paper

University Exam (Theory)

Time: 2 Hrs.

Maximum marks: 40

Section – A (4 X 4M = 16 Marks)

Answer any four of the following six questions. Each carries four marks.

- Q1. From Unit 1
- Q2. From Unit 1
- Q3. From Unit 1
- Q4. From Unit 2
- Q5. From Unit 2
- Q6. From Unit 2

Section – B (2 X 12M = 24 Marks)

Answer all the following two questions. Each carries fifteen marks.

- Q09. (a) or (b) from Unit 1
- Q10. (a) or (b) from Unit 2

Internal Exam (Theory)

Time: 1/2 Hr.

Maximum marks: 10

- One internal exam at the end of the semester, of half an hour duration is to be conducted carrying 10 marks.
- Following is the examination pattern.
 - 10 MCQs (multiple choice questions) of one mark each,
No assignment is required.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
Model Question Paper for Semester VI Project/optional only

3 Hours

Max Marks -60

Credits -3

PART -A **Answer any Six questions in part –A 6X4 M = 24 Marks**

UNIT- I 1
 2
 3

UNIT- II 4
 5
 6

UNIT- III 7
 8
 9

Part – B **Answer all Questions 12MX3 = 36 Marks**

UNIT- I 13
 Or
 14

UNIT- II 15
 Or
 16

UNIT- III 17
 Or
 18

Internal Exam for Semester VI (Project /optional) (Theory)

Time: 1 Hr.

Maximum marks: 15

- Two internal exams (one at the middle of the semester and the other at the end) of one-hour duration are to be conducted carrying 15 marks each.
- Average of the scores of two exams should be taken into account.
- Following is the examination pattern.
 - 10 MCQs (multiple choice questions) of half mark each,
 - 10 FIBs (Fill in the Blanks) of half mark each
 - 5 SAQs (short answered questions) of one mark each
 - Totaling 15 marks.
 - No assignment required.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)

Practical Question Paper for Project/ Optional

3 Hours

Max Marks -25

Credits -1

Answer any Two

6X 2 = 12 MARKS

UNIT – I 1 Program

UNIT- II 1 Program

UNIT-III 1 Program

Viva - 8 Marks

Record – 5 Marks

MOOCs [Massive Online Open Courses] Free Resources

E-Learning:

- NPTEL :nptel.ac.in [Core Subjects Certification]
- C++ INSTITUTE :cppinstitute.org [C++ Certification]
- ORACLEEDUCATION :education.oracle.com [Java, DBMS Certification]
- BIG DATA UNIVERSITY :bigdatauniversity.com [Big Data Certification]
- COURSERA :coursera.org [Core Subjects Certification]
- CODEACADEMY :codecademy.com [Coding Certification]
- KHANACADEMY :khanacademy.org [Core Subjects Certification]
- PIXAR IN A BOX :khanacademy.org/partner-content/pixar
- VIDEOLECTURES :videlectures.net
- YOUTUBEEDU :plus.google.com/+YouTubeEDU/posts
- DISNEY RESEARCH :disneyresearch.com
- ALISON :alison.com [Core Subjects Certification]
- INTERNET ARCHIVE :archive.org

Freeware:

- SCILAB : scilab.org [MatLab Equivalent]
- GEOGEBRA :geogebra.org [Software for Class Room Teaching]

Search Engine:

- WOLFRAM ALPHA :wolframalpha.com [Computing Engine]
- CITSEER :citseerx.ist.psu.edu [Searching Research Articles]
- DOAJ :doaj.org [Open Access to Journals]

UNDERGRADUATE PROGRAMME IN PUBLIC ADMINISTRATION

Courses

**SYLLABI OF UNDER GRADUATE PROGRAMME - CBCS
IN PUBLIC ADMINISTRATION**

BA II Year – Semester III

Course-IV C: Public Office Administration (SEC)

The Objectives of the Course are:

1. To understand the concept of Office;
2. To comprehend the administrative process in office;
3. To identify the challenges of public office administration in the background of ICT
4. To sketch out the impact of technology in office administration

SEC I Public Office Administration

Unit I: Introduction

- a) Office Administration: Meaning, Scope & Importance of Office
- b) Changing Nature of Public Office
- c) Basic Principles of Office Organization

Unit II: Office Organization and Management

- a) Office Planning
- b) Office Accommodation and Lay-out
- c) Office Environment

SEC II Office Processes

Unit I: Office Filing System

- a) Forms: Management and Control
- b) Filing System and Classification
- c) Management of Office Records

Unit II: Office Communication

- a) Periodical Reports
- b) Office Communication; Correspondence
- c) Inventory Control; Office Stationery

References:

- Pillai R.S.N. (2010) Office Management, S.Chand, New Delhi.
- Sudhir Andrews (2008) Front Office Management and Operations, Tata McGraw Hill Publishing Co. Ltd, India.
- Balachandran V. (2009) Office Management, Tata McGraw Hill Publishing Co. Ltd, India.
- Bhatia R.C. (2005) Principles of Office Management, Lotus Press, Delhi.
- Gopala Krishnan and Sundaresan, M. (2000) Materials Management: An Integrated Approach, Prentice Hall, India
- Sharma, R.K. and Others (1991) Office Management, Kalyani Publishers, New Delhi
- Niraj Kumar (2013) Modern Office Management, New Royal Book Company. Lucknow.
- Chopra, R.K. (2008) Modern Office and Its Management, Himalaya Publishing House, Hyderabad.

BA II Year – Semester IV

SEC 3 - Semester-IV: Technology and Office Administration (SEC)

Unit I: Introduction to Technology

- a) Introduction to ICT
- b) Management by Office Computerization
- c) Internet and Intranet

Unit II: Trends in Office Administration

- a) Office Automation
- b) Back Office Operations and Front Office Delivery
- c) Paperless Office

SEC 4 - Semester-IV: Techniques of Office Administration

Unit I: Techniques

- a) Work Study, Work Measurement, Work Simplification
- b) Management by Objectives
- c) Office Supervision

Unit II: Issues in Office Administration

- a) Social System and Public Office Administration
- b) Staff Welfare
- c) Office Management in Government: Issues

Expected Outcomes

After study of the course, the learner is expected:

- Understand the meaning and related concepts of Office and office management;
- Explain the filing and record management
- Identify the issues and challenges in functioning of public office.

References

Satyanarayana J, (2006) e-Government, PHI, New Delhi.

Kooiman, J (ed) (1993) Modern Governance: New Government – Society Interactions, Sage Publications, London.

Bhatnagar, S.C. (2004) e-Government: From Vision to Implementation, Sage, New Delhi.

Bhatnagar, S.C. (2004) The Role and Responsibility of Government in ICT for Development, Sage, New Delhi.

Singhal, A and Evertt, Rogers (1990) India's Information Revolution, Sage Publications, New York.

BA III Year

Course-II: (B) Indian Constitution and Administration (GE)

Semester-V Indian Constitution and Administration

Course Objective

The Constitution of India defines the basic objectives and functioning of the government. It has provisions for bringing about social change and defining the relationship between individual citizen and the state. It lays out certain ideals that form the basis of the kind of country that we as a citizen aspire to live in. An in-depth analysis of various basic areas of constitution is the main objective of this inter disciplinary course. This helps the students to strengthen their understanding of Indian constitution and functioning of government.

Unit 1: Indian Constitution

- a) Nature of the Constitution Salient features – Preamble
- b) Fundamental Rights, Directive Principles; Fundamental Duties
- c) Amendments of the Constitution: Procedure for Amendment– Emergency Provisions

Unit II: Centre – State Relations and Local Self Government

- a) Distinctive features of Indian Federation
- b) Legislative, Administrative and Financial relations between the Union and the States
- c) Decentralization Experiments in India – 73rd and 74th Amendments

Unit III: State Government

- a) Governor, Chief Minister and Council of Ministers
- b) Secretariat and Directorates
- c) Changing Nature of District Administration and the role of District Collector

Unit IV: Accountability & Control

- a) Legislative, and Executive Control
- b) Judicial control and Judicial Review
- c) Right to Information Act

References:

- Bidyut Chakravarty, Prakash Chand (2019), Indian Administration: Evolution and Practise, Sage Publications
Krishna K.Tummala (1996), Public Administration in India, Allied Publishers Limited.
Kuldeep Mathur (2019), Recasting Public Administration in India: Reform, Rhetoric, and Neoliberalism, Oxford University Press
M.Sharma (2004), Indian Administration, Anmol Publishers.
Meredith Townsend (2019), The Annals of Indian Administration, Volume-3, Creative Media Partners.
Parmar, A., A Study of Kautilya's Arthashastra, Delhi, Atma Ram & Sons, 1987
Radha Krishna Sapru (2019), Indian Administration: Foundations of Governance, Sage Publications.
Ramesh K Arora, Rajni Goyal (2018), Indian Public Administration: Institutions and Issues, New Age International Publishers.
S.R.Maheswari (2004), Indian Administration, Orient Longman Publishers Limited.
Siuli Sarkar (2018), Public Administration in India (Second Edition), PHI Learning Private Limited.
Vaman Govind Kale (2010), Indian Administration, Kessinger Publications.

BA III Year

DSE 503A : Human Resource Management

The Objectives of the Course are:

1. To comprehend the nature, scope, structure & processes of human resource management;
2. To identify the systems and processes of financial and material management;
3. To appreciate institutional capacity building strategies and programmes; and
4. To understand the changing paradigms of Resources management.

Semester-V: DSE 503-A: Human Resource Management

Unit-I: Introduction

- a. Meaning and Significance of Human Resource Management
- b. Human Resource Planning

Unit-II: Human Resources

- a. Job Analysis, Job Description,
- b. Recruitment and Promotion
- c. Compensation Administration - Wage, Pay and Pay Commissions

Unit- III: Capacity Building

- a. Performance and Competency Mapping System
- b. Employee Capacity Building Strategies-Training
- c. Sensitivity Training

Unit-IV: Reforms

- a. Reddressal of Employee Grievances
- b. Right sizing, Outsourcing and Consultancies
- c. Interpersonal Skills

Unit V: Emerging Trends

- a. Human Resource Audit
- b. Total Quality Management
- c. Productivity Management

References:

- Armstrong, Michael (2007), A Handbook of Human Resource Management Practice, Kogan Page, London.
- Aswathappa K. (2013), Human Resource Management: Text and Cases, McGraw Hill, New Delhi
- Farazmand , Ali (1994), Handbook of Bureaucracy, Taylor & Francis , New York.
- Flippo Edvin B., (1976), Principles of Personnel Management, McGraw-Hill
- Goel, S.L.& Rajneesh, Shalini(2003), Public Personnel Administration, Deep & Deep, Delhi
- Government of India, Second ARC, Tenth Report on 'Refurbishing of Personnel Administration'
- Jack Robin, et al (eds) (1994), Handbook of Public Personnel Administration, Taylor & Francis, NY
- Jain, R.B.(1994), Aspects of Personnel Administration, IIPA, New Delhi
- Maheswari Sriram (2005), Public Administration in India: The higher Civil Service, Oxford University Press, New Delhi
- Naff, Katherine C., Norma M. Riccucci, (2014) ,Personnel Management in Government: Politics and Process(Seventh Edition), CRC, Taylor & Francis, New York.
- Riccucci ,Norma(2007), Public Personnel Administration and Labor Relations, M.E. Sharpe, NY

BA III Year

Rural Governance (Optional)

The Objectives of the Course are:

1. To understand the concept of democratic decentralisation;
2. To trace the evolution of local self-government in India;
3. To comprehend the institutional arrangements and processes of rural and urban governance;
4. To identify the challenges of development and the administrative responses.
5. To sketch out the new organisational arrangements for delivery of public welfare programmes.

Semester-V DSE 503/B : Rural Governance

Unit-I: Introduction

- a. Democratic Decentralization and Local Organisations
- b. Evolution of Rural Governance Institutions-Balwanth Rai Mehta
- c. Ashok Mehta Committee

Unit:-II

- a. Third Generation Panchayats
- b. Constitutional Status of Rural Local Government- with special reference to 73rd CAA

Unit-III: Local Organisations for Rural Development

- a. Panchayati Raj: Patterns, Functions and Performance
- b. Finances of Panchayati Raj Institutions --- State Finance Commission

Unit-IV: Rural Development Strategies and Services

- a. Rural Development: Strategies, Programs and Issues
- b. Co-operatives: Structure, Functions and Performance
- c. Basic Services and Welfare Measures in Rural Areas (MNREGA, NRLM, SHYAMA MUKHERJEE RURBAN MISSION)
- d. State Control over Rural Local Governments

Unit V: Emerging Trends

- a. Rural Unrest
- b. Land Reforms
- c. Corporatization of Agriculture

References:

- B.D.S. Bhadouria and V.P. Dubey (1989), Panchayati Raj and Rural Development, Commonwealth Publishers, New Delhi.
- B.S. Khanna, (1992), Rural Development in South Asia Deep and Deep, New Delhi.
- Danny Burns, et. al. (1994), The Politics of Decentralisation: Revitalising Local Democracy, Macmillan, London.
- George Mathew (1994), Panchayati Raj in India: From Legislation to Movement, ISS, New Delhi.
- Jain L.C, et.al (1986), Grass without Roots; Rural Development Under Government Auspices, Sage
- K.C. Sivaramakrishanan, et. al. (1993), Urbanisation in India: Basic Services, ISS, New Delhi.
- M.A. Oommen (1995), Devolution of Resources from the State to the Panchayati Institutions, ISS, New Delhi.
- M.A. Oommen and Abhijit Datta (1995), Panchayats and their Finance, ISS, New Delhi.
- Mohit Bhattacharya (1976), Management of Urban Government in India: Uppal, New Delhi.
- Peter Oakley (1991), Projects with People: The Practice of Participation in Rural Development, ILO
- R. C. Choudahry and S.P. Jain (eds.) (2001) Patterns of Decentralized Government in Rural India, NIRD, Hyderabad.
- Ramesh K. Arora and Rajni Goyal (1996), Indian Public Administration Vishwa Prakashan, New Delhi.
- S.N. Mishra (1996), New Panchayati Raj in Action, Mittal Publication, New Delhi.
- S.R. Maheshwari (2003), Local Government in India, Lakshmi Narain Aggarwal.

BA III Year

Course-IV-B E- GOVERNANCE (Optional in Lieu of Project Report)

Objectives of the Course are:

1. To explain the meaning and importance of e-governance;
2. To provide the students with the analytical skills to comprehend the e-governance initiatives in India;
3. To make the learner understand e-governance initiatives at national and international level;
4. To inform the learner about the e-Governance measures initiated in Telangana state.

BA 503/B Semester-V: E-Governance

Unit-I: Introduction

- a. Concept of Governance and Good Governance
- b. Meaning, Evolution and Importance of E-Governance

Unit-II: Acts and Initiatives

- a. Information Society and Community Empowerment
- b. IT Acts and National E-Governance Plan
- c. E-Governance Initiatives in India

Unit-III: Methods of E-Governance

- a. GIS Based Management Systems
- b. Citizen Database and Human Development
- c. National Informatics Centre (NIC)

Unit-IV E-Governance in Public Office

- a. Back Office Operations and Front Office Delivery
- b. Business Process Reengineering (BPR)

References:

- Bellamy, Christine, and John, A., Taylor, (1998), *Governing in the Information Age*, Buckingham, Open University Press.
- Bhatnagar, S.C. (2004) *E-Government – from Vision to Implementation: A practical guide with case studies*, Sage Publications, New Delhi.
- Bhatnagar, S.C. (2009) *Unlocking E-Government Potential: Concepts, cases and practical insights*, Sage Publications, New Delhi.
- Bouwman, Harry, and et.al., (2005), *Information and Communication Technology in Organisations*, Sage Publications, London.
- Heeks, R. (2006) *Implementing and Managing eGovernment: An international text*, Sage
- Marchionini, G., (1995), *Information Seeking in Electronic Environments*, New York, The Press Syndicate of the University of Cambridge, USA.
- Michael E. Milakovich, (2012), *digital governance - New Technologies for improving Public Service an Participation*, Routledge, Taylor and Francis group, New York.
- Pardhasaradhi, Y. (et.al) (2009), *E-Governance and Indian Society: An Impact of Study*, Kanishka, New Delhi.
- Satyanarayana, J, (2004), *E-Government: The Science of the possible*, PHI Learning Pvt Ltd, New Delhi.

Semester-VI:
DSE 603/A: Financial and Material Management

Unit- I: Financial Management

- a. Meaning and Scope
- b. Importance of Financial Management

Unit-II: Budget

- a. Concept and Principles of Budget
- b. Preparation, Enactment and Execution of Budget
- c. Gender Budget and Green Budget

Unit-III: Financial Institutions

- a. Organization and Functioning of Finance Ministry
- b. Finance Commission
- c. Union – State Financial Relations

Unit IV: Parliamentary Financial Committees

- a. Financial Control Mechanisms
- b. Public Accounts Committee and Estimates Committee
- c. Committee on Public Undertakings

Unit- V: Materials Management

- a. Meaning and Concept of Materials Management
- b. Procurement, Storage and Distribution
- c. Inventory Control and Management

Expected Outcomes

After study of the course, the learner should be able to:

- Understand the way in which the public power is exercised and public resources are managed and expanded;
- Unravel the varying methods of performance assessment of public institutions; and
- Appreciate the changing paradigms of human resource management.

References:

- Brigham Eugene F. (2011), Financial Management : Theory and Practice, Cengage Learning
Government of India, Second Administrative Reforms Commission, Fourteenth Report, Strengthening Financial Management, Systems, April 2009.
L.K.Jha (1986), Economic Administration in India – Retrospect and Prospect, New Delhi: IIPA
Lee Robert D. Jr., et al (Eds) (2007), Public Budgeting Systems, Jones & Bartlett Learning.
Mahajan Sanjeev Kumar Mahajan (2014), Financial Administration in India, PHI, Delhi
Mikesell, John (2010), Fiscal Administration, Cengage Learning.
R.K. Lekhi and Joginder singh(2013), Public Finance, Kalyani Publishers, New Delhi.
Rabin Jack, et.al (2006) Handbook of Public Financial Management, Taylor & Francis Group.
Sharma M.K. (2006), Financial Administration, Anmol Publications, New Delhi.
Steppan J. Beiley (1995), Public Sector Economics: Theory, Policy and Practice, London
Wang Xiaohu (2010), Financial Management in the Public Sector, M. E. Sharpe.

Semester-VI: DSE 603/B Urban Governance

Unit-I: Local Organisations for Urban Development

- a. Evolution of Urban Local Bodies- Pattern, Functions and Performance
- b. Constitutional Status of Urban Local Governments with special reference to 74th CAA

Unit-II: Strategies for Urban Development

- a. Urban Development: Strategies, Programs and Issues
- b. Finances of Urban Local Governments

Unit-III: Urban Services

- a. Basic Services and Welfare Measures in Urban Areas
- b. Urban Development Authorities and Parastatals
- c. Sustainable Development and Future of Urban Governance

Unit-IV: Agencies and Programs for Rural and Urban Sector

- a. Development Planning, District Planning Committee
- b. Special Agencies Urban Development
- c. Elimination of Poverty Initiatives in Urban Areas

Unit V: Emerging Trends

- a. Urban Reforms in India: SMART and AMRUT Cities
- b. Swachh Bharat Mission
- c. Urban Unrest

Expected Outcomes

After study of the course, the learner should be able to:

- Critically appreciate the relationship of local governance and development;
- Appreciate the rural and urban institutional arrangements for development;
- Understand the processes and results of systems of delivery of welfare programmes

References:

- Aziz Abdul (ed.), (1996), Decentralised Governance in Asian Countries, Sage New Delhi.
- Baud, Isa S A, J De Wit (2009), New Forms of Urban Governance in India: Shifts, Models, Networks and Contestations, SAGE Publications.
- Bhattacharya, Mohit (1976), Management of Urban Government in India, Uppal, New Delhi
- Burns, Danny et. al. (1994), The Politics of Decentralisation: Revitalizing Local Democracy Macmillan, London,
- Chaturvedi T.N. and Abhijit Datta (1984), Local Government, IIPA, (New Delhi).
- Devas Nick(2004) ,Urban Governance Voice and Poverty in the Developing World, Routledge.
- Maheshwari, S.R. (2003), Local Government in India, Lakshmi Narain Aggarwal, Agra.
- Oakley Peter (1991), Projects with People: The Practice of Participation in Rural Development , I.L.O., Geneva.
- Oakley Peter, et. Al (1984), Approaches to participation in Development, I.L.O., Geneva.
- Pierre , Jon (2011), The Politics of Urban Governance: Rethinking the Local State, Palgrave MacMillan.
- Prasad , R N(2007), Urban Local Self-Government in India ; With Reference to North-Eastern States, Mittal Publications.
- Rao , C. Nagaraja (2007),Accountability of Urban Local Governments in India, Atlantic, New Delhi
- Sivaramakrishnan K.C., et. al. (1993), Urbanisation in India: Basic Services and People's Participation, ISS, New Delhi.

BA Political Science

Courses offered under CBCS system from 2019-20 onwards as per TSCHE guidelines (Applicable to all the Telangana State Universities)

Discipline specific courses (DSC)

1st Semester

Understanding Political Theory

IInd Semester

Western Political Thought

IIIrd Semester

Indian Political Thought

IVth Semester

Constitution and Politics of India

Discipline specific Electives (DSE)

Vth Semester

I. International Relations

Or

II. Government and Politics in Telangana

VI Semester

I. Global Politics

Or

II . Contemporary social movements

Generic Elective (GE)

Vth Semester

Politics of Development

Project Work / Optional Paper

VIth Semester

Contemporary Political Theory

B.A Political Science
I st Semester
Paper - I
Understanding Political Theory

Unit- I Political Theory

- What is Political Theory, Evolution, Nature , Significance
- Debates on Political Theory
 - a) Normative
 - b) Empirical

Unit-II What is Political?

- State: Theories of origin of the state, Divine, Social Contract, Evolution Theories
- Power and Authority
- Authoritative allocation of Values
- Sovereign state : Challenges

Unit- III Political Values and Theoretical Perspective

- Liberty :- A) Liberal B) Marxist C) Feminist
- Equality :- A) Liberal B) Marxist C) Feminist
- Justice :- A) Liberal B) Marxist C) Feminist

Unit-IV Political Ideologies

- Liberalism
- Nationalism
- Multiculturalism

Unit-V Political Institutions and Functions

- Legislature, Executive and Judiciary
- Political Parties, Pressure Groups, Media

Reading list : -

1. Rajeev Bhargava & Ashok Acharya , editions , Political Theory : An Introduction , Pearson ,2019
2. Sushila Ramaswamy, Political Theory : Ideas and Concept , PHI Learning Pvt , Ltd .2015
3. O.P. Gauba, An Introduction to Political Theory , Macmillan, 2019
4. Michael G. Roskin , Robert L. Cord, James A. Medeiros , Walter S. Jones , Political Science : An Introduction , Pearson ,2018
5. Hoveyda Abbas , Ranjay Kumar , Political Theory , Pearson ,2019
6. John Hottman , Paul Graham , Introduction to Political Ideologies , Pearson ,2014
7. A. Appadorai, (2000), *Substance of Politics*, Oxford University Press, New Delhi, India.
8. George H Sabine, Thomas L Thorson, (1973), A History of Political Theory, Oxford & IBH Publishing Co., New Delhi.
9. Heywood, Andrew, (2012) Political Ideologies: An Introduction, Palgrave Macmillan, UK.
10. Heywood, Andrew, (2013), Politics, Palgrave Macmillan (UK).
11. Leon P. Baradat, (2011), Political Ideologies, Routledge.
12. Michael Freeden, Lyman Tower Sargent, Marc Stears,(eds) (2013), The Oxford Handbook of Political Ideologies, Oxford University Press, UK.
13. Ernest Barker : Principles of Social and Political Theory (London , Oxford University Press 1951)
14. Norman P. Barry : An Introduction to Modern Political Theory (London Macmillan, 1989)
15. Richard Bellamy (ed) : Theories and Concepts of Politics (New York , Manchester University Press 1993.)
16. Anthoppny H. Birch : The Concepts and Theories of Modern Democracy (London , Routledge ,2001)
17. Martin Carnoy : The State and Political Theory (Princeton , Princeton University Press , 1984)

B.A Political Science
II st Semester
Paper - II
Western Political Thought

Unit- I Greek Political Thought

- Greek Political Thought – Sophists
- Plato:- Concept of Justice , Ideal State , Education and Communism.
- Aristotle :- Forms of Governments, On revolution , Slavery , Best state

Unit- II : Medieval and Early Modern Thought

- Thomas Aquinas :- Theory of Laws, Christianized Aristotle
- Church – State Controversy
- Niccolo Machiavelli – Human Nature , StateCraft

Unit- III Social Contractualists

- Thomas Hobbes :- Individualism and Absolute (State) Sovereignty
- John Locke :- Natural Rights Limited Government
- J. J. Rousseau :- Romanticism, General will , Popular Sovereignty

Unit- IV : Utilitarian Thought

- Jeremy Bentham :- Utilitarian Principles; Hedonism
- J. S. Mill :- On liberty , Representative Government

Unit- V : Philosophy of Dialectics

- G.W. F. Hegal :- Dialectics Purpose of History Geist (Spirt) and State
- Karl Marx:- Historical Materialism, Class war and Revolution.

Reading list :

1. . D.Mackenzie Brown, (1959), Indian Political Thought from Manu to Gandhi., University of California Press, Berleley and Los Angeles.
2. George Klosko, (eds), (2011), The Oxford Handbook of The History of Political Philosophy, Oxford University Press, New York.
3. Gregory Claeys, (eds)(2013), Encyclopedia of Modern Political Thought, Sage Publication, New Delhi.
4. M.P.Singh and Himanshu Roy, (eds), (2011), Indian Political Thought: Themes and Thinkers, Pearson, New Delhi.
5. N.D.Arora and S.S.Awasthy, (2007), Political Theory and Political Thought, Har-Anand Publications, New Delhi.
6. S.K.Sarma and Urmila Sharma, (2006), Western Political Thought (from Plato to Burke), Atlantic Publishers, New Delhi.
7. Subrata Mukherjee & Sushila Ramaswamy, (2011), A History of Political Thought,: Plato to Marx, PHI Learning Private Limited, New Delhi.
8. Thomas Pantham, Kenneth L. Deutsch, (1986), Political Thought in Modern India, Sage Publication, New Delhi.

B.A Political Science
III rd Semester
Paper - III
Indian Political Thought

Unit- I State and Society in Ancient India

- Manu – Features of Manusmriti, Origins of Varna, Varna Dharma
- Buddha – Dhamma , Sangha , Eightfold path
- Kautilya- Saptanga Theory , Mandala Theory , Statecraft

Unit-II Medieval Political Thought

- Basava- Anubhava Mantapa , Gender Equality
- Ziauddin Barani- Theory of Kingship (Ideal Sulthan) , Ideal Polity

Unit- III RenaissanceThought

- Raja Ram Mohan Roy - Colonial Encounters , Brahma Samaj
- Jyothi Rao Phule- Gulam Giri , Satya Shodhak Samaj , Education

Unit-IV Reformist Thought

- M. K. Gandhi – Satyagraha , Trusteeship , Problem of Political Obligation
- Dr. B. R. Ambedkar- Who are Shudras ? , Annihilation of Caste

Unit-V Socialist Thought

- M.N. Roy- Radical Humanism
- Jawaharlal Nehru- Democratic Socialism
- R.M. Lohia – Concept of Four Pillars of State(Chaukhamba Model)

B.A Political Science
IV th Semester
Paper - IV
Constitution and Politics of India

- Unit- I Constitutional Development in India
- Brief overview of Nationalist Movement
 - Evolution of Indian Constitution -1909 Act ,1919 Act ,1935Act.
 - Philosophical Foundations of the Indian Constitution – Liberal, Gandhian, Socialist
- Unit- II : Institutional Framework
- Union Government – Executive; Legislature; Judiciary
 - State Government - Executive; Legislature; Judiciary
- Unit- III Federal Politics
- Union- State Relations : Legislative, Administrative, Financial
 - Recent trends in Union - State Relations
- Unit- IV : Electoral Politics in India
- Political Parties a) National : INC, BJP, CPM, BSP
 - b) Regional : DMK, Akali Dal, TDP, TRS
 - c) Recent Trends in Party System
 - Election Commission & Electoral Reforms
- Unit- V : Issues in Indian Politics
- Debates on Secularism – Majority Communalism, Minority Communalism
 - Caste in Politics and Politicization of caste
 - Gender in Indian Politics
 - Issues of Minorities – Sachar Committee

B.A Political Science
V th Semester
GE Paper
Politics of Development

- Unit- I Development: Meaning, Nature, Importance
- Types of Development: Economic, Political and Social.
- Unit- II : Development Debates
- Capitalist , Socilaist , Gandhian , Sustainable Development
- Unit- III State and Development in India
- Planning, Mixed Economy, Socialistic Pattern of Society
 - Sectors of Development: Industry, Agriculture, Irrigation, Land Reforms.
- Unit- IV : Issues of Development in the Post-Economic Reforms period
- Economic Reforms: Liberalisation , Privatisation, Globalisation
 - Development and Displacement
 - Development and Environment

B.A Political Science
Vth Semester
Paper- V (A)
International Relations

- Unit- I International Relations – Nature , Evolution and Scope; State and Non- State Actors in IR ,
Westphalian State and Sovereign State system and its characteristics
- Unit-II European conquest of Asia and Africa – Its Impact on society, culture, economy (European
colonialism)First World War and Second World War
Decolonization and its consequences ; Rise of the Developing world ;Neo- colonialism
- Unit- III Cold War ;Détente ; End of the Cold War ;Disintegration of the Soviet Union ; American Hegemony
- Unit-IV India’s Foreign Policy: Determinants; features; Non- Alignment
- Unit-V India’s Relations with USA; China; Pakistan; Sri Lanka and Nepal

B.A Political Science
Vth Semester
Paper – V (B)
Government & Politics in Telangana

Unit- I State Politics

Historical Background of Telangana
Nizam Rule, Public Awakening in Telangana- Andhara Maha Sabha , Library movement,
Tribal Self – Assertion , Aadi Hindu Movement,
Telangana Armed Struggle, Hyderabad State's integration with the Indian Union

Unit-II States Reorganization in India

- Fazal Ali Commission , Gentleman Agreement, Hyderabad's Merger with Andhra and Formation of AP
- Mulki Rules , Regional Committees' Formation

Unit- III Demand for separate Telangana State

- 1969 Agitation.
- Telangana Praja Samithi
- Six point formula
- Telangana Movement from 1990
- Issues : Water , Financial Resources , Employment, Education and Discrimination

Unit-IV Politics of Formation of Telangana

- Justice Sri Krishna Committee Report on the condition of Telangana
- Political Parties views on Separate Telangana: INC , BJP, CPI, CPM, TRS , TDP, MIM and Role of Political JAC
- Role of Civil Society organizations : Students, Employees, Lawyers and Communities' groups

Unit-V Formation of Telangana

- Constitutional Process
- Electoral Politics in Telangana

B.A Political Science
VI th Semester
Optional Paper / Project
Contemporary Political Theory

Unit- I : Liberal Theory :

Isaiah Berlin: Two concepts of Liberty

Hannah Arendt : On Totalitarianism

Unit- II : Neo Marxist theory

Antonio Gramsci: Hegemony and Passive Revolution

Sameer Amin: Critique of Globalization

Unit- III: Feminist Theory: I

Simone de Beauvoir: Issue of Equality

Betty Friedan : Feminine mystique

Unit-IV : Feminist Theory: II

Vandana Shiva : Eco-feminism

Cynthia Enloe: Women's Experience as politics

B.A Political Science

VI th Semester

Paper – VI (A)

Global Politics

Unit- I	Power , Elements of Power , Balance of Power , Growing importance of Soft Power
Unit-II	Security, Collective Security, Bipolarity , Multipolarity, Unipolarity
Unit- III	Human Rights; Agencies of human Rights Protection; Terrorism , Environmental Issues
Unit-IV	World Bank and IMF; UNCTAD; North – South Dialogue and South – South Co- operations; WTO
Unit-V	Disarmament, Arms Race , Arms control , NPT, CTBT, MTCR Proliferation of Small Arms, WMDs

B.A Political Science

VI th Semester

Paper- VI (B)

Social Movements

- Unit- I Introduction to Social Movements: Meaning, Nature, Significance.
Rise of Social Movements
Issues in Social Movements: Depravation, Identity, Justice, Assertion
- Unit-II Social Reform Movements
Anti- Brahmin Movement: Ramaswamy Naicker, Naryana Guru
Backward Class movements in Andhra Pradesh , Telangana and Tamil Nadu
Women's Movement
- Unit- III Agrarian Movements
Bharat Kisan Union
Shetkari Sanghatana
Karnataka Rajya Ryta Sangha
- Unit-IV Environmental Movements
Chipko Movement
Narmada Bacho Andholan
- Unit-V Assertion Movements
Adivasi Movement: Jharkhand
Dalit Movements in Maharastra, Telangana and Andhra Pradesh
Naxalite Movement: Andhra Pradesh, Telangana and Chhattisgarh

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
BA (Computer Applications)
CBCS Pattern with Effect from the Academic Year 2019-2020

Code	Course Title	Course Type	HpW	Credits
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SEMESTER – I

BA106	Programming in C	DSC-3A	4T+3P=7	4 + 1 =5
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SEMESTER – II

BA206	Programming in C++	DSC-3B	4T+3P=7	4 + 1 =5
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AECC

BA107	Fundamentals of Computers	AECC	2T	2
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SEMESTER – III

BA301	Communication Skills(or) Professional Skills (Sec –I)	SEC-1	2T	2
BA302	Python – 1 (Sec –II)	SEC-2	2T	2
BA306	Relational Data Base Management Systems	DSC-3C	4T+3P=7	4 + 1 =5

SEMESTER – IV

BA401	Leadership & Management Skill (or) (Sec –III) Universal Human Values	SEC-3	2T	2
BA402	Python – 2 (Sec –IV)	SEC-4	2T	2
BA406	Multi Media Systems	DSC-3D	4T+3P=7	4 + 1 =5

SEMESTER – V

BA501	Information Technologies	GE	4T	4
BA505	Programming in Java	DSE-3E	4T+3P=7	4 + 1 =5

SEMESTER – VI

BA605	Web Technologies	DSE-3F	4T+3P=7	4 + 1 =5
Project/Optional				
BA601	Information Security and Cyber Laws	PO	3T+3P=6	3 + 1 =4
Total Number of Credits				48

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
BA (Computer Applications)
SEMESTER – I
Programming in C

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

Unit – I

Computer Fundamentals: Introduction of Computers, Classification of Computers, Anatomy of a Computer, Memory Hierarchy, Introduction to OS, Operational Overview of a CPU.

Program Fundamentals: Generation and Classification of Programming Languages, Compiling, Interpreting, Loading, Linking of a Program, Developing Program, Software Development.

Algorithms: Definitions, Different Ways of Stating Algorithms (Step-form, Pseudo-code, Flowchart), Strategy for Designing Algorithms, Structured Programming Concept.

Basics of C: Overview of C, Developing Programs in C, Parts of Simple C Program, Structure of a C Program, Comments, Program Statements, C Tokens, Keywords, Identifiers, Data Types, Variables, Constants, Operators and Expressions, Expression Evaluation–precedence and associativity, Type Conversions.

Unit – II

Input-Output: Non-formatted and Formatted Input and Output Functions, Escape Sequences, Control Statements: Selection Statements – if, if-else, nested if, nested if-else, comma operator, conditional operator, switch; Iterative Statements–while, for, do-while; Special Control Statement–goto, break, continue, return, exit.

Arrays and Strings: One-dimensional Arrays, Character Arrays, Functions from ctype.h, string.h,

Unit – III

Functions: Concept of Function, Using Functions, Call-by-Value Vs Call-by-reference, Passing Arrays to Functions, Scope of Variables, Storage Classes, Inline Functions, and Recursion.

Pointers: Introduction, Address of Operator (&), Pointer, Uses of Pointers, Arrays and Pointers, Pointers and Strings, Dynamic Memory Allocation.

Unit – IV

User-defined Data Types: Declaring a Structure (Union) and its members, Initialization Structure (Union), Accessing members of a Structure (Union), Structures versus Unions, Enumeration Types.

Files: Introduction, Using Files in C, Working with Text Files and Binary Files, Other File Management Functions.

Textbook: Pradip Dey, Manas Ghosh, Computer Fundamentals and Programming in C (2e)

References:

1. Ivor Horton, Beginning C
2. Ashok Kamthane, Programming in C
3. Herbert Schildt, The Complete Reference C
4. Paul Deitel, Harvey Deitel, C How to Program
5. Byron S. Gottfried, Theory and Problems of Programming with C
6. Brian W. Kernighan, Dennis M. Ritchie, The C Programming Language
7. B. A. Forouzan, R. F. Gilberg, A Structured Programming Approach Using C

OSMANIA UNIVERSITY

**FACULTY OF SCIENCE
BA (Computer Applications)
SEMESTER – I**

Programming in C Lab

Practical 3 Hours/Week 1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
 - Faculty must take care about UG Standard Programs.
 - In the external lab examination student has to execute two programs with compilation and deployment steps are necessary. Write the Pseudo Code and draw Flow Chart for the programs.
 - Recommended to use Open Source Software: GCC on Linux; DevC++ (or) CodeBlocks on Windows10.
 - External Vice-Voce is compulsory.
1. Write a program to find the largest two numbers using if and conditional operator.
 2. Write a program to calculate arithmetic operations of two numbers using switch.
 3. Write a program to print the reverse of a given number.
 4. Write a program to print whether the given number is a prime or not.
 5. Write a program to find largest and smallest elements in a given list of numbers
 6. Write a program to find the sum of two matrices
 7. Write a program to find the product of two matrices.
 8. Write a program to print reverse of the string
 9. Write a program to find the factorial of a Positive integer Using iteration and recursion
 10. Write a program to find the GCD of two positive integers using iteration and recursion.
 11. Write a program to demonstrate the call by value and the call by reference concepts.
 12. Write a program to illustrate the use of Enumeration data type.
 13. Write a program to illustrate the use of structure concept.
 14. Write a program to illustrate the use of union concept.
 15. Write a program to write content into a file and display contents of a file
 16. Write a program to copy content of one file into another file and display the content of new file.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
BA (Computer Applications)
SEMESTER – II

Programming in C++

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

Unit – I

Introduction to C++: Applications, Example Programs, Tokens, Data Types, Operators, Expressions, Control Structures, Arrays, Strings, Pointers, Searching and Sorting Arrays.

Functions: Introduction, Prototype, Passing Data by Value, Reference Variables, Using Reference Variables as Parameters, Inline Functions, Default Arguments, Overloading Functions, Passing Arrays to Functions.

Unit – II

Object Oriented Programming: Procedural and Object-Oriented Programming, Terminology, Benefits, OOP Languages, and OOP Applications.

Classes: Introduction, Defining an Instance of a Class, Why Have Private Members? Separating Class Specification from Implementation, Inline Member Functions, Constructors, Passing Arguments to Constructors, Destructors, Overloading Constructors, Private Member Functions, Arrays of Objects, Instance and Static Members, Friends of Classes, Member-wise Assignment, Copy Constructors, Operator Overloading.

Unit – III

Inheritance: Introduction, Protected Members and Class Access, Base Class Access Specification, Constructors and Destructors in Base and Derived Classes, Redefining Base Class Functions, Polymorphism and Virtual Member Functions, Abstract Base Classes and Pure Virtual Functions, Multiple Inheritance.

C++ Streams: Stream Classes, Unformatted I/O Operations, Formatted I/O Operations.

Unit – IV

Exceptions: Introduction, Throwing an Exception, Handling an Exception, Object-Oriented Exception Handling with Classes, Multiple Exceptions, Extracting Data from the Exception Class, Re-throwing an Exception.

Templates: Function Templates–Introduction, Function Templates with Multiple Type, Overloading with Function Templates, Class Templates – Introduction, Defining Objects of the Class Template, Class Templates and Inheritance.

Textbook: Tony Gaddis, Starting out with C++: from control structures through objects (7e)

References:

1. B. Lippman, C++ Primer
2. Bruce Eckel, Thinking in C++
3. K.R. Venugopal, Mastering C++
4. Herbert Schildt, C++: The Complete Reference
5. Bjarne Stroustrup, The C++ Programming Language
6. Sourav Sahay, Object Oriented Programming with C++TEXT BOOK:

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
BA (Computer Applications)
SEMESTER – II
Programming in C++ Lab

Practical 3 Hours/Week 1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
 - Faculty must take care about UG Standard Programs.
 - In the external lab examination student has to execute two programs with compilation and deployment steps are necessary. Write the Pseudo Code and draw Flow Chart for the programs.
 - Recommended to use Open Source Software: GCC on Linux; DevC++ (or) CodeBlocks on Windows10.
 - External Vice-Voce is compulsory.
1. Write a program to print the sum of digits of a given number
 2. Write a program to check whether the given number is Armstrong or not
 3. Write a program to check whether the given string is Palindrome or not
 4. Write a program to read student name, roll no, marks and display the same using class and object
 5. Write a program to find area of a rectangle, circle, and square using class and object
 6. Write a program to implement inline function inside and outside of a class for
 - a. Finding the area of a square
 - b. Finding the area of a cube
 7. Write a program to implement friend function and friend class
 8. Write a program to implement constructor and destructor with in a class
 9. Write a program to demonstrate hierarchical inheritance.
 10. Write a program to demonstrate multiple inheritances.
 11. Write a program to demonstrate the constructor overloading.
 12. Write a program to demonstrate static polymorphism
 13. Write a program to demonstrate dynamic polymorphism.
 14. Write a program to implement polymorphism using pure virtual functions
 15. Write a program to demonstrate the function templates and class templates
 16. Write a program to demonstrate exception handling using try, catch and finally.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
BA Computer Applications
Semester-I
AECC
Fundamentals of Computers

Theory

2 Hours/Week

2 Credits

Unit-I

Introduction to Computers: what is a computer, characteristics of Computers, Generations of Computers, Classifications of Computers, Basic Computer organization, Applications of Computers. Input and Output Devices: Input devices, Output devices, Softcopy devices, Hard copy devices. Computer Memory and Processors: Introduction, Memory Hierarchy, Processor, Registers, Cache memory, primary memory, secondary storage devices, magnetic tapes, floppy disks, hard disks, optical drives, USB flash drivers, Memory cards, Mass storage devices, Basic processors architecture.

Unit-II

Number System and Computer Codes: Binary number system, working with binary numbers, octal number system, hexadecimal number system, working with fractions, signed number representation in binary form, BCD code, other codes. Boolean algebra and logic gates: Boolean algebra, Venn diagrams, representation of Boolean functions, logic gates, logic diagrams and Boolean expressions using karnaugh map. Computer Software: Introduction to computer software, classification of computer software, system software, application software, firmware, middleware, acquiring computer software, design and implementation of correct, efficient and maintainable programs.

Text Book: Reema Thareja, Fundamentals of Computers.

References:

1. V.Rajaraman, 6th Edition Fundamentals of Computers, Neeharika Adabala.
2. Anita Goel, Computer Fundamentals.

Course 1: Communication Skills

Context and Justification :

Communication plays an important role in shaping an individual's life, personal as well as professional. Also it is the backbone of any organisation/institution. Success in life to a considerable extent depends on effective communication skills. In today's world of computers and digital media, a strong communication skill base is essential for learners and for smooth functioning of an organisation.

Objectives :

This course has been developed with the following objectives:

1. Identify common communication problems that may be holding learners back
2. Identify what their non-verbal messages are communicating to others
3. Understand role of communication in teaching-learning process
4. Learning to communicate through the digital media
5. Understand the importance of empathetic listening
6. Explore communication beyond language.

Expected Outcome :

By the end of this program participants should have a clear understanding of what good communication skills are and what they can do to improve their abilities.

Credit: 02

Duration: 30 Hours

Number & Titles of Modules:

Total of 7 Modules

Module 1	Listening	4 Hours
Module 2	Speaking	6 Hours
Module 3	Reading	3 Hours
Module 4	Writing and different modes of writing	4 Hours
Module 5	Digital Literacy	4 Hours
Module 6	Effective use of Social Media	4 Hours
Module 7	Non-verbal communication	5 Hours

Module Outline :

Module 1: Listening

4 Hours

- Techniques of effective listening
- Listening and comprehension
- Probing questions
- Barriers to listening

Module 2: Speaking

6 Hours

- Pronunciation
- Enunciation
- Vocabulary
- Fluency
- Common Errors

Module 3: Reading

3 Hours

- Techniques of effective reading
- Gathering ideas and information from a given text
 - i. Identify the main claim of the text
 - ii. Identify the purpose of the text
 - iii. Identify the context of the text
 - iv. Identify the concepts mentioned
- Evaluating these ideas and information
 - i. Identify the arguments employed in the text
 - ii. Identify the theories employed or assumed in the text
- Interpret the text
 - i. To understand what a text says
 - ii. To understand what a text does
 - iii. To understand what a text means

Module 4: Writing and different modes of writing

4 Hours

- Clearly state the claims
- Avoid ambiguity, vagueness, unwanted generalisations and oversimplification of issues
- Provide background information
- Effectively argue the claim
- Provide evidence for the claims
- Use examples to explain concepts
- Follow convention
- Be properly sequenced
- Use proper signposting techniques
- Be well structured
 - i. Well-knit logical sequence
 - ii. Narrative sequence
 - iii. Category groupings

- Different modes of Writing
 - i. E-mails
 - ii. Proposal writing for Higher Studies
 - iii. Recording the proceedings of meetings
 - iv. Any other mode of writing relevant for learners

Module 5: Digital Literacy**4 Hours**

- Role of Digital literacy in professional life
- Trends and opportunities in using digital technology in workplace
- Internet Basics
- Introduction to MS Office tools
 - i. Paint
 - ii. Office
 - iii. Excel
 - iv. Powerpoint

Module 6: Effective use of Social Media**4 Hours**

- Introduction to social media websites
- Advantages of social media
- Ethics and etiquettes of social media
- How to use Google search better
- Effective ways of using Social Media
- Introduction to Digital Marketing

Module 7: Non-verbal communication**5 Hours**

- Meaning of non-verbal communication
- Introduction to modes of non-verbal communication
- Breaking the misbeliefs
- Open and Closed Body language
- Eye Contact and Facial Expression
- Hand Gestures
- Do's and Don'ts
- Learning from experts
- Activities-Based Learning

Pedagogy : Instructor-Led Training, Supplemented by Online Platform (SWAYAM)

Materials : Teaching & Learning

Assessment : Paper-Based or Online Assessment

Bibliography & Suggested Reading including audio video material :

Books

- Sen Madhucchanda (2010), *An Introduction to Critical Thinking*, Pearson, Delhi
- Silvia P. J. (2007), *How to Read a Lot*, American Psychological Association, Washington DC

Course 2: Professional Skills

Context with Justification :

One of the significant outcomes of Higher Education is to prepare an individual for entering the job/employment market. Besides knowledge and skills required for a particular job/occupation, professional skills are also required for an individual to be gainfully employed for a successful and satisfied life. Professional skills are part of life skills. An individual should be able to demonstrate professional skills involving the use of intuitive, logical and critical thinking, communication and interpersonal skills, not limited to cognitive/creative skills. These skills, behaviour and quality of output enhance employability.

The career skills empower an individual with ability in preparing an appropriate resume, addressing the necessary gaps for facing interviews and actively and effectively participating in group discussion thereof, etc. It is also of significant importance that students /individuals possess the know-how to explore career opportunities for themselves, considering their innate strengths and weaknesses.

It is important that the students/individuals are well prepared to take on new challenges and opportunities. With the increasing use of technology in the way we live, learn and work, it is critical for students/individuals to be able to utilise basic computing concepts and also have and espouse excellent Team Skills. Collaborating and working together can assist in resolving complex problems, which allow/offer individuals an opportunity to articulate new ideas and perspectives. It further allows learner / individuals design, develop, problem solve and to adapt to situations based on their experience and skills.

Credit: 02

Duration:30 hours

The Course Professional Skills is divided into two parts:

- a) Career Skills
- b) Team Skills

A. Career Skills

Objectives :

The Objectives of the course are to help students/candidates:

1. Acquire career skills and fully pursue to partake in a successful career path
2. Prepare good resume, prepare for interviews and group discussions
3. Explore desired career opportunities in the employment market in consideration of an individual SWOT.

Expected Outcomes :

At the end of this course the students will be able to:

1. Prepare their resume in an appropriate template without grammatical and other errors and using proper syntax
2. Participate in a simulated interview
3. Actively participate in group discussions towards gainful employment
4. Capture a self - interview simulation video regarding the job role concerned
5. Enlist the common errors generally made by candidates in an interview
6. Perform appropriately and effectively in group discussions
7. Explore sources (online/offline) of career opportunities
8. Identify career opportunities in consideration of their own potential and aspirations
9. Use the necessary components required to prepare for a career in an identified occupation (as a case study).

Duration: 15 Hours

Number & Titles of Modules:

Module 1	Resume Skills	3 Hours
Module 2	Interview Skills	5 Hours
Module 3	Group Discussion Skills	4 Hours
Module 4	Exploring Career Opportunities	3 Hours

Module Outline :

Module 1: Resume Skills **3 Hours**

- i. Resume Skills : Preparation and Presentation**
 - Introduction of resume and its importance
 - Difference between a CV, Resume and Bio data
 - Essential components of a good resume
- ii. Resume skills : common errors**
 - Common errors people generally make in preparing their resume
 - Prepare a good resume of her/his considering all essential components

Module 2: Interview Skills **5 Hours**

- i. Interview Skills : Preparation and Presentation**
 - Meaning and types of interview (F2F, telephonic, video, etc.)
 - Dress Code, Background Research, Do's and Don'ts
 - Situation, Task, Approach and Response (STAR Approach) for facing an interview
 - Interview procedure (opening, listening skills, closure, etc.)
 - Important questions generally asked in a job interview (open and closed ended questions)

- ii. **Interview Skills : Simulation**
 - Observation of exemplary interviews
 - Comment critically on simulated interviews
- iii. **Interview Skills : Common Errors**
 - Discuss the common errors generally candidates make in interview
 - Demonstrate an ideal interview

Module 3: Group Discussion Skills **4 Hours**

- Meaning and methods of Group Discussion
- Procedure of Group Discussion
- Group Discussion- Simulation
- Group Discussion - Common Errors

Module 4: Exploring Career Opportunities **3 Hours**

- Knowing yourself – personal characteristics
- Knowledge about the world of work, requirements of jobs including self-employment.
- Sources of career information
- Preparing for a career based on their potentials and availability of opportunities

Pedagogy : Besides Face to Face lectures (theory would be limited only to 20% of the component and remaining 80% would be practical oriented), the focus would be primarily on blended /hybrid learning. This could include a flipped classroom approach that leverages project-based learning, demonstration, group discussion, simulations etc.

Materials : Audio video materials, Online Platform (SWAYAM), FutureSkills Platform, Used Cases & Case Studies etc.

Assessment: Online evaluation, demonstration, assignments : Some components could be aligned to NOS (SSC/N9005) IT-ITeS Sector . The questions posed to the students would be a mix of MCQs, scenario-based, logical reasoning, comprehension, simulations, etc. Do check the assessment model and sample assessment at (<http://nac.nasscom.in/>)

Bibliography & Suggested Reading including audio video material :
Please check IT-ITeS Sector Skills Council readiness programs namely

- Foundation Skills In IT (FSIT) - Refer the websites like <https://www.sscnasscom.com/ssc-projects/capacity-building-and-development/training/fsit/> and
- Global Business Foundation Skills (GBFS) – Refer websites like <https://www.sscnasscom.com/ssc-projects/capacity-building-and-development/training/gbfs/>

B. Team Skills

Objectives :

The objectives of the course is to make learners:

1. Understand the significance of Team Skills and help them in acquiring them
2. To help them design, develop and adapt to situations as an individual and as a team.

Expected Outcomes :

By the end of this course the learners/candidates will be able to:

1. Use common technology messaging tools that are used in enterprises for flow of information and transition from command and control to informal communication during an online/offline team session
2. Actively use and operate online team communication tools: Webinar, Skype, Zoom, Google hangout etc
3. Appreciate and demonstrate Team Skills
4. Participate in a digital lifestyle conversant with computers, applications, Internet and nuances of cyber security
5. Explore (online) and identify career opportunities in consideration of their own potential and aspirations.
6. Discuss and articulate the key requirements of an entrepreneurial exercise
7. Empathise and trust colleagues for improving interpersonal relations
8. Engage in effective communication by respecting diversity and embracing good listening skills
9. Distinguish the guiding principles for communication in a diverse, smaller internal world
10. Practice interpersonal skills for better relations with seniors, juniors, peers and stakeholders
11. Project a good personal image and social etiquette so as to have a positive impact on building of one's chosen career
12. Generate, share and maximise new ideas with the concept of brainstorming and the documentation of key critical ideas/thoughts articulated and action points to be implemented with timelines in a team discussion (as MOM) in identified applicable templates.

Duration: 15 Hours

Number & Titles of Modules:

Module 1	Presentation Skills	5 Hours
Module 2	Trust and Collaboration	2 Hour
Module 3	Listening as a Team Skill	2 hour
Module 4	Brainstorming	2 Hour
Module 5	Social and Cultural Etiquettes	2 Hour
Module 6	Internal Communication	2 Hour

Module Outline :

Module 1: Presentation Skills **5 Hours**

- Types of presentations
- Internal and external presentation
- Knowing the purpose
- Knowing the audience
- Opening and closing a presentation
- Using presentation tools
- Handling questions
- Presentation to heterogenic group
- Ways to improve presentation skills over time

Module 2: Trust and Collaboration **2 Hours**

- Explain the importance of trust in creating a collaborative team
- Agree to Disagree and Disagree to Agree – Spirit of Team work
- Understanding fear of being judged and strategies to overcome fear

Module 3: Listening as a Team Skill **2 Hours**

- Advantages of Effective Listening
- Listening as a team member and team leader. Use of active listening strategies to encourage sharing of ideas (full and undivided attention, no interruptions, no pre-think, use empathy, listen to tone and voice modulation, recapitulate points, etc.).

Module 4: Brainstorming**2 Hour**

- Use of group and individual brainstorming techniques to promote idea generation.
- Learning and showcasing the principles of documentation of team session outcomes

Module 5: Social and Cultural Etiquette**2 Hour**

- Need for etiquette (impression, image, earn respect, appreciation, etc)
- Aspects of social and cultural/corporate etiquette in promoting teamwork
- Importance of time, place, propriety and adaptability to diverse cultures

Module 6: Internal Communication**2 Hour**

- Use of various channels of transmitting information including digital and physical, to team members.

Pedagogy : Besides Face to Face Lectures (as theory would be limited only to 20% of the component and remaining 80% would be practical oriented), the focus would be primarily on blended learning/hybrid learning. This could include a flipped classroom approach that leverage project based learning, demonstration, group discussion, simulation as well as coaching, seminars and tutorials.

Materials : Audio video materials, Online Platform (SWAYAM), Future Skills platform

Assessment: Written evaluation, demonstration, assignments:

Some components aligned to NOS (SSC/N9005) IT-ITeS . The questions posed to the students would be a mix of MCQs, Scenario-based, logical reasoning, comprehension, simulations, etc. Do check the assessment at website like (<http://nac.nasscom.in/>)

Bibliography & Suggested Reading including audio video material :

Please check IT-ITeS Sector Skills Council readiness program namely Global Business Foundation Skills (GBFS) in website (<https://www.sscnasscom.com/ssc-projects/capacity-building-and-development/training/gbfs/>),and Generic and the entrepreneurial NOS at NSQF Level 4 -7.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
BA Computer Applications
SEMESTER – III

Python – I

(SEC – II)

Theory

2 Hours/Week

2 Credits

Unit – I

Introduction to Python Programming: How a Program Works, Using Python, Program Development Cycle, Input, Processing, and Output, Displaying Output with the Print Function, Comments, Variables, Reading Input from the Keyboard, Performing Calculations (Operators. Type conversions, Expressions), More about Data Output.

Decision Structures and Boolean Logic: if, if-else, if- elif -else Statements, Nested Decision Structures, Comparing Strings, Logical Operators, Boolean Variables.

Repetition Structures: Introduction, while loop, for loop, Calculating a Running Total, Input Validation Loops, Nested Loops.

Unit – II

Functions: Introduction, Defining and Calling a Void Function, Designing a Program to Use Functions, Local Variables, Passing Arguments to Functions, Global Variables and Global Constants, Value-Returning Functions- Generating Random Numbers, Writing Our Own Value-Returning Functions, The math Module, Storing Functions in Modules.

File and Exceptions: Introduction to File Input and Output, Using Loops to Process Files, Processing Records, Exceptions.

Text Tony Gaddis, *Starting Out With Python (3e)*

References

1. Kenneth A. Lambert, *Fundamentals of Python*
2. Clinton W. Brownley, *Foundations for Analytics with Python*
3. James Payne, *Beginning Python using Python 2.6 and Python 3*
4. Charles Dierach, *Introduction to Computer Science using Python*
5. Paul Gries, *Practical Programming: An Introduction to Computer Science using Python 3*

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
BA (Computer Applications)
SEMESTER – III

Relational Data base Management Systems

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

Unit-I

Basic Concepts: Database Management System, File based system, Advantages of DBMS over file based system, Database Approach, Logical DBMS Architecture, Three level architecture of DBMS or logical DBMS architecture, Need for three level architecture, Physical DBMS Architecture, Database Administrator (DBA) Functions & Role, Data files indices and Data Dictionary, Types of Database.

Relational and ER Models: Data Models, Relational Model, Domains, Tuple and Relation, Super keys, Candidate keys, Primary keys and foreign key for the Relations, Relational Constraints, Domain Constraint, Key Constraint, Integrity Constraint, Update Operations and Dealing with Constraint Violations, Relational Operations, Entity Relationship (ER) Model, Entities, Attributes, Relationships, More about Entities and Relationships, Defining Relationship for College Database, E-R Diagram, Conversion of E-R Diagram to Relational Database.

Unit-II

Database Integrity And Normalisation: Relational Database Integrity, The Keys, Referential Integrity, Entity Integrity, Redundancy and Associated Problems – Single Valued Dependencies – Normalisation, Rules of Data Normalization, The First Normal Form, The Second Normal Form, The Third Normal Form, Boyce Codd Normal Form, Attribute Preservation, Lossless, join Decomposition Dependency Preservation.

File Organization: Physical Database Design Issues, Storage of Database on Hard Disks, File Organization and Its Types, Heap files (Unordered files), Sequential File Organization – Indexed (Indexed Sequential) File Organization, Hashed File Organization, Types of Indexes, Index and Tree Structure.

Unit-III

Structures Query Language (SQL): Meaning – SQL commands, Data Definition Language, Data Manipulation Language – Data Control Language, Transaction Control Language Queries using Order by, Where, Group by, Nested Queries. Joins – Views – Sequences, Indexes and Synonyms, Table Handling.

Advanced SQL: Accessing SQL from a Programming Language, Functions and Procedures, Triggers, Recursive Queries.

Unit-IV

Transactions and Concurrency Management: Transactions, Concurrent Transactions, Locking Protocol, Serializable Schedules –

Locks Two Phase Locking (2PL), Deadlock and its Prevention, Optimistic Concurrency Control.

Database Recovery and Security: Database Recovery meaning, Kinds of failures – Failure Controlling methods, Database errors, Backup & Recovery Techniques, Security & Integrity.

Text Book: Database Systems: R.Elmasri & S.B. Navathe, Pearson.

References:

1. Introduction to Database Management System: ISRD Group, McGraw Hill.
2. Database Management System: R.Rama krishnan & J.Gehrke, McGraw Hill.
3. Modern Database Management: J.A.Hoffer, V.Rames & H.Topi, Pearson.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
BA (Computer Applications)
SEMESTER – III

Relational Data base Management Systems Lab

Practical 3 Hours/Week 1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
- In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.
- External Vice-Voce is compulsory.

1. Create a database having two tables with the specified fields, to computerize a library system of a University College.

LibraryBooks (Accession number, Title, Author, Department, PurchaseDate, Price),
 IssuedBooks (Accession number, Borrower)

- a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
- b) Delete the record of book titled “Database System Concepts”.
- c) Change the Department of the book titled “Discrete Maths” to “CS”.
- d) List all books that belong to “CS” department.
- e) List all books that belong to “CS” department and are written by author “Navathe”.
- f) List all computer (Department=“CS”) that have been issued.
- g) List all books which have a price less than 500 or purchased between “01/01/1999” and “01/01/2004”.

2. Create a database having three tables to store the details of students of Computer Department in your college.

Personal information about Student (College roll number, Name of student, Date of birth, Address, Marks(rounded off to whole number) in percentage at 10 + 2, Phone number)

Paper Details (Paper code, Name of the Paper)

Student’s Academic and Attendance details (College roll number, Paper Code, Attendance, Marks in home examination).

- a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
- b) Design a query that will return the records (from the second table) along with the name of student from the first table, related to students who have more than 75% attendance and more than 60% marks in paper2.
- c) List all students who live in “Warangal” and have marks greater than 60 in paper1.
- d) Find the total attendance and total marks obtained by each student.
- e) List the name of student who has got the highest marks in paper2.

3. Create the following tables and answer the queries given below:

Customer (CustID, email, Name, Phone, ReferrerID)

Bicycle (BicycleID, DatePurchased, Color, CustID, ModelNo)

BicycleModel(ModelNo, Manufacturer, Style) Service (StartDate, BicycleID, EndDate)

- a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
- b) List all the customers who have the bicycles manufactured by manufacturer

“Honda”.

- c) List the bicycles purchased by the customers who have been referred by Customer “C1”.
- d) List the manufacturer of red colored bicycles.
- e) List the models of the bicycles given for service.

4. Create the following tables, enter at least 5 records in each table and answer the queries given below.

Employee (Person_Name, Street, City)
 Works (Person_Name, Company_Name, Salary)
 Company (Company_Name, City)
 Manages (Person_Name, Manager_Name)

- a) Identify primary and foreign keys.
- b) Alter table employee, add a column “email” of type varchar(20).
- c) Find the name of all managers who work for both Samba Bank and NCB Bank.
- d) Find the names, street address and cities of residence and salary of all employees who work for “Samba Bank” and earn more than \$10,000.
- e) Find the names of all employees who live in the same city as the company for which they work.
- f) Find the highest salary, lowest salary and average salary paid by each company.
- g) Find the sum of salary and number of employees in each company.
- h) Find the name of the company that pays highest salary.

5. Create the following tables, enter at least 5 records in each table and answer the queries given below.

Suppliers (SNo, Sname, Status, SCity)
 Parts (PNo, Pname, Colour, Weight, City)
 Project (JNo, Jname, Jcity)
 Shipment (Sno, Pno, Jno, Qunatity)

- a) Identify primary and foreign keys.
- b) Get supplier numbers for suppliers in Paris with status>20.
- c) Get suppliers details for suppliers who supply part P2. Display the supplier list in increasing order of supplier numbers.
- d) Get suppliers names for suppliers who do not supply part P2.
- e) For each shipment get full shipment details, including total shipment weights.
- f) Get all the shipments where the quantity is in the range 300 to 750 inclusive.
- g) Get part nos. for parts that either weigh more than 16 pounds or are supplied by suppliers S2, or both.
- h) Get the names of cities that store more than five red parts.
- i) Get full details of parts supplied by a supplier in Hyderabad.
- j) Get part numbers for part supplied by a supplier in Warangal to a project in Chennai.
- k) Get the total number of project supplied by a supplier (say, S1).
- l) Get the total quantity of a part (say, P1) supplied by a supplier (say, S1).

6. Write a PL/SQL Program to demonstrate Procedure.
7. Write a PL/SQL Program to demonstrate Function.
8. Write a PL/SQL program to Handle Exceptions.
9. Write a PL/SQL Program to perform a set of DML Operations.
10. Create a View using PL/SQL program.
11. Write a PL/SQL Program on Statement Level Trigger.
12. Write a PL/SQL Program on Row Level Trigger.

Course 3: Leadership and Management Skills

Context with Justification :

Leaders are foundations of the society, who face and win against adversities and odds of life. Through their words and deeds, they show path to others and transform into inspirational role models, affecting social life vividly. In the current times of cut-throat competitions, disbelief in values, techno-centric complex lifestyles, there is a dire need to emphasise the 'human' agency in community living. This can be done by cultivating and nurturing the innate leadership skills of the youth so that they may transform these challenges into opportunities and become torch bearers of the future by developing creative solutions.

Objectives :

The Module is designed to:

- Help students to develop essential skills to influence and motivate others
- Inculcate emotional and social intelligence and integrative thinking for effective leadership
- Create and maintain an effective and motivated team to work for the society
- Nurture a creative and entrepreneurial mindset
- Make students understand the personal values and apply ethical principles in professional and social contexts.

Expected Outcomes :

Upon completion of the course students will be able to:

1. Examine various leadership models and understand/assess their skills, strengths and abilities that affect their own leadership style and can create their leadership vision
2. Learn and demonstrate a set of practical skills such as time management, self management, handling conflicts, team leadership, etc.
3. Understand the basics of entrepreneurship and develop business plans
4. Apply the design thinking approach for leadership
5. Appreciate the importance of ethics and moral values for making of a balanced personality.

Credit: 02

Duration: 30 Hours

Number & Titles of Modules:

Module 1	Leadership Skills	6 Hours
Module 2	Managerial Skills	6 Hours
Module 3	Entrepreneurial Skills	6 Hours
Module 4	Innovative Leadership and Design Thinking	6 Hours
Module 5	Ethics and Integrity	6 Hours

Module Outline :

Module 1- Leadership Skills

6 Hours

a. Understanding Leadership and its Importance

- What is leadership?
- Why Leadership required?
- Whom do you consider as an ideal leader?

b. Traits and Models of Leadership

- Are leaders born or made?
- Key characteristics of an effective leader
- Leadership styles
- Perspectives of different leaders

c. Basic Leadership Skills

- Motivation
- Team work
- Negotiation
- Networking

Module 2 - Managerial Skills

6 Hours

a. Basic Managerial Skills

- Planning for effective management
- How to organise teams?
- Recruiting and retaining talent
- Delegation of tasks
- Learn to coordinate
- Conflict management

b. Self Management Skills

- Understanding self concept
- Developing self-awareness
- Self-examination
- Self-regulation

Module 3 - Entrepreneurial Skills

6 Hours

a. Basics of Entrepreneurship

- Meaning of entrepreneurship
- Classification and types of entrepreneurship
- Traits and competencies of entrepreneur

b. Creating Business Plan

- Problem identification and idea generation
- Idea validation
- Pitch making

Module 4 - Innovative Leadership and Design Thinking

6 Hours

a. Innovative Leadership

- Concept of emotional and social intelligence

- Synthesis of human and artificial intelligence
- Why does culture matter for today's global leaders

b. Design Thinking

- What is design thinking?
- Key elements of design thinking:
 - Discovery
 - Interpretation
 - Ideation
 - Experimentation
 - Evolution.
- How to transform challenges into opportunities?
- How to develop human-centric solutions for creating social good?

Module 5- Ethics and Integrity

6 Hours

a. Learning through Biographies

- What makes an individual great?
- Understanding the persona of a leader for deriving holistic inspiration
- Drawing insights for leadership
- How leaders sail through difficult situations?

b. Ethics and Conduct

- Importance of ethics
- Ethical decision making
- Personal and professional moral codes of conduct
- Creating a harmonious life

Pedagogy : Pedagogy for the modules is as follows:

1. Leadership Skills - Lectures (augmented with videos); role-plays for leadership models; team building games
2. Managerial Skills - Lectures (augmented with videos), case studies (AMUL, TESLA, Toyota, DMRC, Tata Group, Google, The Mumbai Dabbawala), SWOT analysis, Johari window
3. Entrepreneurial Skills - Lectures (augmented with videos), case studies and practicing business plans
4. Innovative Leadership and Design Thinking- Concept discussion through lecture and videos followed by role-plays and exercises for each set of intelligence, activities using 5 steps – discovery, interpretation, ideation, experimentation, and evolution (Ref.: Workbook of Design Thinking by IDEO)
5. Ethics and Integrity- Experiential learning through stories suggested list (Ahilya Bai, Holkar, Abdul Kalam, Raja Harishchandra, Mahatma Gandhi, Abraham Lincoln), audio visual augmented role plays and storytelling (leaders from varied fields like academics, corporate, social, sports, art, etc.)

Assessment : It can be combination of written evaluation and presentations, including simulations, case studies and business plan.

Bibliography and Suggested Readings :

Books

- Ashokan, M. S. (2015). *Karmayogi: A Biography of E. Sreedharan*. Penguin, UK.
- Brown, T. (2012). *Change by Design*. Harper Business
- Elkington, J., & Hartigan, P. (2008). *The Power of Unreasonable People: How Social Entrepreneurs Create Markets that Change the World*. Harvard Business Press.
- Goleman D. (1995). *Emotional Intelligence*. Bloomsbury Publishing India Private Limited
- Kalam A. A. (2003). *Ignited Minds: Unleashing the Power within India*. Penguin Books India
- Kelly T., Kelly D. (2014). *Creative Confidence: Unleashing the Creative Potential Within Us All*. William Collins
- Kurien V., & Salve G. (2012). *I Too Had a Dream*. Roli Books Private Limited
- Livermore D. A. (2010). *Leading with cultural intelligence: The New Secret to Success*. New York: American Management Association
- McCormack M. H. (1986). *What They Don't Teach You at Harvard Business School: Notes From A Street-Smart Executive*. RHUS
- O'Toole J. (2019) *The Enlightened Capitalists: Cautionary Tales of Business Pioneers Who Tried to Do Well by Doing Good*. Harpercollins
- Sinek S. (2009). *Start with Why: How Great Leaders Inspire Everyone to Take Action*. Penguin
- Sternberg R. J., Sternberg R. J., & Baltes P. B. (Eds.). (2004). *International Handbook of Intelligence*. Cambridge University Press.

E-Resources

- Fries, K. (2019). 8 Essential Qualities That Define Great Leadership. *Forbes*. Retrieved 2019-02-15 from <https://www.forbes.com/sites/kimberlyfries/2018/02/08/8-essential-qualities-that-define-great-leadership/#452ecc963b63>.
- How to Build Your Creative Confidence, Ted Talk by David Kelly - https://www.ted.com/talks/david_kelley_how_to_build_your_creative_confidence
- India's Hidden Hot Beds of Invention Ted Talk by Anil Gupta - https://www.ted.com/talks/anil_gupta_india_s_hidden_hotbeds_of_invention
- Knowledge@Wharton Interviews Former Indian President APJ Abdul Kalam - , "A Leader Should Know How to Manage Failure" <https://www.youtube.com/watch?v=laGZaS4sdeU>
- Martin, R. (2007). How Successful Leaders Think. *Harvard Business Review*, 85(6): 60.
- NPTEL Course on Leadership - <https://nptel.ac.in/courses/122105021/9>

Course 4: Universal Human Values

Context with Justification :

Human civilisation is known for the values that it cherishes and practices. Across various times and places, sages, saints and seers, drawing on their experience, developed practices that placed central importance on values, though the names used by them differed, as their languages varied but the spirit was same. Universal human values are values that human beings cherish and hold in common consciously and otherwise in most of the places and times and practice them.

Renunciation is the foundational value. Renunciation or greedlessness has two preconditions: love for all living beings and absence of selfishness. Renunciation is not self-directed but other-directed and is for life in all forms and shapes, for welfare of all. Renunciation begins when selfishness ends. Renunciation to run away from the problems of life is cowardice. Renunciation without action means parasitic life. Also, service can be practised only when renunciation with action begins. Unegoistical service is inconceivable without renunciation; and true service is possible only through love and compassion. Life and death are eternal truths, so is the truth as fact and truth as value. Truth exists between the two ends of life and death and is to be pursued.

Truth, Love, Peace, Non-Violence and Righteous Conduct are the Universal Human Values. Renunciation (sacrifice), Compassion and Service are also commonly acceptable human values, which at the operation level have been named differently as sincerity, honesty, righteousness, humility, gratitude, aspiration, prosperity, non-violence, trust, faith, forgiveness, mercy, peace and so on. These are needed for well-being of an individual, society and humanity and ultimately Peace in the world.

This course aims at making learners conscious about universal human values in an integral manner, without ignoring other aspects that are needed for learner's personality development.

Objectives :

The present course deals with meaning, purpose, and relevance of universal human values and how to inculcate and practice them consciously to be a good human being and realise one's potentials.

Learning outcomes :

By the end of the course the learners will be able to:

1. Know about universal human values and understand the importance of values in individual, social circles, career path, and national life.
2. Learn from case studies of lives of great and successful people who followed and practised human values and achieved self-actualisation.
3. Become conscious practitioners of human values.
4. Realise their potential as human beings and conduct themselves properly in the ways of the world.

Credit: 02

Duration: 30 Hours

Number & Titles of Modules:

Module 1: Love & Compassion

5 Hours

Module 2: Truth

5 Hours

Module 3: Non-Violence	5 Hours
Module 4: Righteousness	5 Hours
Module 5: Peace	4 Hours
Module 6: Service	3 Hours
Module 7: Renunciation (Sacrifice)	3 Hours

Module Outline :

Module 1: Love & Compassion **5 Hours**

- Introduction: What is love? Forms of love—for self, parents, family, friend, spouse, community, nation, humanity and other beings, both for living and non-living
- Love and compassion and inter-relatedness
- Love, compassion, empathy, sympathy and non-violence
- Individuals who are remembered in history for practicing compassion and love.
- Narratives and anecdotes from history, literature including local folklore
- Practicing love and compassion: What will learners learn gain if they practice love and compassion? What will learners lose if they don't practice love and compassion?
- Sharing learner's individual and/or group experience(s)
- Simulated Situations
- Case studies

Module 2: Truth **5 Hours**

- Introduction: What is truth? Universal truth, truth as value, truth as fact (veracity, sincerity, honesty among others)
- Individuals who are remembered in history for practicing this value
- Narratives and anecdotes from history, literature including local folklore
- Practicing Truth: What will learners learn/gain if they practice truth? What will learners lose if they don't practice it?
- Learners' individual and/or group experience(s)
- Simulated situations
- Case studies

Module 3: Non-Violence **5 Hours**

- Introduction: What is non-violence? Its need. Love, compassion, empathy sympathy for others as pre-requisites for non-violence
- Ahimsa as non-violence and non-killing
- Individuals and organisations that are known for their commitment to non-violence
- Narratives and anecdotes about non-violence from history, and literature including local folklore
- Practicing non-violence: What will learners learn/gain if they practice non-violence? What will learners lose if they don't practice it?
- Sharing learner's individual and/or group experience(s) about non-violence
- Simulated situations
- Case studies

Module 4: Righteousness**5 Hours**

- Introduction: What is righteousness?
- Righteousness and *dharm*a, Righteousness and Propriety
- Individuals who are remembered in history for practicing righteousness
- Narratives and anecdotes from history, literature including local folklore
- Practicing righteousness: What will learners learn/gain if they practice righteousness? What will learners lose if they don't practice it?
- Sharing learners' individual and/or group experience(s)
- Simulated situations
- Case studies

Module 5: Peace**4 hours**

- Introduction: What is peace? Its need, relation with harmony and balance
- Individuals and organisations that are known for their commitment to peace
- Narratives and Anecdotes about peace from history, and literature including local folklore
- Practicing peace: What will learners learn/gain if they practice peace? What will learners lose if they don't practice it?
- Sharing learner's individual and/or group experience(s) about peace
- Simulated situations
- Case studies

Module 5: Service**3 Hours**

- Introduction: What is service? Forms of service, for self, parents, family, friend, spouse, community, nation, humanity and other beings—living and non-living, persons in distress or disaster.
- Individuals who are remembered in history for practicing this value.
- Narratives and anecdotes dealing with instances of service from history, literature including local folklore
- Practicing service: What will learners learn/gain if they practice service? What will learners lose if they don't practice it?
- Sharing learners' individual and/or group experience(s) regarding service
- Simulated situations
- Case studies

Module 6: Renunciation (Sacrifice)**3 Hours**

- Introduction: What is renunciation? Renunciation and sacrifice. Self-restrain and Ways of overcoming greed. Renunciation with action as true renunciation
- Individuals who are remembered in history for practicing this value.
- Narratives and anecdotes from history and literature, including local folklore about individuals who are remembered for their sacrifice and renunciation.
- Practicing renunciation and sacrifice: What will learners learn/gain if they practice Renunciation and sacrifice? What will learners lose if they don't practice it?
- Sharing learners' individual and/or group experience(s)
- Simulated situations
- Case studies

ADDITIONAL PRACTICAL MODULES or OPERATIVE ELECTIVES:

NOTE: The faculty/institution may choose any/some of the following modules keeping in mind the level and specific needs of learners.

Module Outline :

MODULE A - Integral Human Well-Being

5 Hours

Importance of well-being, inter-relatedness of different kinds of well-being and definition of well-being (state of being comfortable, healthy, happy and equanimity)

Well-being and its Kinds

- (i) Physical (physical strength and endurance)
- (ii) Emotional (ability to respond to emotions and control them)
- (iii) Aesthetic (faculty to see and appreciate beauty in all beings)
- (iv) Intellectual (rational, logical well-being)
- (v) Relational well-being (obligation to self, parents, family society, nation humanity and other beings in the universe; living with others with their acceptance)
- (vi) Moral (difference between good and evil and practicing goodness; righteousness)
- (vii) Spiritual (thinking beyond self and journey from senses to spiritual level)

Establish and recognise various states of well-being, embedded in different creatures, but consciously understood by humans

Identify the most pronounced emotions in the individual through given activities

Anecdotes/video/activity to help identify different well-beings

Discussion of related values to well-beings: Aesthetics, ethics, gratitude, forgiveness, and spiritual health i.e., thinking beyond senses and self and for the welfare of others

Importance and practice of well-being through case study/ activity

Ways to attain different kinds of well-being

Activities

MODULE B - Yoga & Pranayama

5 Hours

Importance of Yoga and Pranayama

- Yoga and pranayama for integral well-being and balance in life
- Yoga & Pranayama: Introduction
- Mind - Body – Intellect
- Difference between Yoga and Pranayama and their inter-relatedness.

28
OSMANIA UNIVERSITY
FACULTY OF SCIENCE
BA Computer Applications
SEMESTER – IV
Python – II
(SEC – IV)

Theory

2 Hours/Week

2 Credits

Unit – I

Lists and Tuples: Sequences, Introduction to Lists, List slicing, Finding Items in Lists with the in Operator, List Methods and Useful Built-in Functions, Copying Lists, Processing Lists, Two-Dimensional Lists, Tuples.

Strings: Basic String Operations, String Slicing, Testing, Searching, and Manipulating Strings. Dictionaries and Sets: Dictionaries, Sets, Serializing Objects.

Recursion: Introduction, Problem Solving with Recursion, Examples of Recursive Algorithms.

Unit – II

Object-Oriented Programming: Procedural and Object-Oriented Programming, Classes, Working with Instances, Techniques for Designing Classes, Inheritance, Polymorphism.

GUI Programming: Graphical User Interfaces, Using the tkinter Module, Display text with Label Widgets, Organizing Widgets with Frames, Button Widgets and Info Dialog Boxes, Getting Input with Entry Widget, Using Labels as Output Fields, Radio Buttons, Check Buttons.

Text Tony Gaddis, *Starting Out With Python (3e)*

References

1. Kenneth A. Lambert, *Fundamentals of Python*
2. Clinton W. Brownley, *Foundations for Analytics with Python*
3. James Payne, *Beginning Python using Python 2.6 and Python 3*
4. Charles Dierach, *Introduction to Computer Science using Python*
5. Paul Gries, *Practical Programming: An Introduction to Computer Science using Python 3*

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
BA (Computer Applications)
SEMESTER – IV
Multi Media Systems

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

Unit - I

Multimedia: Introduction, Definitions, Where to Use Multimedia- Multimedia in Business, Schools, Home, Public Places, Virtual Reality; Delivering Multimedia.

Text: Meaning, Fonts and Faces, Using Text in Multimedia, Computers and Text, Font Editing and Design Tools, Hypermedia and Hypertext.

Images: Before You Start to Create, Making Still Images, Color.

Unit - II

Sound: The Power of Sound, Digital Audio, MIDI Audio, MIDI vs. Digital Audio, Multimedia System Sounds, Audio File Formats, Adding Sound to Your Multimedia Project.

Animation: The Power of Motion, Principles of Animation, Animation by Computer, Making Animations.

Video: Using Video, How Video Works and Is Displayed, Digital Video Containers, Obtaining Video Clips, Shooting and Editing Video.

Unit - III

Making Multimedia: The Stages of a Multimedia Project, the Intangibles, Hardware, Software, Authoring Systems

Designing and producing: designing the structure, designing the user interface, a multimedia design case history, producing.

Unit - IV

The Internet and Multimedia: Internet History, Internetworking, Multimedia on the Web.

Designing for the World Wide Web: Developing for the Web, Text for the Web, Images for the Web, Sound for the Web, Animation for the Web, Video for the Web.

Delivering: Testing, Preparing for Delivery, Delivering on CD-ROM, DVD and World Wide Web, Wrapping.

Text Book:

1. Tay Vaughan, "Multimedia: Making it work", TMH, Eighth edition.

References:

1. Ralf Steinmetz and Klara Naharstedt, "Multimedia: Computing, Communications Applications", Pearson.
2. Keyes, "Multimedia Handbook", TMH.
3. K. Andleigh and K. Thakkar, "Multimedia System Design", PHI.
4. Spoken Tutorial on "GIMP" as E-resource for Learning:-<http://spoken-tutorial.org>
5. Spoken Tutorial on "Blender" as E-resource for Learning:-<http://spoken-tutorial.org>

OSMANIA UNIVERSITY
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BA (Computer Applications)
SEMESTER – IV
Multi Media Systems Lab

Practical 3 Hours/Week 1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
- Faculty must take care about UG Standard Programs.
- In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.
- External Vice-Voce is compulsory.

Example programs:

Practical exercises based on concepts listed in theory using Presentation tools in office automation tool/ GIMP/Blender / Audacity/ Animation Tools/ Image Editors/ Video Editors.

Implement the followings using Blender -

1. Create an animation using the tools panel and the properties panel to draw the following – Line, Pen, oval, circle, rectangle, square, pencil, brush, lasso tool
2. Create an animation using text tool to set the font, size, color etc.
3. Create an animation using Free transform tool that should use followings-
 - Move Objects
 - Skew Objects
 - Stretch Objects
 - Rotate Objects
 - Stretch Objects while maintaining proportion
 - Rotate Objects after relocating the center dot
4. Create an animation using layers having following features-
 - Insert layer, Delete layer, guide layer, Mask layer.
5. Modify the document (changing background color etc.)Using the following tools
 - Eraser tool
 - Hand tool
 - Ink bottle tool
 - Zoom tool
 - Paint Bucket tool
 - Eyedropper tool
6. Create an animation for bus car race in which both starts from the same point and car wins the race.
7. Create an animation in which text Hello gets converted into GoodBye (using motion/shape tweening).
8. Create an animation having five images having fade-in fade-out effect.
9. Create an scene to show the sunrise (using multiple layers and motion tweening)
10. Create an animation to show the ripple effect.
11. Create an animation (using Shape tweening and shape hints) for transforming one shape into another.
12. Create an animation for bouncing ball (you may use motion guide layer).

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
BA (Computer Applications)
SEMESTER – V

GE

Information Technologies

BS501

Theory

4 Hours/Week

4 credits

Unit – I

Information Technology Basics – introduction, Need for Information Storage and Processing, Information Technology Components , Role of information Technology, Information Technology and the Internet .

Emerging Trends in IT - Introduction , Electronic Commerce (E-Commerce), Electronic Data Interchange(EDI),

Smart Cards , Mobile Communication, Internet Protocol TV.

Unit – II

Computer Software: Introduction, Classification of Computer Software, System Software, Applications Software, Firmware, Middleware, Acquiring Computer Software.

Operating Systems: Introduction, Evolution of OS, Process Management, Memory Management, File Management, Device Management, Security Management, Command Interpreter, Windows, Linux.

Unit – III

Introduction to Algorithms and Programming Languages: Algorithm, Control Structures, Flowcharts, Pseudo code, Programming Languages, Generations of Programming Languages.

Database Systems: File Oriented Approach, Database Oriented Approach, Database Views, Three-Schema Architecture, Database Models, Components of DBMS, Introduction of SQL Queries.

Unit – IV

Computer Networks: Introduction, Connection Media, Data Transmission Mode, Data Multiplexing, Data Switching, Network Topologies, Types of Networks, Networking Devices, OSI Model.

The Internet: Internet Services, Types of Internet Connections, Internet Security.

Emerging Computer Technologies: Distributed Networking, Peer-to-peer Computing, Grid Computing, Cloud Computing, Utility Computing, OnDemand Computing, Wireless Network, Bluetooth, Artificial Intelligence.

Text

Wiley India Editorial Team, Fundamentals of Information Technology

Reema Thareja, *Fundamentals of Computers*

Reference s

P. K. sinha, *Computer Fundamentals*

Anita Goel, *Computer Fundamentals*

V. Rajaraman, *Fundamentals of Computers*

E. Balagurusamy, *Fundamentals of Computers*

J. Glenn Brookshear, Dennis Brylow, *Computer Science An Overview*

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
BA (Computer Applications)
SEMESTER – V

Programming in Java

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

Unit - I

Introduction: Java Essentials, JVM, Java Features, Creation and Execution of Programs, Data Types, Structure of Java Program, Type Casting, Conditional Statements, Loops, Classes, Objects, Class Declaration, Creating Objects.

Unit - II

Method Declaration and Invocation, Method Overloading, Constructors – Parameterized Constructors, Constructor Overloading, Cleaning-up unused Objects. Class Variables & Method-static Keyword, this Keyword, One-Dimensional Arrays, Two-Dimensional Arrays, Command-Line Arguments, Inner Class.

Inheritance: Introduction, Types of Inheritance, extends Keyword, Examples, Method Overriding, super, final Keyword, Abstract classes, Interfaces, Abstract Classes Verses Interfaces.

Packages: Creating and Using Packages, Access Protection, Wrapper Classes, String Class, StringBuffer Class.

Unit - III

Exception: Introduction, Types, Exception Handling Techniques, User-Defined Exception.

Multithreading: Introduction, Main Thread and Creation of New Threads –By Inheriting the Thread Class or Implementing the Runnable Interface, Thread Lifecycle, Thread Priority and Synchronization.

Input/Output: Introduction, java.io Package, File Streams, FileInputStream Class, FileOutputStream Class, Scanner Class, BufferedInputStream Class, BufferedOutputStream Class, RandomAccessFile Class.

Unit - IV

Applets: Introduction, Example, Life Cycle, Applet Class, Common Methods Used in Displaying the Output (Graphics Class).

Event Handling: Introduction, Types of Events, Example.

AWT: Introduction, Components, Containers, Button, Label, Checkbox, Radio Buttons, Container Class, Layouts.

Swings: Introduction, Differences between Swing and AWT, JFrame, JApplet, JPanel, Components in Swings, Layout Managers, JTable.

Text Book:

1. Sachin Malhotra, Saurabh Choudhary, Programming in Java (2e)

References:

1. Bruce Eckel, Thinking in Java (4e)
2. Herbert Schildt, Java: The Complete Reference (9e)
3. Y. Daniel Liang, Introduction to Java Programming (10e)
4. Paul Deitel, Harvey Deitel, Java: How To Program (10e)
5. Cay S. Horstmann, Core Java Volume I –Fundamentals (10e)

OSMANIA UNIVERSITY

**FACULTY OF SCIENCE
BA (Computer Applications)
SEMESTER – V**

Programming in Java

Practical 3 Hours/Week 1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
 - Faculty must take care about UG Standard Programs.
 - In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.
 - External Vice-Voce is compulsory.
1. Write a program to find the largest of n natural numbers.
 2. Write a program to find whether a given number is prime or not.
 3. Write a menu driven program for following:
 - a. Display a Fibonacci series
 - b. Compute Factorial of a number
 4. Write a program to check whether a given number is odd or even.
 5. Write a program to check whether a given string is palindrome or not.
 6. Write a program to print the sum and product of digits of an Integer and reverse the Integer.
 7. Write a program to create an array of 10 integers. Accept values from the user in that Array. Input another number from the user and find out how many numbers are equal to the number passed, how many are greater and how many are less than the number passed.
 8. Write a program that will prompt the user for a list of 5 prices. Compute the average of the prices and find out all the prices that are higher than the calculated average.
 9. Write a program in java to input N numbers in an array and print out the Armstrong numbers from the set.
 10. Write a java program that computes the area of a circle, rectangle and a Cylinder using function overloading.
 11. Write a Java program for the implementation of multiple inheritance using interfaces to calculate the area of a rectangle and triangle.
 12. Write a java program to create a frame window in an Applet. Display your name, address and qualification in the frame window.
 13. Write a java program to draw a line between two coordinates in a window.
 14. Write a java program to display the following graphics in an applet window.
 - a. Rectangles
 - b. Circles
 - c. Ellipses
 - d. Arcs
 - e. Polygons
 15. Write a program that reads two integer numbers for the variables a and b. If any other character except number (0-9) is entered then the error is caught by NumberFormatException object. After that ex.getMessage () prints the information about the error occurring causes.
 16. Write a program for the following string operations:
 - a. Compare two strings
 - b. concatenate two strings
 - c. Compute length of a string

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
BA (Computer Applications)
SEMESTER – VI
Web Technologies

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

Unit – I

Introduction To XHTML– Introduction, first HTML, Headings, Linking, Images, special characters and horizontal rules, Lists, Tables, Frames, Forms, internal linking, meta Elements.

Cascading Style Sheets – Introduction, Inline Styles, Embedded Style Sheets, Conflicting Styles, Linking external sheets, position Elements, box model and text flow, media types, building a CSS drop-down menu, user style sheets, CSS3.

Unit – II

Introduction To Java Scripting- introduction, simple program, prompt dialog and alert boxes, memory concepts, operators(arithmetic, relational, assignment, increment and decrement, logical), decision making, control structures, if... else statement, while, counter-controlled repetitions, switch statement, do... while statement, break and continue statements.

Unit – III

Functions – program modules in JavaScript, programmer–defined functions, functions definition, scope rules, global functions, Recursion. Arrays- introduction, declaring and allocating arrays, references and reference parameters, passing arrays to functions. Multidimensional arrays, Events – registering event handling, event onload, onmouseover, onmouseout, onfocus, onblur, onsubmit, onreset, event bubbling, more events.

Unit – IV

Java Script Objects – introduction to object technology, Math Object, String Object, Date Object, Boolean and Number Object, document and window Objects, using cookies.

XML - Introduction, XML Basics, Structuring Data, XML Namespaces, Document Type Definitions (DTDs), W3C XML Schema Documents, XML Vocabularies, Extensible Style sheet Language and XSL Transformations, Document Object Model (DOM).

Text Book:

1. Internet & World Wide Web: HOW TO PROGRAM- H. M. Deitel, P.J. Deitel, -Fourth Edition- Pearson edition.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
BA (Computer Applications)
SEMESTER – VI
Web Technologies Lab

Practical 3 Hours/Week 1 Credit Marks: 50

Note:

- Programs of all the Concepts from Text Book including exercises must be practice and execute.
 - Faculty must take care about UG Standard Programs.
 - In the external lab examination student has to execute two programs with compilation and deployment steps are necessary.
 - External Vice-Voce is compulsory.
-
1. Write a HTML program using basic text formatting tags, <p>,
, <pre>.
 2. Write a HTML program by using text formatting tags.
 3. Write a HTML program using presentational element tags , <i>, <strike>, <sup>, <sub>, <big>, <small>, <hr>
 4. Write a HTML program using phrase element tags <blockquote>, <cite>, <abbr>, <acronym>, <kbd>, <address>
 5. Write a HTML program using different list types.
 6. Create a HTML page that displays ingredients and instructions to prepare a recipe.
 7. Write a HTML program using grouping elements <div> and .
 8. Write a HTML Menu page for Example cafe site.
 9. Write a HTML program using images, audios, videos.
 10. Write a HTML program to create your time table.
 11. Write a HTML program to create a form using text inputs, password inputs, multiple line text input, buttons, check boxes, radio buttons, select boxes, file select boxes.
 12. Write a HTML program to create frames and links between frames.
 13. Write a HTML program to create different types of style sheets.
 14. Write a HTML program to create CSS on links, lists, tables and generated content.
 15. Write a HTML program to create your college web site using multi column layouts.
 16. Write a HTML program to create your college web site using for mobile device.
 17. Write a HTML program to create login form and verify username and password.
 18. Write a JavaScript program to calculate area of rectangle using function.
 19. Write a JavaScript program to wish good morning, good afternoon, good evening depending on the current time.
 20. Write a JavaScript program using switch case?
 21. Write a JavaScript program to print multiplication table of given number using loop.
 22. Write a JavaScript programs using any 5 events.
 23. Write a JavaScript program using JavaScript built in objects.
 24. Write a JavaScript program to create registration Form with Validations.
 25. Write a XML Program to represent Student Data using DTD.
 26. Write a XML Program to represent Data using XML Schema Definition.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
BA Computer Applications
SEMESTER – VI

Information Security and Cyber Laws

(Project/Optional)

Theory	3 Hours/Week	3 Credit	Internal marks = 15
Practical	3 Hours/Week	1 Credit	External Marks = 60

Unit – I

Introduction to Information System and Security: Computer Networks, Internet, Protocol, Network Core, Information System, Types of IS, Information Security, Need for Information Security, Information Assurance, Cyber security, Tools of the attacker, Scanning and spoofing, password cracking, malicious software, session hijacking.

Unit – II

Introduction to Cryptography and Applications: Introduction to Application Security, Data Security Considerations, Security Technologies, Important terms, Threat, Flaw, vulnerability, Attack, Cipher, Private Key Cryptography, Substitution Cipher (Caesar), Transposition (Rail-Fence), Security Threats to E-Commerce, E-Cash and Electronic Payment System, Credit/Debit/Smart Cards, forensics, Digital Signature

Unit – III

Introduction to Security Policies and Cyber Laws: Need for an Information Security Policy, Information Security Standards – ISO, Introducing Various Security Policies and Their Review Process, Introduction to Indian Cyber law, Objective and Scope of the IT Act, 2008, Intellectual Property Issues, Overview of Intellectual-Property- Related Legislation in India, Patent, Copyright, Software License

Text Book:

1. Introduction to Information Security and Cyber laws by SuryaPrakash Tripathi
2. Dr. Surya Prakash T, Ritendra G, Praveen Kumar S, KLSI, Introduction to information security and cyber laws (Dreamtech Publication)
3. S. Anderson, Ross, Security Engineering
4. G.R.F. Snyder, T. Pardoe, Network Security
5. Mark Stamp, Information Security: Principles and Practice
6. Basta, W.Halton, Computer Security: Concepts, Issues and Implementation
7. Mark S. Merkow, Jim Breithaupt, Information Security: Principles and Practice

Project work

Theory: 4 Hours/Week

Credits: 4

- **The total allotted marks 100 are divided in to the following way**
- Internal Assessment (20 marks)
 - First seminar (10 marks – in between 25 to 30 days after commencement of class work) This seminar include the study of existing system, literature survey, problem definition.
 - Second seminar (10 marks – in between 55 to 60 days after commencement of class work)
This seminar include the requirements specification, analysis, design and partial implementation.
- External Assessment (80 marks)
 - The students should submit one page of synopsis on the project work for display on the notice board.
 - The project presentation is for 10 minutes followed by 05 minutes for discussion.
 - The student should submit a technical write-up on the project.

At least two teachers will be associated with the project seminar to evaluate students for the award of sessional marks which will be on the basis of performance in all the 3 items (synopsis, presentation, technical write-up).

Dissertation 50M

Presentation 15M

Viva 15M

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
BA Computer Applications
SEMESTER – VI
Information Security and Cyber Laws Lab
(Project/Optional)

Project

3 Hours/Week

1 Credits

Marks: 25

- In the external lab examination student has to execute the project with compilation and deployment steps are necessary.
 - External Vice-Voce is compulsory.
-
1. Demonstrate the use of Network tools: ping, ipconfig, ifconfig, tracert, arp, netstat, whois
 2. Use of Password cracking tools: John the Ripper, Ophcrack.
 3. Verify the strength of passwords using these tools.
 4. Perform encryption and decryption of Caesar cipher. Write a script for performing these operations.
 5. Perform encryption and decryption of a Rail fence cipher. Write a script for performing these operations.
 6. Demonstrate sending of a protected word document.
 7. Demonstrate sending of a digitally signed document.
 8. Demonstrate sending of a protected worksheet.

OSMANIA UNIVERSITY
FACULTY OF SCIENCE
UG (BA) Scheme of Examinations
BA (Computer Applications)
(CBCS 2019-2020)

Elaborations

Paper	Credits	Theory Exam		Practical Exam
		University Exam	Internal Exam	
DSC	4+1	80 Marks	20 Marks	50 Marks
DSE	4+1	80 Marks	20 Marks	50 Marks
SEC	2	40 Marks	10 Marks	No Practical
GE	4	80 Marks	20 Marks	No Practical
AECC	2	40 Marks	10 Marks	No Practical
PO	3+1	60 Marks	15 Marks	25 Practical

DSC – Discipline specific core course

DSE – Discipline specific elective course

SEC – Skill enhancement course

GE – Generic Elective

AECC - Ability Enhancement Compulsory

P/O -Project/Optional

Model Question Paper

3 Hours

Max Marks -80

Credits -4

PART -A **Answer any eight questions in part –A 8X4 M = 32 Marks**

UNIT- I 1
 2
 3

UNIT- II 4
 5
 6

UNIT- III 7
 8
 9

UNIT- IV 10
 11
 12

Part – B **Answer all Questions 12MX4 = 48 Marks**

UNIT- I 13
 Or
 14

UNIT- II 15
 Or
 16

UNIT- III 17
 Or
 18

UNIT- IV 19
 Or
 20

**OSMANIA UNIVERSITY
FACULTY OF SCIENCE
BA (Computer Applications)**

Internal Exam (Theory)

Time: 1 Hr.

Maximum marks: 20

- Two internal exams (one at the middle of the semester and the other at the end) of one-hour duration are to be conducted carrying 15 marks each.
- Average of the scores of two exams should be taken into account.
- Following is the examination pattern.
 - 10 MCQs (multiple choice questions) of half mark each,
 - 10 FIBs (Fill in the Blanks) of half mark each
 - 5 SAQs (short answered questions) of one mark each
 - Totaling 15 marks.
 - 5 marks meant for assignment.

**OSMANIA UNIVERSITY
FACULTY OF SCIENCE
BA (Computer Applications)**

Practical Question Paper

3 Hours

Max Marks -50

Credits -1

Answer any Two

15M X 2 = 30 MARKS

UNIT – I	1 Program
UNIT- II	1 Program
UNIT-III	1 Program
UNIT-IV	1 Program

Viva - 10 Marks

Record – 10 Marks

**OSMANIA UNIVERSITY
FACULTY OF SCIENCE
BA (Computer Applications)**

2 Credit (SEC) Paper

University Exam (Theory)

Time: 2 Hrs.

Maximum marks: 40

Section – A (4 X 4M = 16 Marks)

Answer any four of the following six questions. Each carries four marks.

- Q1. From Unit 1
- Q2. From Unit 1
- Q3. From Unit 1
- Q4. From Unit 2
- Q5. From Unit 2
- Q6. From Unit 2

Section – B (2 X 12M = 24 Marks)

Answer all the following two questions. Each carries fifteen marks.

- Q09. (a) or (b) from Unit 1
- Q10. (a) or (b) from
Unit 2

Internal Exam (Theory)

Time: 1/ 2 Hr.

Maximum marks: 10

- One internal exam at the end of the semester, of half an hour duration is to be conducted carrying 10 marks.
- Following is the examination pattern.
 - 10 MCQs (multiple choice questions) of one mark each,
No assignment is required.

External Exam(Theory)

Model Question Paper for Semester VI (Project /optional) only

3 Hours

Max Marks -60

Credits -3

PART -A Answer any Six questions in part –A 6X4 M = 24Marks

UNIT- I 1
 2
 3

UNIT- II 4
 5
 6

UNIT- III 7
 8
 9

Part – B Answer all Questions 12MX3 = 36 Marks

UNIT- I 13
 Or
 14

UNIT- II 15
 Or
 16

UNIT- III 17
 Or
 18

Internal Exam for Semester VI (Project /optional) (Theory)

Time: 1 Hr.

Maximum marks: 15

- Two internal exams (one at the middle of the semester and the other at the end) of one-hour duration are to be conducted carrying 15 marks each.
- Average of the scores of two exams should be taken into account.
- Following is the examination pattern.
 - 10 MCQs (multiple choice questions) of half mark each,
 - 10 FIBs (Fill in the Blanks) of half mark each
 - 5 SAQs (short answered questions) of one mark each
 - Totaling 15 marks.
 - No assignment required.

**OSMANIA UNIVERSITY
FACULTY OF SCIENCE
BA (Computer Applications)**

Practical Question Paper (Project /optional)

3 Hours

Max Marks -25

Credits -1

Answer any Two

6 X 2 = 12 MARKS

UNIT – I	1 Program
UNIT- II	1 Program
UNIT-III	1 Program
UNIT-I or UNIT-II or UNIT-III	1 Program

Viva - 8 Marks

Record – 5 Marks

MOOCs [Massive Online Open Courses] Free Resources

E-Learning:

- NPTEL :nptel.ac.in [Core Subjects Certification]
- C++ INSTITUTE :cppinstitute.org [C++ Certification]
- ORACLEEDUCATION :education.oracle.com [Java, DBMS Certification]
- BIG DATA UNIVERSITY :bigdatauniversity.com [Big Data Certification]
- COURSERA :coursera.org [Core Subjects Certification]
- CODEACADEMY :codecademy.com [Coding Certification]
- KHANACADEMY :khanacademy.org [Core Subjects Certification]
- PIXAR IN A BOX :khanacademy.org/partner-content/pixar
- VIDEOLECTURES :videlectures.net
- YOUTUBEEDU :plus.google.com/+YouTubeEDU/posts
- DISNEY RESEARCH :disneyresearch.com
- ALISON :alison.com [Core Subjects Certification]
- INTERNET ARCHIVE :archive.org

Freeware:

- SCILAB : scilab.org [MatLab Equivalent]
- GEOGEBRA :geogebra.org [Software for Class Room Teaching]

Search Engine:

- WOLFRAM ALPHA :wolframalpha.com [Computing Engine]
- CITSEER :citseerx.ist.psu.edu [Searching Research Articles]
- DOAJ :doaj.org [Open Access to Journals]

SYLLABUS FOR BASIC COMPUTER SKILLS

OBJECTIVE:

The course is designed to impart a basic level understanding of working of a computer and its usage. After completing the course the students will be able to use the computer for basic purposes preparing to one's personnel/business letters, viewing information on Internet (the web), sending mails, using internet banking services etc.

UNIT-1

Knowing computer: Basic Applications of Computer, Components of Computer System, Central Processing Unit (CPU), VDU, Keyboard and Mouse, Other input/output Devices, Computer Memory, Concepts of Hardware and Software; Concept of Computing, Data and Information; Connecting keyboard, mouse, monitor and printer to CPU, **Checking Power Supply.**

Operating Computer using GUI Based Operating System: Functions of Operating System; Basics of Popular Operating Systems(Linux, Windows); The User Interface: Status Bar, Using Menu and Menu-selection, Running an Application, Simple settings: Date And Time, Display Properties, Add Or Remove A Windows Component, Changing Mouse Properties, Adding and removing Printers, File and Directory Management; Viewing of File, Folders and Directories, Creating and Renaming of files and folders, Opening and closing of different Windows; Using help; Creating Short cuts, Basics of O.S Setup; Common utilities.

Understanding Word Processing: Word Processing Basics; Opening and Closing of documents; Text creation and Manipulation; Formatting of text; Table handling; Spell check, language setting and thesaurus; Printing of word document.

Unit-2

Using Spread Sheet: Basics of Spreadsheet; Manipulation of cells; Formulas and Functions; Editing of Spread Sheet, Printing of Spread Sheet.

Basics of presentation software: Creating Presentation; Preparation and Presentation of Slides, Slide Show

Introduction to Internet, WWW and Web Browsers: Basic of Computer networks; LAN, WAN; Concept of Internet, Applications of Internet; connecting to internet; ISP; Knowing the Internet; Basics of internet connectivity related troubleshooting, World Wide Web; Web Browsing software, Search Engines; Understanding URL, Domain name; IP Address; Using e-governance website, Using internet for Research.

Communications and collaboration: Basics of electronic mail; Getting an email account; Sending and receiving emails; Accessing sent emails; Using Emails; Document collaboration; Instant Messaging; Netiquettes.

Suggested Reading :

1. Introduction to Computers, Peter Norton, Mc GrawHill , 2012.
2. Using Information Technology, Brian K williams, StaceyC.Sawyer, Tata Mc GrawHill.

Web Resources :

1. <https://online.stanford.edu/courses/soe-yccscs101-sp-computer-science-101>
2. <https://www.extension.harvard.edu/open-learning-initiative/intensive-introduction-computer-science>

**Proposed
B.Sc. Botany Syllabus**

Under Choice Based Credit System

2019-20

**Meeting held with Heads & Chairperson,
BOS of Six Conventional Universities
on 15th June, 2019 at TSCHE-Hyderabad.**

Annexure – I (Credits)
Proposed CBCS Scheme for B.Sc.
w.e.f 2019-20

Courses		Papers	Total Credits	Credits for each paper / Semester					
				B.Sc.					
				I	II	III	IV	V	VI
Core Courses DSC	Optional-1	4	20	5	5	5	5	-	-
	Optional-2	4	20	5	5	5	5	-	-
	Optional-3	4	20	5	5	5	5	-	-
Elective Courses DSE	Optional-1	2	10	-	-	-	-	5	5
	Optional-2	2	10	-	-	-	-	5	5
	Optional-3	2	10	-	-	-	-	5	5
Language	English(First Language)	5	20	4	4	3	3	3	3
	Second Language	5	20	4	4	3	3	3	3
Ability Enhancement Compulsory Course AECC	Environmental Science / Basic Computer Skills	1	2	2	-	-	-	-	-
	Basic Computer Skills / Environmental Science	1	2	-	2	-	-	-	-
Skill Enhancement Course SEC	SEC1	1	2	-	-	2	-	-	-
	SEC2	1	2	-	-	2	-	-	-
	SEC3	1	2	-	-	-	2	-	-
	SEC4	1	2	-	-	-	2	-	-
Generic Elective GE	Open Stream	1	4	-	-	-	-	4	-
Project Work/Optionals		1	4	-	-	-	-	-	4
Total Credits in each semester				25	25	25	25	25	25
Total Credits in UG				150					
Credits under Non-CGPA		NSS /NCC /sports / Extra curricular	6	Upto 6 (2 in each year)					
		Summer Internship	4	Upto 4 (2 in each, after I & II years)					

Annexure II

Proposed New Grading System

SGPA (SEMESTER GRADE POINT AVERAGE)			
S. No.	Grade Point	Range of marks	Grade Letter
1	10	Equal to and above 90 Marks	A+
2	9	More than or equal to 80 and less than 90 Marks	A
3	8	More than or equal to 70 and less than 80 Marks	B+
4	7	More than or equal to 60 and less than 70 Marks	B
5	6	More than or equal to 55 and less than 60 Marks	C+
6	5	More than or equal to 50 and less than 55 Marks	C
7	4	More than or equal to 40 and less than 50 Marks	D
8	0	Below 40 Marks	F

TELANGANA STATE COUNCIL OF HIGHER EDUCATION
PROPOSED CBCS COMMON CORE SCHEME FOR B.SC. COURSE
OPTIONAL -1: BOTANY

CODE	PAPER TITLE	Course Type	HPW	Credits
FIRST YEAR SEMSTER - I				
BS 104	PAPER-I : Microbial Diversity and Lower Plants	DSC-1A	4T+2P=6	4+1=5
FIRST YEAR SEMSTER - II				
BS 204	PAPER-II: Gymnosperms, Taxonomy of Angiosperms and Ecology	DSC-1B	4T+2P=6	4+1=5
SECOND YEAR SEMSTER - III				
BS 301	SEC-1: Nursery and Gardening	SEC-1	2	2
BS 302	SEC-2: Biofertilizers and Organic Farming	SEC-2	2	2
BS 304	PAPER-III: Plant Anatomy and Embryology	DSC-1C	4T+2P=6	4+1=5
SECOND YEAR SEMSTER - IV				
BS 401	SEC-3: Greenhouse Technology	SEC-3	2	2
BS 402	SEC-4: Mushroom Culture Technology	SEC-4	2	2
BS 404	PAPER-IV : Cell Biology, Genetics & Plant Physiology	DSC-1D	4T+2P=6	4+1=5
THIRD YEAR SEMESTER - V				
BS 501	GE-1: Industrial Microbiology	GE-1	4T	4
BS 502	DSE -1A: Biodiversity & Conservation DSE -1B: Economic Botany DSE -1C: Seed Technology	DSE-1A / DSE-1B / DSE-1C	4+2	4+1
THIRD YEAR SEMESTER – VI				
BS 601	DSE-3: Project	PROJECT	4	4
BS 602	DSE -2A: Plant Molecular Biology DSE -2B: Tissue Culture and Biotechnology DSE -2C: Analytical Techniques in Plant Sciences	DSE-2A / DSE-2B / DSE-5E	4T+2P=6	4+1=5

AECC: Ability Enhancement Compulsory Course, **SEC:** Skill Enhancement Course, **GE:** Generic Elective, **DSC:** Discipline Specific Core, **DSE:** Discipline Specific Elective.

B.Sc., BOTANY
First Year, I -Semester
Paper-I
Microbial Diversity and Lower Plants

DSC - 1A (4 hrs./week)

Credits- 4

Theory Syllabus

(60 hours)

UNIT – I

(15 hours)

- 1) **Bacteria:** Structure, nutrition, reproduction and economic importance. Brief account of Archaeobacteria, Actinomycetes and Mycoplasma with reference to little leaf of Brinjal and Papaya leaf curl
- 2) **Viruses:** Structure, replication and transmission; plant diseases caused by viruses and their control with reference to Tobacco Mosaic and Rice Tungro.
- 3) An outline of plant diseases of important crop plants caused by bacteria and their control with reference to Angular leaf spot of cotton and Bacterial blight of Rice.

UNIT-II

(15 hours)

- 1) General characters, structure, reproduction and classification of algae (Fritsch)
- 2) **Cyanobacteria:** General characters, cell structure their significance as biofertilizers with special reference to Oscillatoria, Nostoc and Anabaena.
- 3) Structure and reproduction of the following:
Chlorophyceae- Volvox, Oedogonium and Chara.
Phaeophyceae- Ectocarpus
Rhodophyceae- Polysiphonia.

UNIT-III

(15 hours)

- 1) General characters and classification of fungi (Ainsworth).
- 2) Structure and reproduction of the following:
 - (a) Mastigimycotina- Albugo
 - (b) Zygomycotina- Mucor
 - (c) Ascomycotina- Saccharomyces and Penicillium.
 - (d) Basidiomycotina- Puccinia
 - (e) Deuteromycotina- Cercospora.
- 3) Economic importance of lichens

UNIT-IV

(15 hours)

- 1) **Bryophytes:** Structure, reproduction, life cycle and systematic position of Marchantia, Anthoceros and Polytrichum, Evolution of Sporophyte in Bryophytes.
- 2) **Pteridophytes:** Structure, reproduction, life cycle and systematic position of Rhynia, Lycopodium, Equisetum and Marsilea.
- 3) Stelar evolution, heterospory and seed habit in Pteridophytes.

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References:

- 1) Alexopolous, J. and W. M. Charles. 1988. Introduction to Mycology. Wiley Eastern, New Delhi.
- 2) Mckane, L. and K. Judy. 1996. Microbiology – Essentials and Applications. McGraw Hill, New York.
- 3) Pandey, B. P. 2001. College Botany, Vol. I: Algae, Fungi, Lichens, Bacteria, Viruses, Plant Pathology, Industrial Microbiology and Bryophyta. S. Chand & Company Ltd, New Delhi.
- 4) Pandey, B. P. 2007. Botany for Degree Students: Diversity of Microbes, Cryptogams, Cell Biology and Genetics. S. Chand & Company Ltd, New Delhi.
- 5) Sambamurthy, A. V. S. S. 2006. A Textbook of Plant Pathology. I. K. International Pvt. Ltd., New Delhi.
- 6) Sambamurthy, A. V. S. S. 2006. A Textbook of Algae. I. K. International Pvt. Ltd., New Delhi.
- 7) Sharma, O. P. 1992. Textbook of Thallophyta. McGraw Hill Publishing Co., New Delhi.
- 8) Thakur, A. K. and S. K. Bassi. 2008. A Textbook of Botany: Diversity of Microbes and Cryptogams. S. Chand & Company Ltd, New Delhi.
- 9) Vashishta, B. R., A. K. Sinha and V. P. Singh. 2008. Botany for Degree Students: Algae. S. Chand & Company Ltd, New Delhi.
- 10) Vashishta, B. R. 1990. Botany for Degree Students: Fungi, S. Chand & Company Ltd, New Delhi.
- 11) Dutta A.C. 2016. Botany for Degree Students. Oxford University Press.
- 12) Watson, E. V. 1974. The structure and life of Bryophytes, B. I. Publications, New Delhi.
- 13) Pandey, B. P. 2006. College Botany, Vol. II: Pteridophyta, Gymnosperms and Paleobotany. S. Chand & Company Ltd, New Delhi.
- 14) Vashishta, P. C., A. K. Sinha and Anil Kumar. 2006. Botany - Pteridophyta (Vascular Cryptogams). . Chand & Company Ltd, New Delhi.
- 15) Pandey, B. P. 2001. College Botany, Vol. I: Algae, Fungi, Lichens, Bacteria, Viruses, Plant Pathology, Industrial Microbiology and Bryophyta. S. Chand & Company Ltd, New Delhi.
- 16) Pandey, B. P. 2007. Botany for Degree Students: Diversity of Microbes, Cryptogams, Cell Biology and Genetics. S. Chand & Company Ltd, New Delhi.
- 17) Thakur, A. K. and S. K. Bassi. 2008. A Textbook of Botany: Diversity of Microbes and Cryptogams. S. Chand & Company Ltd, New Delhi.
- 18) Vashishta, B. R., A. K. Sinha and Adarsha Kumar. 2008. Botany for Degree Students: Bryophyta. S. Chand & Company Ltd, New Delhi.

Practical Syllabus

(45 hours)

1. Study of viruses and bacteria using electron micrographs (photographs).
2. Gram staining of Bacteria.
3. Study of symptoms of plant diseases caused by viruses, bacteria, Mycoplasma and fungi:
Viruses: Tobacco mosaic
Bacteria: Angular leaf spot of cotton and Rice tungro.
Mycoplasma: Little leaf of Brinjal and Leaf curl of papaya
Fungi: White rust on Crucifers, Rust on wheat & Tikka disease of Groundnut.
4. Vegetative and reproductive structures of the following taxa:
Algae: Oscillatoria, Nostoc, Volvox, Oedogonium, Chara, Ectocarpus and Polysiphonia.
Fungi: Albugo, Mucor, Saccharomyces, Penicillium, Puccinia and Cercospora
5. Section cutting of diseased material infected by Fungi and identification of pathogens as per theory syllabus. White rust of Crucifers, Rust on wheat & Tikka disease of Groundnut.
6. Lichens: Different types of thalli and their external morphology
7. Examination of important microbial, fungal and algal products:
Biofertilizers, protein capsules, antibiotics, mushrooms, Agar-agar etc.
8. Field visits to places of algal / microbial / fungal interest (e.g. Mushroom cultivation, water bodies).
9. Study of Morphology (vegetative and reproductive structures) and anatomy of the following
Bryophytes: Marchantia, Anthoceros and Polytrichum.
10. Study of Morphology (vegetative and reproductive structures) and anatomy of the following
Pteridophytes: Lycopodium, Equisetum and Marsilea.
11. Study of Anatomical features of Lycopodium stem, Equisetum stem and Marsilea petiole & rhizome by preparing double stained permanent mounts.

Practical Model Paper

Max. Marks: 50

Time : 3 hrs

1. Identify the given components 'A' & 'B' in the algal mixture .
Describe with neat labeled diagrams & give reasons for the classifications. 2 X 4 = 8M
2. Classify the given bacterial culture 'D' using Gram – staining technique. 6M
3. Take a thin transverse section of given diseased material 'E'.
Identify & describe the symptoms caused by the pathogen. 8M
4. Identify the given specimens 'F', 'G' & 'H' by giving reasons .
(Fungal-1, Bacteria-1 & Viral-1) 3 X 2 = 6M
5. Comment on the given slides 'I' & 'J' (Algae-1, Fungi-1) 2 X 4 = 8M
6. Identify the given specimen 'K' & slide 'L' (Bryophytes & Pteridophytes) 2 X 4 = 8M
7. Record & Viva 6M

B.Sc., BOTANY
First Year, II -Semester

Paper-II
Gymnosperms, Taxonomy of Angiosperms and Ecology

DSC-1B

Credits-4

Theory Syllabus

(60 hours)

UNIT-I

(15 hours)

- 1) Gymnosperms: General characters, structure, reproduction and classification (Sporne's). Distribution and economic importance of Gymnosperms.
- 2) Morphology of vegetative and reproductive parts, systematic position and life cycle of Pinus and Gnetum,
- 3) Geological time scale Introduction to Palaeobotany, Types of fossils and fossilization, Importance of fossils.

UNIT-II

(15 hours)

- 1) Introduction: Principles of plant systematics, Types of classification: Artificial, Natural and Phylogenetic; Systems of classification: Salient features and comparative account of Bentham & Hooker and Engler & Prantl classification systems. An introduction to Angiosperm Phylogeny Group (APG).
- 2) Current concepts in Angiosperm Taxonomy: Embryology in relation to taxonomy Cytotaxonomy, Chemotaxonomy and Numerical Taxonomy.
- 3) Nomenclature and Taxonomic resources: An introduction to ICN, Shenzhen code – a brief account. Herbarium: Concept, techniques and applications.

UNIT-III

(15 hours)

- 1) Systematic study and economic importance of plants belonging to the following families: Polypetalae Annonaceae, Capparidaceae, Rutaceae, Fabaceae (Faboideae/Papilionoideae, Caesalpinioideae, Mimosoideae), Cucurbitaceae
- 2) Gamopetalae: Apiaceae, Asteraceae, Asclepiadaceae, Lamiaceae, Monochalmydeae: Amaranthaceae, Euphorbiaceae
- 3) Monocotyledons: Orchidaceae, Poaceae and Zingiberaceae.

UNIT-IV

(15 hours)

1. Component of eco system, energy flow, food chain and food webs.
2. Plants and environment, ecological adaptations of plants, Hydrophytes, Xerophytes and Mesophytes
3. Plant Succession serial stages, modification of environment, climax formation with reference to Hydrosere and Xerosere.

References:

1. Watson, E. V. 1974. The structure and life of Bryophytes, B. I. Publications, New Delhi.
2. Pandey, B. P. 2006. College Botany, Vol. II: Pteridophyta, Gymnosperms and Paleobotany. S. Chand & Company Ltd, New Delhi.
3. Sporne, K. R. 1965. Morphology of Gymnosperms. Hutchinson Co., Ltd., London.
4. Vashishta, P. C., A. K. Sinha and Anil Kumar. 2006. Botany - Pteridophyta (Vascular Cryptogams). . Chand & Company Ltd, New Delhi.
5. Pandey, B. P. 2001. College Botany, Vol. I: Algae, Fungi, Lichens, Bacteria, Viruses, Plant Pathology, Industrial Microbiology and Bryophyta. S. Chand & Company Ltd, New Delhi.
6. Pandey, B. P. 2007. Botany for Degree Students: Diversity of Microbes, Cryptogams, Cell Biology and Genetics. S. Chand & Company Ltd, New Delhi.
7. Thakur, A. K. and S. K. Bassi. 2008. A Textbook of Botany: Diversity of Microbes and Cryptogams. S. Chand & Company Ltd, New Delhi.
8. Vashishta, B. R., A. K. Sinha and Adarsha Kumar. 2008. Botany for Degree Students: Bryophyta. S. Chand & Company Ltd, New Delhi.
9. Vashishta, P. C., A. K. Sinha and Anil Kumar. 2006. Botany for Degree Students: Gymnosperms. Chand & Company Ltd, New Delhi.
10. Dutta A.C. 2016. Botany for Degree Students. Oxford University Press.
11. Pandey, B. P. 2007. Botany for Degree Students: Diversity of Seed Plants and their Systematics, Structure, Development and Reproduction in Flowering Plants. S. Chand & Company Ltd, New Delhi
12. Stace, C. A. 1989. Plant Taxonomy and Biostatistics (2nd Ed.). Edward Arnold, London.
13. Singh, G. 1999. Plant Systematics: Theory and Practice. Oxford and IBH, New Delhi.
14. Dutta A.C. 2016. Botany for Degree Students. Oxford University Press.
15. Davis, P. H. and V. H. Heywood. 1963. Principles of Angiosperm Taxonomy. Oliver and Boyd, London.
16. Heywood, V. H. 1965 . Plant Taxonomy. ELBS , London.
17. Heywood, V. H. and D. M. Moore (Eds). 1984. Current Concepts in Plant Taxonomy. Academic Press, London.
18. Jeffrey, C. 1982. An Introduction to Plant Taxonomy. Cambridge University Press, Cambridge. London.
19. Michael, S. 1996, Ecology, Oxford University Press, London
20. Odum, E.P. 1983. Basics of Ecology, Saunder's International Students Edition, Philadelphia.
21. Sharma P.D. 1989. Elements of Ecology, Rastogi Publications, Meerut

Practical Syllabus

(45 hours)

1. Study of Morphology (vegetative and reproductive structures) of the following taxa:
Gymnosperms - Pinus and Gnetum.
2. Study of Anatomical features of Pinus needle and Gnetum stem by preparing double stained permanent mounts.
3. Fossil forms using permanent slides / photographs: Cycadeoidea.
Systematic study of locally available plants belonging to the families prescribed in theory Syllabus (Minimum of one plant representative for each family)
4. Study of morphological and anatomical characteristics of locally available plant species (Eichhorinia, Hydrilla, Pistia, Nymphaea, Asparagus, Opuntia, Euphorbia melii)
5. Demonstration of herbarium techniques.
6. Candidate has to submit at least 30 herbarium sheets.

Practical Model Paper

Time : 3 hrs

Max. Marks: 50

1. Prepare a mount of the given material ' A ' (Hydrophytes /Xerophytes)
Draw diagram & give reasons for identification. 8M
2. Prepare a double stained permanent mount of the given material ' B ' (Gymnosperms)
Draw diagram & give reasons for identification. 10M
- 3 . Identify the given specimens **C & D** (Gymnosperms /Xerophytes) 2 X 4 =8M
- 4 . Identify the given slides **E&F** (Gymnosperms /Xerophytes) 2 X 4 =8M
5. Technical description of the given plant twig ' A ' 10M
6. Herbarium 3M
7. Record 3M

B.Sc. CBCS Botany
Theory Model Question Paper
For
DSC & DSE

Time :3 hrs

Max. Marks: 80

Draw well-labeled diagrams wherever necessary

I. Write short answer of the following

8 X 4 = 32M

- a.
- b.
- c.
- d.
- e.
- f.
- g.
- h.

II. Essay Questions:

4X 12 = 48M

1. a.

(OR)

b.

2. a.

(OR)

b.

3. a.

(OR)

b.

4. a.

(OR)

b.

Annexure – I (Credits)
Proposed CBCS Scheme for B.Sc.
w.e.f 2019-20

Courses		Papers	Total Credits	Credits for each paper / Semester					
				B.Sc.					
				I	II	III	IV	V	VI
Core Courses DSC	Optional-1	4	20	5	5	5	5	-	-
	Optional-2	4	20	5	5	5	5	-	-
	Optional-3	4	20	5	5	5	5	-	-
Elective Courses DSE	Optional-1	2	10	-	-	-	-	5	5
	Optional-2	2	10	-	-	-	-	5	5
	Optional-3	2	10	-	-	-	-	5	5
Language	English(First Language)	5	20	4	4	3	3	3	3
	Second Language	5	20	4	4	3	3	3	3
Ability Enhancement Compulsory Course AECC	Environmental Science / Basic Computer Skills	1	2	2	-	-	-	-	-
	Basic Computer Skills / Environmental Science	1	2	-	2	-	-	-	-
Skill Enhancement Course SEC	SEC1	1	2	-	-	2	-	-	-
	SEC2	1	2	-	-	2	-	-	-
	SEC3	1	2	-	-	-	2	-	-
	SEC4	1	2	-	-	-	2	-	-
Generic Elective GE	Open Stream	1	4	-	-	-	-	4	-
Project Work/Optionals		1	4	-	-	-	-	-	4
Total Credits in each semester				25	25	25	25	25	25
Total Credits in UG				150					
Credits under Non-CGPA		NSS /NCC /sports / Extra curricular	6	Upto 6 (2 in each year)					
		Summer Internship	4	Upto 4 (2 in each, after I & II years)					

Annexure II
Proposed New Grading System

SGPA (SEMESTER GRADE POINT AVERAGE)			
S. No.	Grade Point	Range of marks	Grade Letter
1	10	Equal to and above 90 Marks	A+
2	9	More than or equal to 80 and less than 90 Marks	A
3	8	More than or equal to 70 and less than 80 Marks	B+
4	7	More than or equal to 60 and less than 70 Marks	B
5	6	More than or equal to 55 and less than 60 Marks	C+
6	5	More than or equal to 50 and less than 55 Marks	C
7	4	More than or equal to 40 and less than 50 Marks	D
8	0	Below 40 Marks	F

21

Sushama *M. Ganesh* *B. Kimbha* *K. Shailgo.* *June*

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**TELANGANA STATE COUNCIL OF HIGHER EDUCATION
PROPOSED CBCS COMMON CORE SCHEME FOR B.SC. COURSE
OPTIONAL -1: BOTANY**

CODE	PAPER TITLE	Course Type	HPW	Credits
FIRST YEAR SEMESTER - I				
BS 104	PAPER-I : Microbial Diversity and Lower Plants	DSC-1A	4T+2P=6	4+1=5
FIRST YEAR SEMESTER - II				
BS 204	PAPER-II: Gymnosperms, Taxonomy of Angiosperms and Ecology	DSC-1B	4T+2P=6	4+1=5
SECOND YEAR SEMESTER - III				
BS 301	SEC-1: Nursery and Gardening	SEC-1	2	2
BS 302	SEC-2: Biofertilizers and Organic Farming	SEC-2	2	2
BS 304	PAPER-III: Plant Anatomy and Embryology	DSC-1C	4T+2P=6	4+1=5
SECOND YEAR SEMESTER - IV				
BS 401	SEC-3: Greenhouse Technology	SEC-3	2	2
BS 402	SEC-4: Mushroom Culture Technology	SEC-4	2	2
BS 404	PAPER-IV : Cell Biology, Genetics & Plant Physiology	DSC-1D	4T+2P=6	4+1=5
THIRD YEAR SEMESTER - V				
BS 501	GE-1: Industrial Microbiology	GE-1	4T	4
BS 502	DSE -1A: Biodiversity & Conservation DSE -1B: Economic Botany DSE -1C: Seed Technology	DSE-1A / DSE-1B / DSE-1C	4+2	4+1
THIRD YEAR SEMESTER - VI				
BS 601	DSE-3: Project	PROJECT	4	4
BS 602	DSE -2A: Plant Molecular Biology DSE -2B: Tissue Culture and Biotechnology DSE -2C: Analytical Techniques in Plant Sciences	DSE-2A / DSE-2B / DSE-5E	4T+2P=6	4+1=5

AECC: Ability Enhancement Compulsory Course, SEC: Skill Enhancement Course, GE: Generic Elective, DSC: Discipline Specific Core, DSE: Discipline Specific Elective

31

B.Sc. BOTANY
II Year: Semester-III
Paper – III: Plant Anatomy and Embryology

DSC - 1C

Credits- 4

Theory Syllabus

(60 hours)

UNIT - I

(18h)

1. Meristems: Types, histological organization of shoot and root apices and theories.
2. Tissues and Tissue Systems: Simple, complex and special tissues.
3. Leaf: Ontogeny, diversity of internal structure; stomata and epidermal outgrowths.
4. General account of adaptations in xerophytes and hydrophytes.

UNIT - II

(16h)

5. Stem and root anatomy: Vascular cambium - Formation and function.
6. Anomalous secondary growth of Stem - *Achyranthes*, *Besleria*, *Bignonia*, *Dracaena*;
Root- *Beta vulgaris*
7. Wood structure: General account. Study of local timbers - Teak (*Tectona grandis*),
Rosewood (*Dalbergia latifolia*), Red sanders (*Pterocarpus santalinus*), Nallamaddi
(*Terminalia tomentosa*) and Neem (*Azadirachta indica*).

UNIT - III

(10h)

8. History and importance of Embryology.
9. Anther structure, Microsporogenesis and development of male gametophyte.
10. Ovule structure and types; Megasporogenesis; types and development of female gametophyte.

UNIT-IV

(16h)

11. Pollen morphology, pollination and fertilization, Pollination Types, Pollen - pistil interaction, Double fertilization.
12. Seed - structure appendages and dispersal mechanisms
13. Endosperm - Development and types. Embryo development and types; Polyembryony and Apomixis - an outline.

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K. Shailga

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M. ...

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References:

1. Bhattacharya et. al. 2007. A textbook of Palynology, Central, New Delhi.
2. Bhojwani, S. S. and S. P. Bhatnagar. 2000. The Embryology of Angiosperms (4th Ed.), Vikas Publishing House, Delhi.
3. M.R. Saxena- A textbook of Palynology.
4. Vashista- A textbook of Anatomy.
5. P.K.K.Nair- A textbook of Palynology.
6. Esau, K. 1971. Anatomy of Seed Plants. John Wiley and Son, USA.
7. Johri, B. M. 1984. Embryology of Angiosperms. Springer-Verleg, Berlin.
8. Kapil, R. P. 1986. Pollination Biology. Inter India Publishers, New Delhi.
9. Maheswari, P. 1971. An Introduction to Embryology of Angiosperms. McGraw Hill Book Co., London.
10. Dutta A.C. 2016. Botany for Degree Students. Oxford University Press.

Mr. ...

K. Shailgo

Subhama

M. B...

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B.Sc. BOTANY
II Year: Semester-III
Paper – III: Plant Anatomy and Embryology

DSC - 1C

Credits-1

Practical syllabus

(45 hours)

1. Demonstration of double staining technique.
2. Tissue organization in root and shoot apices using permanent slides
3. Preparation of double stained Permanent slides
Primary structure: Root - *Cicer*, *Canna*, Stem - *Tridax*, *Sorghum*
Secondary structure: Root - *Tridax* sp.; Stem - *Pongamia*
Anomalous secondary structure: Examples as given in theory syllabus.
4. Anatomy of Xerophyte (*Nerium* leaf); Hydrophyte (*Hydrilla* stem).
5. Stomatal types using epidermal peels.
6. Structure of anther and microsporogenesis using permanent slides.
7. Structure of pollen grains using whole mounts - *Hibiscus*, *Acacia* and Grass).
8. Pollen viability test using Evans Blue - *Hibiscus*
9. Study of ovule types and developmental stages of embryo sac.
10. Structure of endosperm (nuclear and cellular); Developmental stages of dicot and monocot embryos using permanent slides.

Practical Model Paper

Time: 3 hrs

Max. marks: 50

1. Identify the given material "A", Prepare a double stained permanent mount of transverse section of given the given material. 15M
2. Prepare a temporary mount of epidermal peel of the given leaf material "B" and identify the stomatal type. 7M
3. Conduct the pollen viability test "C" (OR) Isolate the embryo from the given material. 6M
4. Identify and describe the specimens / slides with well labeled diagrams
(a) Embryology - D (b) Palynology - E (c) Anatomy - F 3 X 4 = 12M
5. Record 5M
6. Viva 5M

K. Shailga
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B. K. (K)
S. J. J.
A. J.

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B.Sc. Botany
II Year: Semester-III
Skill Enhancement Course

SEC-1

(Credits - 2)

Nursery and Gardening

Lectures: 30

Unit-I

(15h)

1. Nursery: definition, objectives and scope and building up of infrastructure for nursery, planning and seasonal activities - Planting - direct seeding and transplants.
2. Seed: Structure and types - Seed dormancy, causes and methods of breaking dormancy - Seed storage: Seed banks, factors affecting seed viability, genetic erosion - Seed production technology - seed testing and certification.
3. Vegetative propagation: air-layering, cutting, selection of cutting, collecting season, treatment of cutting, rooting medium and planting of cuttings - Hardening of plants - green house - mist chamber, shed roof, shade house and glass house.

Unit-II

(15h)

4. Gardening: definition, objectives and scope - different types of gardening - landscape and home gardening - parks and its components - plant materials and design - computer applications in landscaping - Gardening operations: soil laying, manuring, watering, management of pests and diseases and harvesting.
5. Sowing/raising of seeds and seedlings - Transplanting of seedlings - Study of cultivation of different vegetables: cabbage, brinjal, lady's finger, onion, garlic, tomatoes, and carrots - Storage and marketing procedures.
6. Features of a garden: Garden wall, Fencing, biofencing, Steps, Hedge, Edging, Lawn, Flower beds, Shrubbery, Borders, Water garden. Some Famous gardens of India. Cultivation of Important cut flowers: Carnation, Aster, Chrysanthemum, Dahlia, Gerbera, Gladiolous, Marigold, Rose, Lilium, Orchids.

* Field trip is essential.

Suggested Readings

1. Bose T.K. & Mukherjee, D., 1972, Gardening in India, Oxford & IBH Publishing Co., New Delhi.
2. Sandhu, M.K., 1989, Plant Propagation, Wile Eastern Ltd., Bangalore, Madras.
3. Kumar, N., 1997, Introduction to Horticulture, Rajalakshmi Publications, Nagercoil.
4. Edmond Musser & Andres, Fundamentals of Horticulture, McGraw Hill Book Co., New Delhi.
5. Agrawal, P.K. 1993, Hand Book of Seed Technology, Dept. of Agriculture and Cooperation, National Seed Corporation Ltd., New Delhi.
6. Janick Jules. 1979. Horticultural Science. (3rd Ed.), W.H. Freeman and Co., San Francisco, USA.

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B.Sc. Botany
II Year: Semester-III
Skill Enhancement Course

SEC-2

(Credits - 2)

Biofertilizers and Organic Farming (30h)

UNIT - I: (15h)

1. Manures and Biofertilizers: Types of fertilizers, manures. Manure composition. Manures for crop productivity.
2. Differences between fertilizers and biofertilizers: pH changes and water contamination.
3. Bacterial Biofertilizers: General account on the microbes used as biofertilizer.
4. Algal Biofertilizers: Associative effect of different microorganisms. *Azolla* and *Anabaena-azollae* association, nitrogen fixation, factors affecting growth, *Azolla* in rice cultivation.

UNIT - II: (15h)

5. Fungal Biofertilizers: Mycorrhizal association, types of mycorrhizal association, occurrence and distribution, phosphorus nutrition, growth and yield, colonization of VAM – isolation and inoculum production of VAM, and its influence on growth and yield of crop plants.
6. Organic Farming: Green manuring and organic fertilizers, Recycling of bio-degradable municipal, agricultural and industrial wastes, Biocumpost making- types, method of vermicomposting, Panchakavya. Biological pest control (neem).

Suggested Readings

1. Dubey R.C. 2005. A Text book of Biotechnology. S.Chand & Co. New Delhi.
2. Kumaresan V. 2005. Biotechnology. Saras Publications. New Delhi.
3. John Jothi Prakash E. 2004. Outlines of Plant Biotechnology. Emkay Publication. New Delhi.
4. Sathe T.V. 2004. Vermiculture and Organic Farming. Daya Publishers. New Delhi.
5. Subha Rao N.S. 2000. Soil Microbiology, Oxford & IBH Publishers. New Delhi.
6. Vayas S.C, Vayas S. and Modi H.A. 1998. Bio-fertilizers and organic Farming Akta Prakashan. Nadiad.

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B.Sc. BOTANY
II YEAR: Semester-IV

Paper IV: Cell Biology, Genetics and Plant Physiology

DSC-1D

Credits-4

Theory Syllabus

(60 hours)

UNIT I:

(15h)

1. Plant cell envelops: Ultra structure of cell wall, Models of membrane structure, structure and functions of Semi permeable Plasma membrane.
2. Cell Organelles: Structure and semiautonomous nature of Mitochondria and Chloroplast.
3. Nucleus: Ultra structure, types and functions of DNA & RNA. Mitochondrial DNA & Plastid DNA and Plasmids.
4. Chromosomes: Morphology, organization of DNA in a chromosome, Euchromatin and Heterochromatin, Karyotype. Special types of chromosomes: Lampbrush and Polytene chromosomes.
5. Cell division: Cell and its regulation; mitosis, meiosis and their significance

UNIT - II:

(15 hours)

6. Mendelism: History, Principles of inheritance, Chromosome theory of inheritance, Autosomes and sex chromosomes, Incomplete dominance and Co-dominance. Multiple alleles, Lethal alleles, Epistasis, Recessive and Dominant traits, Polygenic inheritance.
7. Linkage and crossing over, Recombination frequency, two factor and three factor crosses; Interference and coincidence. Numericals based on gene mapping; Sex Linkage.
8. Variation in chromosome number and structure: Deletion, Duplication, Inversion, Translocation, Position effect, Euploidy and Aneuploidy
9. Gene mutations: Types of mutations; Molecular basis of Mutations; Mutagens-physical and chemical (Base analogs, deaminating, alkylating and intercalating agents);

Unit-III

(15h)

10. Plant -water Relations: Water potential, osmosis, osmotic and pressure potential, absorption and transport of water.
11. Mineral Nutrition: Essential micro & macro nutrients and symptoms of mineral deficiency.
12. Transpiration: Stomatal structure and movement.
13. Mechanism of phloem transport.
14. Enzymes: Nomenclature, properties, Classification and factors regulating enzyme activity.

UNIT-IV

(15h)

15. Photosynthesis: Photosynthetic pigments, Cyclic and Non-cyclic Photophosphorylation. Carbon assimilation pathways: C3, C4 and CAM.
16. Respiration: Aerobic and Anaerobic; Glycolysis, Krebs cycle and oxidative phosphorylation.
17. Nitrogen Metabolism: Biological nitrogen fixation.
18. Physiological role of Phytohormones: Auxins, gibberellins, cytokinins, ABA, ethylene and Brassinosteroids

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B. Kishore
Jana

Reference:

1. Sharma, A. K. and A. Sharma. 1999. Plant Chromosomes: Analysis, Manipulation and Engineering. Harward Academic Publishers, Australia.
2. Shukla, R. S. and P. S. Chandel. 2007. Cytogenetics, Evolution, Biostatistics and Plant Breeding. S.Chand & Company Ltd., New Delhi.
3. Verma, P. S. and V. K. Agrawal. 2004. Cell Biology, Genetics, Molecular Biology, Evolution and Ecology. S. Chand & Company Ltd., New Delhi. 1. Hopkins, W. G. 1995.
4. Introduction to Plant Physiology. John Wiley & Sons Inc., New York, USA
5. Gardner, E.J., Simmons, M.J., Snustad, D.P. (1991). Principles of Genetics, John Wiley & sons, India. 8th edition.
6. Snustad, D.P. and Simmons, M.J. (2010). Principles of Genetics, John Wiley & Sons Inc., India. 5th edition.
7. Klug, W.S., Cummings, M.R., Spencer, C.A. (2012). Concepts of Genetics. Benjamin Cummings, U.S.A. 10th edition.
8. Griffiths, A.J.F., Wessler, S.R., Carroll, S.B., Doebley, J. (2010). Introduction to Genetic Analysis. W. H. Freeman and Co., U.S.A. 10th edition.
9. Watson J.D., Baker, T.A., Bell, S.P., Gann, A., Levine, M., Losick, R. (2007). Molecular Biology of the Gene, Pearson Benjamin Cummings, CSHL Press, New York, U.S.A. 6th edition.
10. Snustad, D.P. and Simmons, M.J. (2010). Principles of Genetics. John Wiley and Sons Inc., U.S.A. 5th edition.
11. Klug, W.S., Cummings, M.R., Spencer, C.A. (2009). Concepts of Genetics. Benjamin Cummings. U.S.A. 9th edition.
12. Russell, P. J. (2010). iGenetics- A Molecular Approach. Benjamin Cummings, U.S.A. 3rd edition.
13. Griffiths, A.J.F., Wessler, S.R., Carroll, S.B., Doebley, J. (2010). Introduction to Genetic Analysis. W. H. Freeman and Co., U.S.A. 10th edition.
14. Jain, J.L., S. Jain and Nitin Jain. 2008. Fundamentals of Biochemistry. S. Chand & Company Ltd., New Delhi.
15. Pandey, B. P. 2007. Botany for Degree Students: Plant Physiology, Biochemistry, Biotechnology, Ecology and Utilization of Plants. S. Chand & Company Ltd., New Delhi.
16. Salisbury, F. B. and C. W. Ross. 1992. Plant Physiology. 4th edn. (India Edition), Wordsworth, Thomson Learning Inc., USA.
17. Taiz, L. and E. Zeiger. 1998. Plant Physiology (2nd Ed.). Sinauer Associates, Inc., Publishers, Massachusetts, USA.
18. Dutta A.C. 2016. Botany for Degree Students. Oxford University Press.

13

Sushama

M. Gupta

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B.Sc. BOTANY
II YEAR: Semester-IV

Paper IV: Cell Biology, Genetics and Plant Physiology

DSC-1D

Credits-1

Practical Syllabus

(60 hours)

1. Demonstration of cytochemical methods: Fixation of plant material and nuclear staining for mitotic and meiotic studies.
2. Study of various stages of mitosis using cytological preparation of Onion root tips.
3. Study of ultra structure of cell organelles using photographs.
Chloroplast, Mitochondria, Nucleus,
4. Study of Special types of Chromosomes (Polytene chromosome and Lampbrush chromosomes- Permanent slide)
5. Mendel's laws through seed ratios. Laboratory exercises in probability and chi-square analysis.
6. Chromosome mapping using test cross data.
7. Incomplete dominance and gene interaction through seed ratios (9:7, 9:6:1, 13:3, 15:1, 12:3:1, 9:3:4)
8. Determination of osmotic potential of vascular sap by Plasmolytic method using leaves of *Rheodiscolor / Tradescantia*.
9. Determination of rate of transpiration using Cobalt chloride method
10. Determination of stomatal frequency using leaf epidermal peelings / impressions
11. Determination of amylase activity using potato tubers by titration method
12. Separation of chloroplast pigments using paper chromatography technique
13. Estimation of protein by Biurette method
14. Mineral deficiency symptoms of Micro and Macro nutrients

Practical Model Question Paper

Time: 3 hrs

Max. marks: 50

1. Prepare a cytological slide of given material "A" and identify & describe any two stages with well labeled diagrams. (12M)
2. Genetics problem (10M)
3. Physiology Experiment (12M)
4. Identify and Comment on A & B (2x3 = 6M)
 - A. Micronutrient / Macronutrients Deficiency symptoms
 - B. Cell organelles / Special type of Chromosomes

5. Record (5M)

6. Viva (5M)

Sudhanshu

Arjun

B. Panigrahy

M. Singh

B. G. Singh

Arjun

B.Sc. BOTANY
II Year: Semester-IV
Skill Enhancement Course

SEC-3

Credits-2

Greenhouse Technology **(30h)**

UNIT – I

(15h)

1. Introduction; scope – classification of greenhouses – construction of greenhouse- heating unit – cooling unit – environmental control (light and temperature).
2. Net- poly houses- low cost green houses. Root media for greenhouses
3. Fertilizers: Organic and inorganic, liquid fertilizers, application of fertilizers.
4. Water in the Greenhouses: Irrigation system in green houses – misting, Drip irrigation- micro irrigation, water quality, water sanitation.

UNIT – II

(15h)

5. Plant Protection in Greenhouses: Diseases of greenhouse plants (bacterial, fungal, nematodes and viral diseases)
6. Management of pest and diseases – integrated pest management.
7. Applications of Greenhouse Technology: Importance of greenhouse technology. Micropropagation and greenhouse planting of tissue culture transplants
8. Advantages and disadvantages of greenhouse technology. Seed production, cut flower gardening.

Suggested Readings

1. Dubey R.C. 2006. A text book of Biotechnology. S.Chand and Company. New Delhi.
2. Sheela V.L. 2011. Horticulture. MJP Publishers. Chennai.
3. Prasad S., Kumar U. 2012. Green House Management for Horticultural Crops. Agrobios India.
4. Pant V. and Nelson. 1991. Green House Operation and Management. Bali Publication. New Delhi.
5. Introduction to soil science: <http://www.agrimoon.com/wpcontent/uploads/Introduction-to-soil-science.pdf>
6. Greenhouse applications: http://www.lindegas.com/en/products_and_supply/fumigants/carbon_dioxide_in_agriculture/greenhouse_applications/index.html
7. Role of greenhouse technology in agricultural engineering:

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B.Sc. BOTANY
II Year: Semester-IV
Skill Enhancement Course

SEC-4

(Credits 2)

Mushroom Culture Technology

Lectures: 30

UNIT-I
(15h)

1. Introduction & history. Medicinal value of edible mushrooms; Poisonous mushrooms. Types of edible mushrooms available in India - *Volvariella volvacea*, *Pleurotus citrinopileatus*, *Agaricus bisporus*.
2. Cultivation Technology: Infrastructure: substrates (locally available) Polythene bag, vessels, Inoculation hook, inoculation loop, low cost stove, sieves, culture rack, mushroom unit (Thatched house) water sprayer, tray, small polythene bag.
3. Pure culture: Medium, sterilization, preparation of spawn, multiplication. Mushroom bed preparation - paddy straw, sugarcane trash, maize straw, banana leaves.
4. Factors affecting the mushroom bed preparation - Low cost technology, Composting technology in mushroom production.

UNIT-II
(15h)

5. Storage: Short-term storage (Refrigeration - upto 24 hours) Long term Storage (canning, pickles, papads), drying, storage in salt solutions.
6. Nutritional value of Mushrooms: Proteins - amino acids, mineral elements nutrition - Carbohydrates, Crude fibre content - Vitamins.
7. Food Preparation: Types of foods prepared from mushroom. Research Centres - National level and Regional level. Cost benefit ratio - Marketing in India and abroad, Export Value.

Suggested Readings

1. Marimuthu, T. Krishnamoorthy, A.S. Sivaprakasam, K. and Jayarajan, R (1991) Oyster Mushrooms, Department of Plant Pathology, Tamil Nadu Agricultural University, Coimbatore.
2. Swaminathan, M. (1990) Food and Nutrition. Bappco, The Bangalore Printing and Publishing Co. Ltd., No. 88, Mysore Road, Bangalore - 560018.
3. Tewari, Pankaj Kapoor, S.C., (1988). Mushroom cultivation, Mittal Publications, Delhi.
4. Nita Bahl (1984-1988) Hand book of Mushrooms, II Edition, Vol. I & Vol. II.

K. Shailja
M. Ganesh

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B.Sc. BOTANY

Skill Enhancement Course (SEC)

Time : 2 hrs

Max. Marks: 40

Theory - Model Question Paper

Draw well-labeled diagrams wherever necessary

I. Write short answer of the following

6 X 4 = 24M

1. Unit-I
2. Unit-I
3. Unit-I
4. Unit-II
5. Unit-II
6. Unit-II

II. Essay Questions:

2 X 8 = 16M

7. a. Unit-I
(OR)
b. Unit-I
8. a. Unit-II
(OR)
b. Unit-II

* Internal Exam carries 10 Marks

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B. Kishore
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B.Sc. BOTANY
Discipline Specific Core (DSC)

Time : 3 hrs

Max. Marks: 80

Theory - Model Question Paper

Draw well-labeled diagrams wherever necessary.

I. Write short answer of the following

8 X 4 = 32M

1. Unit-I
2. Unit-I
3. Unit-II
4. Unit-II
5. Unit-III
6. Unit-III
7. Unit-IV
8. Unit-IV

II. Essay Questions:

4X 12 = 48M

9. a. Unit-I
(OR)
b. Unit-I
10. a. Unit-II
(OR)
b. Unit-II
11. a. Unit-III
(OR)
b. Unit-III
12. a. Unit-IV
(OR)
b. Unit-IV

* Internal Exam carries 20 Marks

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B.Sc. BOTANY
III Year: Semester-V
Paper-1A: Biodiversity & Conservation

DSE-1A

Credits-4

Theory Syllabus

(60 hours)

Unit - I:

(15h)

1. Plant diversity and its scope: Genetic diversity, Species diversity, Plant diversity at the ecosystem level, Agrobiodiversity and cultivated plant taxa, wild taxa.
2. Values and uses of Biodiversity: Ethical and aesthetic values, Precautionary principle, Methodologies for valuation, Uses of plants, Uses of microbes.

Unit-II:

(15h)

3. Loss of Biodiversity: Loss of genetic diversity, Loss of species diversity, Loss of ecosystem diversity, Loss of agrobiodiversity, Projected scenario for biodiversity loss.
4. Management of Plant Biodiversity: Organizations associated with biodiversity, management-Methodology for execution-IUCN, UNEP, UNESCO, WWF, NBPGR.
5. Biodiversity legislation and conservation, Biodiversity information management and communication.

Unit-III:

(15h)

6. Conservation of Biodiversity: Conservation of genetic diversity, species diversity and ecosystem Diversity
7. Principles of conservation - *In situ* and *Ex situ* conservation. Sacred groove, Botanical garden, Biosphere reserves, Sanctuaries, National parks (*In situ*) and Tissue culture, Gene / seed / pollen banks and Cryopreservation (*Ex situ*).

Unit-IV:

(15h)

8. Role of plants in relation to Human Welfare; Importance of forestry their utilization and commercial aspects, Avenue trees, Ornamental plants of India.
9. Alcoholic beverages through ages. Fruits and nuts, Important fruit crops and their commercial importance. Wood and its uses.

References:

1. Krishnamurthy, K.V. (2004). An Advanced Text Book of Biodiversity - Principles and Practices. Oxford and IBH Publications Co. Pvt. Ltd. New Delhi
2. Bharucha, E. 2005. Textbook of Environmental Studies for Undergraduate Courses. Universities Press (India) Private Limited, Hyderabad.
3. Odum, E. P. 1983. Basics of Ecology. Saunder's International Students Edition, Philadelphia
4. Sharma, P. D. 1989. Elements of Ecology. Rastogi Publications, Meerut.

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B.Sc. BOTANY
III Year: Semester-V
Paper-1A: Biodiversity & Conservation

DSE-1A

Credits-I

Practical Syllabus

(30 hours)

1. Study on local biodiversity: Herbs, shrubs and trees; Seasonal, Annual, biennial and perennial plants.
2. Study of morphological characteristics of plant communities: Hydrophytes (*Eichhornia*, *Hydrilla*, *Pistia*, *Nymphaea*, *Vallisneria*), Xerophytes: (*Asparagus*, *Opuntia*, *Euphorbia milii*, *Casuarina*, *Calotropis*).
3. Assessment of biodiversity
 - i) Avenue trees: *Pongamia pinnata*, *Butea monosperma*, *Spathodea sp.*, *Delonix regia*, *Jacaranda mimosifolia*, *Cassia fistula*, *Mimusops elengi*, *Acacia leucophloea*, and *Albizia lebbek*.
 - ii) Ornamental Plants: Any five locally available ornamental plants.
 - iii) Timber Value: *Acacia nilotica*, *Tectona grandis* and *Azadirachta indica*
 - iv) Fruits: *Mangifera indica* (Mango), *Ziziphus mauritiana*, *Psidium guajava* (Guava), *Annona squamosa*
 - v) Nuts: *Anacardium occidentale* (Cashew), *Terminalia catappa* (Badam)
 - vi) Beverages: *Madhuca indica*, *Camellia sinensis* (Tea), *Coffea arabica* (Coffee), *Borassus flabellifer* (Toddy palm) and *Caryota urens*
 - vii) Medicinal value: *Catharanthus roseus*, *Timospora cordifolia* and *Phyllanthus emblica*, *Ocimum sp.*, and *Azadirachta indica*
4. Field trip: Collection of plants from the field, identification and preparation of Herbarium.

Practical Model Question Paper

3 Hours

50 Marks

1. Identify and describe Biodiversity value of a) Medicinal b) Timber c) Fruit. 3x4=12M
2. Any two available ornamental plants and their uses. 2x3=06M
3. Comment on the specimens A, B & C. 3x3=09M
4. Identify and describe Biodiversity value of the given slides D & E (Hydrophytes & Xerophytes) 2x4=08M
5. Field trip Herbarium. 05M
6. Record 05M
7. Viva 05M

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B.Sc. BOTANY
III Year: Semester-V
Paper-1B: Tissue Culture and Biotechnology

DSE-1B

Credits-4

Theory Syllabus

(60 hours)

UNIT - I:

(15 hours)

1. Tissue culture: Introduction, sterilization procedures, explants, culture media - composition and preparation; Nutrient and hormone requirements, Micropropagation.
2. Organ culture: Totipotency, Vegetative Organs-Root, Shoot, Leaf-culture
Reproductive Organs-Anther, Ovule, Embryo culture
3. Callus culture and isolation and fusion of protoplast culture
4. Organogenesis, Embryogenesis (somatic and zygotic).

UNIT- II:

(15 hours)

5. Applications of tissue culture: Production of pathogen free plants and stress resistant plants, somaclonal variants and synthetic seeds.
6. Induction of hairy roots and its applications in production of secondary metabolites.
7. Haploidy and triploids, Cryopreservation and Germplasm Conservation.
8. Somatic hybrids and Cybrids.

UNIT- III:

(15 hours)

9. Biotechnology: Introduction, history, scope and applications.
10. rDNA technology: Basic aspect of gene cloning, Enzymes used in gene cloning-Restriction enzymes, Ligases, Polymerases.
11. Gene cloning: Recombinant DNA, Bacterial Transformation and selection of recombinant clones, vectors- cloning vehicles (Plasmid, Cosmids, Bacteriophages, & Phasmids; Eukaryotic Vectors (YAC) Gene Construct; Applications of rDNA technology.

UNIT -IV:

(15 hours)

12. Gene Libraries: construction of genomic and cDNA libraries, colony hybridization; Probes- oligonucleotide, Polymerase Chain Reaction (PCR) and its applications.
13. Methods of gene transfer- Agrobacterium-mediated, Direct gene transfer by Electroporation, Microinjection, Microprojectile bombardment; Selection of transgenics-selectable marker and reporter genes.
14. Application of transgenics in improvement of crop productivity and quality traits. Pest resistant transgenic crops (Bt-cotton & Bt-brinjal); herbicide resistant plants (Roundup Ready soybean); crops with quality traits (Flavr Savr tomato, Golden rice).

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M. Anup *Blaw*
B. Kishore 3

References:

1. Balasubramanian, D., C. F. A. Bryce, K. Dharmalingam, J. Green and K. Jayaraman. 2004.
2. Biotechnology. Universities Press (India) Private Limited, Hyderabad.
3. Channarayappa. 2007. Molecular Biotechnology – Principles and Practices. Universities Press (India) Private Limited, Hyderabad.
4. Chawala, H. S. 2002. Introduction to Plant Biotechnology. Oxford & IBH Publishing Company, New Delhi.
5. Dubey, R. C. 2001. A Textbook of Biotechnology. S. Chand & Company Ltd., New Delhi
6. Edmond, J. B., T. L. Senn, F. S. Adreus and R. J. Halfacre. 1977.
7. Jha, T.B. and B. Ghosh. 2005. Plant Tissue Culture – Basic and Applied. Universities Press (India). Private Limited, Hyderabad..
8. Ramawat, K. G. 2008. Plant Biotechnology. S. Chand & Company Ltd., New Delhi.
9. Salisbury, F. B. and C. W. Ross. 1992. Plant Physiology. 4th edn. (India Edition), Wordsworth, Thomson Learning Inc., USA.
10. Bhojwani, S.S. and Razdan, M.K., (1996). Plant Tissue Culture: Theory and Practice. Elsevier Science Amsterdam. The Netherlands.
12. Glick, B.R., Pasternak, J.J. (2003). Molecular Biotechnology- Principles and Applications of recombinant DNA. ASM Press, Washington.
13. Bhojwani, S.S. and Bhatnagar, S.P. (2011). The Embryology of Angiosperms. Vikas Publication House Pvt. Ltd., New Delhi. 5th edition.
14. Snustad, D.P. and Simmons, M.J. (2010). Principles of Genetics. John Wiley and Sons, U.K. 5th edition.
15. Stewart, C.N. Jr. (2008). Plant Biotechnology & Genetics: Principles, Techniques and Applications. John Wiley & Sons Inc. U.S.A.

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B.Sc. BOTANY
III Year: Semester-V
Paper-1B: Tissue Culture and Biotechnology

DSE-1B

Credits-1

Practical Syllabus

30 Hours

Major Experiments

1. Isolation of plant DNA. (Tomato)
2. Production of synthetic seeds /Encapsulation of embryo
3. Preparation of plant tissue culture medium - MS medium
4. Isolation of protoplasts.

Minor Experiments

1. Callus induction
2. Demonstration of Micropropagation/multiple shoots
3. Anther culture
4. PCR -Demonstration
5. Study of biotechnology products: Samples of antibiotics and vaccines
6. Photographs of Gene transfer methods.
7. Instruments used in Biotechnology lab- Autoclave, Laminar air flow, Hot air oven and Incubator.
8. Demonstration of In-vitro sterilization and inoculation methods using leaf and nodal explants of tobacco, Datura, Brassica etc.

Spotting

1. Study of anther, embryo and endosperm culture, micropropagation, somatic embryogenesis & artificial seeds through photographs.
2. Study of methods of gene transfer through photographs: Agrobacterium-mediated, direct gene transfer by electroporation, microinjection, microprojectile bombardment.
4. Study of steps of genetic engineering for production of Bt cotton, Golden rice, Flavr Savr tomato through photographs.
5. Restriction digestion and gel electrophoresis of plasmid DNA.

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Practical Model Question Paper

3 Hours

Max. Marks: 50

1. Major Experiment (18 marks)
Isolation of DNA
(OR)
Production of synthetic seeds / Encapsulation of embryo
2. Minor Experiment (10 marks)
Callus / Micropropagation / Multiple shoots
3. Spotters (3x4=12 marks)
 - A. Vaccines
 - B. Antibiotics
 - C. Gene transfer methods / instruments
4. Record (5 marks)
5. Viva (5 marks)

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M. Ganes *K. Thairgo* *Arundh* *Arundh*
Jane *B. Ganes* *Arundh*

B.Sc. BOTANY
III YEAR: Semester-V
Paper-1C: Seed Technology

DSE - 1C

Credits-4

Theory Syllabus

(60 hours)

- UNIT-I (15h)
1. Seed: Structure and types.
 2. Seed development in cultivated plants, seed quality concept, importance of genetic purity of seed. Hybrid seed production and Heterocyst.
 3. Cross pollination, Emasculation, role of pollinators and their management.
 4. Collection and storage of pollen for artificial pollination.
- UNIT-II (15h)
5. Seed germination: Internal and external factors affecting germination.
 6. Physiological processes during seed germination; seed respiration, breakdown and mobilization of stored seed reserves.
 7. Seed dormancy: Types, causes and methods of breaking dormancy. Role of Phytochrome.
- UNIT-III (15h)
8. Cultural practices and harvesting of Seed: Isolation, Sowing, Cultural practices, harvesting and threshing of the following crops: a) Rice b) Cotton c) Sunflower
 9. Seed treatment to control seed borne disease -General account
 10. Seed testing- Procedures of seed testing, seed testing laboratories and importance of seed testing.
- UNIT-IV (15h)
11. Seed viability, factors affecting seed viability and genetic erosion.
 12. Seed storage: Long term and short term storage. Orthodox and recalcitrant seeds, Packing of seeds - Principles, practices, bagging and labelling.
 13. Seed banks- National, International and Millennium seed banks.
 14. Seed certification- History, Seed certification agency, Indian millennium, general and specific seed certification standard.

Sushama Sharma

Received

24/11/20

B. Kishore

M. Gupta

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K. Shailgo

Jain

Reference:

1. Agrawal, P. K. 1993. Hand Book of Seed Technology. Dept. of Agriculture and Cooperation. National Seed Corporation Ltd., New Delhi
2. Balasubramanian, D., C. F. A. Bryce, K. Dharmalingam, J. Green and K. Jayaraman. 2004. Biotechnology. Universities Press (India) Private Limited, Hyderabad.
3. Bedell, Y. E. Seed Science and Technology. Indian Forest Species. Allied Publishers Limited, New Delhi.
4. Channarayappa. 2007. Molecular Biotechnology – Principles and Practices. Universities Press (India) Private Limited, Hyderabad.
5. Chawala, H. S. 2002. Introduction to Plant Biotechnology. Oxford & IBH Publishing Company, New Delhi.
6. Dubey, R. C. 2001. A Textbook of Biotechnology. S. Chand & Company Ltd., New Delhi
7. Edmond, J. B., T. L. Senn, F. S. Adrews and R. J. Halfacre. 1977.
8. Hartman, H. T. and D. E. Kestler. 1976. Plant Propagation: Principles and Practices. Prentice & Hall of India, New Delhi.
9. Jha, T.B. and B. Ghosh. 2005. Plant Tissue Culture – Basic and Applied. Universities Press (India) Private Limited, Hyderabad.
10. Ramawat, K. G. 2008. Plant Biotechnology. S. Chand & Company Ltd., New Delhi.
11. Salisbury, F. B. and C. W. Ross. 1992. Plant Physiology. 4th edn. (India Edition). Wordsworth, Thomson Learning Inc., USA.
12. Tiwari, G. N. and R. K. Goal. Green House Technology – Fundamentals, Design, Modelling and Application. Narosa Publishing House, New Delhi.
13. Tunwar, N. S. and S. V. Singh. 1988. Indian Minimum Seed Certification Standards. The Central Seed Certification Board, Govt. of India, New Delhi.
14. Agrawal PK & Dadlani M. (Eds.). 1992. Techniques in Seed Science and Technology. South Asian Publ.
15. Baskin CC & Baskin JM. 1998. Seeds: Ecology, Biogeography and Evolution of Dormancy and Germination. Academic Press. Basra AS. 2006. Handbook of Seed Science and Technology. Food Product Press.
16. Bench ALR & Sanchez RA. 2004. Handbook of Seed Physiology. Food Product Press. Bewley JD & Black M. 1982. Physiology and Biochemistry of Seeds in Relation to Germination. Vols. I, II. Springer Verlag.
17. Bewley JD & Black M. 1985. Seed: Physiology of Seed Development and Germination. Plenum Press.
18. Copeland LO & Mc Donald MB. 1995. Principles of Seed Science and Technology. 3rd Ed. Chapman & Hall.
19. Khan AA. 1977. Physiology and Biochemistry of Seed Dormancy and Germination. North Holland Co.
20. Kigel J & Galili G. (Eds.). Seed Development and Germination. Marcel Dekker.
21. Murray DR. 1984. Seed Physiology. Vols. I, II. Academic Press. Sadasivam S & Manickam A. 1996. Biochemical Methods. 2nd Ed. New Age.

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B.Sc. BOTANY
III YEAR: Semester-V
Paper-1C: Seed Technology

DSE - IC

Credits-I

Practical syllabus

(30 hours)

Major Experiment

1. Testing of seed viability using 2, 3, 5-triphenyl tetrazolium chloride (TTC).
2. Estimation of amylase activity of germinating seeds (Qualitatively).
3. Demonstration of seed dressing using fungicides to control seed borne diseases.
4. Demonstration of seed dressing using Biofertilizers (BGA) to enrich nutrient supply.

Minor Experiments

5. Emasculation, bagging of flower for hybrid seed production.
6. Dissection of Dicot embryo (bean) and Monocot embryo (maize).
7. Pollen viability test using Evan's blue staining (Hibiscus).
8. Harvesting and Importance of following seeds:
 - a) Rice
 - b) Maize
 - c) Cotton
 - d) Groundnut and
 - e) Sunflower.
9. Methods to break Seed dormancy
10. Study visits to research institutes, seed tests and certification laboratories and Places, seed banks.

Practical Model Question Paper

3 Hours

Max. marks: 50

1. Major Experiment. (16 marks)
 - a) Estimation of amylase activity in germinating seeds.
(OR)
 - b) Seed viability test by triphenyl tetrazolium chloride (TTC)
2. Minor Experiment. (12 marks)
 - a) Dissection of Dicot / Monocot embryo
(OR)
 - b) Methods to break Seed dormancy / Seed dressing.
3. Spotters (3x4=12 marks)
 - A. Emasculation / Bagging
 - B. Germination of seeds.
 - C. Importance of following seeds: rice, cotton and sunflower.
4. Record (5 marks)
5. Viva (5 marks)

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B.Sc. BOTANY
III YEAR: Semester-V
Generic Elective (GE)

GE-1

(Credits: 4)

Industrial Microbiology

Lectures: 60

Unit I

(15h)

1. Scope of microbes in industry and environment
2. Bioreactors/Fermenters and fermentation processes
3. Solid-state and liquid-state (stationary and submerged) fermentations; Batch and continuous fermentations.
4. Components of a typical bioreactor, Types of bioreactors-laboratory, pilot scale and production fermenters.

Unit II

(15h)

5. Constantly stirred tank fermenter, tower fermenter, fixed bed and fluidized bed bioreactors and air-lift fermenter. A visit to any educational institute/ industry to see an industrial fermenter, and other downstream processing operations.
6. Microbial production of industrial products: Microorganisms involved, media, fermentation conditions, downstream processing and uses.
7. Filtration, centrifugation, cell disruption, solvent extraction, precipitation and ultrafiltration, lyophilization, spray drying.
8. Hands on microbial fermentations for the production and estimation (qualitative and quantitative) of Enzyme: amylase or lipase activity, Organic acid (citric acid or glutamic acid), alcohol (Ethanol) and antibiotic (Penicillin).

Unit III

(15h)

9. Microbial enzymes of industrial interest and enzyme immobilization
10. Microorganisms for industrial applications and hands on screening microorganisms for casein hydrolysis, starch hydrolysis; cellulose hydrolysis.
11. Methods of immobilization, advantages and applications of immobilization, large scale applications of immobilized enzymes (glucose isomerase and penicillin acetylase).
12. Microbes and quality of environment. Distribution of microbes in air; Isolation of microorganisms from soil, air and water.

Unit IV:

(15h)

13. Microbial flora of water. Water pollution, role of microbes in sewage and domestic waste water treatment systems.
14. Determination of BOD, COD, TDS and TOC of water samples; Microorganisms as indicators of water quality, check coliform and fecal coliform in water samples.
15. Microbes in agriculture and remediation of contaminated soils.
16. Biological fixation; Mycorrhizae; Bioremediation of contaminated soils. Isolation of root nodulating bacteria, arbuscular mycorrhizal colonization in plant roots.

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Suggested Readings

1. Pelzar, M.J. Jr., Chen E.C. S., Krieg, N.R. (2010). Microbiology: An application based approach. Tata McGraw Hill Education Pvt. Ltd., Delhi.
2. Tortora, G.J., Funke, B.R., Case, C.L. (2007). Microbiology. Pearson Benjamin Cummings, San Francisco, U.S.A. 9th edition.

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Sushama K. Thairgo
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B.Sc. Botany
III Year: Semester-VI
Paper-2A: Plant Molecular Biology

DSE-2A

Credits -4

Theory syllabus

Lectures: 60

Unit-I: (15 hours)

1. Nucleic acids: Carriers of genetic information, types of genetic material, DNA as the carrier of genetic information.
2. Structures of DNA: Salient features and Types of DNA, Organization of DNA in Prokaryotes. Mitochondrial and chloroplast DNA.
3. Structure of RNA: Structure and Types of RNA's (mRNA, rRNA and tRNA).

Unit-II (15 hours)

4. Nucleosome, Chromatin structure - Euchromatin, Heterochromatin; Constitutive and Facultative heterochromatin.
5. Replication of DNA: Chemistry of DNA synthesis, general principles, Semi-conservative replication of DNA, replication of linear ds-DNA, replication of the 5' end of linear chromosome.
6. Central dogma and genetic code: Central Dogma (Adaptor hypothesis and discovery of mRNA template), salient features of Genetic code.

Unit-III: (15 hours)

7. Mechanism of Transcription: Transcription in prokaryotes and eukaryotes; Split genes-concept of introns and exons, removal of introns, eukaryotic mRNA processing (5' cap, 3' polyA tail).
8. RNA editing and mRNA transport.

Unit-IV: (15 hours)

9. Translation in prokaryotes: Ribosome structure and assembly, mRNA; Charging of tRNA, aminoacyl tRNA synthetases; Various steps in protein synthesis, proteins involved in initiation, elongation and termination of polypeptides; Fidelity of translation.
10. Transcriptional regulation in prokaryotes, Regulation of lactose metabolism (Lac operon) and tryptophan (Trp operon) synthesis in E.coli.

Sushama *Arumath* *M. Anuja* *K. Shailpa* *B. Kishan* *Blay*

B.Sc. Botany
III Year: Semester-VI
Paper-2A: Plant Molecular Biology

DSE-2A

Credits -1

Practical Syllabus

1. Isolation of genomic DNA from E.Coli.
2. DNA isolation from cauliflower head / tomato fruit.
3. DNA estimation by diphenylamine reagent/UV Spectrophotometry.
4. Study of DNA replication mechanisms through photographs (Rolling circle, Theta replication and semi-discontinuous replication).
5. Study of structures of prokaryotic RNA polymerase and eukaryotic RNA polymerase II through photographs.
6. Photographs establishing nucleic acid as genetic material (Messelson and Stahl's, Avery et al, Griffith's, Hershey & Chase's and Fraenkel & Conrat's experiments)
7. Study of the following through photographs: Assembly of Spliceosome machinery; Splicing mechanism in group I & group II introns; Ribozyme and Alternative splicing.
8. Estimation of size of a DNA fragment after electrophoresis using DNA markers (through photographs).

Practical Exam - Model Paper

Time: 3 Hours

Max. Marks: 50

I. Experiments

- | | |
|---------------------|-----|
| 1. Major Experiment | 15M |
| 2. Minor Experiment | 10M |

II. Spotters

4X3=12M

- A)
- B)
- C)
- D)

III. Identify and describe the photograph

3M

IV. Viva

5M

V. Record

5M

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B.Sc. Botany
III Year: Semester-VI
Paper-2B: Economic Botany

DSE-2B

Credits-4

Theory Syllabus

60 hours

UNIT - I

1. Origin of Cultivated Plants: Major plants introduction, Crop domestication and examples of crops / varieties
2. Vegetables: Nutritional and Commercial values of root crops, leafy and fruit vegetables.
3. Millets: Nutrient significance of Sorghum, Finger millet, Pearl millet, Foxtail millet.
4. Cereals: Rice, Wheat and maize - Origin, morphology and uses.

UNIT - II

5. Legumes: General account, importance to man and ecosystem.
6. Fruits and nuts: Commercial and nutritional value of South Indian fruits, Cashew nut, Almond and Walnut.
7. Sugars & Starches: Morphology and processing of sugarcane, products and by-products of sugarcane industry. Potato - morphology, propagation & uses.
8. Spices: Listing of important spices, part used, economic importance with special reference to fennel, saffron, clove and black pepper

UNIT - III

9. Beverages: Tea, Coffee (morphology, processing & uses)
10. Edible oils & Fats: General description, extraction, uses and health implications of groundnut, sunflower, coconut, linseed, and mustard.
11. Essential Oils: General account, extraction methods, comparison with fatty oils & their uses.
12. Natural Rubber: Para-rubber - tapping, processing and uses.

UNIT - IV

13. Drug-yielding plants: Therapeutic and habit-forming drugs with special reference to Cinchona, Digitalis, Papaver and Camabis.
14. Tobacco processing, uses and health hazards
15. Timber plants: General account with special reference to teak and pine
16. Fibres: Classification based on the origin of fibres, extraction methods and uses of Cotton and Jute.

Suggested Readings

1. Kochhar, S.L. (2012). Economic Botany in Tropics, MacMillan & Co. New Delhi, India.
2. Wickens, G.E. (2001). Economic Botany: Principles & Practices. Kluwer Academic Publishers, The Netherlands.
3. Chrispeels, M.J. and Sadava, D.E. (2003). Plants, Genes and Agriculture. Jones & Bartlett Publishers.
4. B.P. Pandey (2007). Economic Botany, S. Chand & Company Ltd. New Delhi. 17/e.

B. Grew (18) 14

(Handwritten signatures and initials)

B.Sc. Botany
III Year: Semester-VI
Paper-2B: Economic Botany

DSE-2B

Credits-1

Practical Syllabus

30 hours

1. Study of economically important plants: Wheat, Gram, Soybean, Black pepper, Clove Tea and Cotton through specimens, sections and microchemical tests.
2. Identification and study on nutrient values of locally available vegetables, millets and cereals.
3. Study on nutrient values and commercial status of Cashew nut, Almond and Walnut.
4. Uses and health implications of groundnut, sunflower, coconut, linseed and Brassica.
5. Identification of starch granules.
6. Quantitative estimation and comparative study of proteins in millets and cereals.
7. Collection of economically important plants / vegetable plants and preparation of Herbarium.

Practical Exam - Model Paper

Time: 3 Hours

Max. Marks: 50

I. Experiments

- A) Protein test (Major Experiment) 12M
B) Starch granules (Minor Experiment) 6M

II. Spotters

- C) Leafy / Fruity Vegetables, 4X3=12M
D) Fruits / Spices,
E) Medicinal Plants / Beverages,
F) Wood / Timber / Fiber

III. Herbarium 10M

IV. Viva 5M

V. Record 5M

Sushama
K. Shaila
M. Banu
B. Girish
BP

B.Sc. Botany
III Year: Semester VI
Paper-2C: Analytical Techniques in Plant Sciences

DSE-2C

Credits - 4

Theory Syllabus

Lectures: 60

Unit I:

1. Imaging and related techniques: Principles of microscopy: Light microscopy; Fluorescence microscopy; Confocal microscopy
2. Use of fluorochromes: Fluorescence-activated cell sorting (FACS); Applications of fluorescence microscopy: Chromosome banding, FISH, chromosome painting.
3. Transmission and Scanning electron microscopy - sample preparation for electron microscopy, cryofixation, negative staining, shadow casting, freeze fracture, freeze etching.

Unit II:

4. Cell fractionation: Centrifugation: Differential and density gradient centrifugation, sucrose density gradient, CsCl₂ gradient, analytical centrifugation, ultracentrifugation, marker enzymes.
5. Radioisotopes: Use in biological research, auto-radiography, pulse chase experiment.
6. Spectrophotometry: Principle and its application in biological research.

Unit III:

7. Chromatography: Principle; Paper chromatography; Column chromatography, TLC, GLC, HPLC, Ionexchange chromatography; Molecular sieve chromatography; Affinity chromatography.
8. Characterization of proteins and nucleic acids: Mass spectrometry; X-ray diffraction; X-ray crystallography; Characterization of proteins and nucleic acids;
9. Electrophoresis: PAGE, SDS-PAGE

Unit IV:

10. Biostatistics: Statistics, data, population, samples, parameters;
11. Representation of Data: Tabular, Graphical; Measures of central tendency;
12. Arithmetic mean, mode, median; Measures of dispersion: Range, mean deviation, variation, standard deviation; Chi-square test for goodness of fit.

Handwritten signatures and notes:
A. Kumar
S. Kumar
M. Singh
B. K. Singh
B. K. Singh
B. K. Singh

Suggested Readings

1. Plummer, D.T. (1996). An Introduction to Practical Biochemistry. Tata McGrawHill Publishing Co. Ltd. New Delhi. 3rd edition.
2. Ruzin, S.E. (1999). Plant Microtechnique and Microscopy, Oxford University Press, New York. U.S.A.
3. Ausubel, F., Brent, R., Kingston, R. E., Moore, D.D., Seidman, J.G., Smith, J.A., Struhl, K. (1995). Short Protocols in Molecular Biology. John Wiley & Sons. 3rd edition.
4. Zar, J.H. (2012). Biostatistical Analysis. Pearson Publication. U.S.A. 4th edition.

B.Sc. Botany
III Year: Semester-VI
Paper-2C: Analytical Techniques in Plant Sciences

DSE-2C

Credits - 1

Practical Syllabus

Lectures: 30

1. Study of Blotting techniques: Southern, Northern and Western, DNA fingerprinting, DNA sequencing, PCR through photographs.
2. Demonstration of ELISA.
3. To separate nitrogenous bases by paper chromatography.
4. To separate sugars by thin layer chromatography.
5. Isolation of chloroplasts by differential centrifugation.
6. To separate chloroplast pigments by column chromatography.
7. To estimate protein concentration through Lowry's methods.
8. To separate proteins using PAGE.
9. To separate DNA (marker) using PAGE.
10. Study of different microscopic techniques using photographs/micrographs (freeze fracture, freeze etching, negative staining, positive staining, fluorescence and FISH).
11. Preparation of permanent slides (double staining).

Sushama

M. Suresh

V. Suresh

K. Smaila

K. Smaila

B. Suresh

B. Suresh

Practical Exam - Model Paper

Time: 3 Hours

Max. Marks: 50

I. Experiments

A. Major Experiment 12M

B. Minor Experiment 8M

II. Permanent slide preparation 8M

III. Spotters 4X3=12M

C)

D)

E)

F)

IV. Viva 5M

V. Record 5M

Surbhane

M. Gurup

Arman

K. Shalga

~~Neeraj~~

~~Hy~~

B. Kishore

Blau

Jane

B.Sc. Botany
Theory Model Question Paper
Discipline Specific Elective (DSE)
&
Generic Elective (GE)

Time : 3 hrs

Max. Marks: 80

Draw well-labeled diagrams wherever necessary

I. Write short answer of the following

8 X 4 = 32M

1. Unit-I
2. Unit-I
3. Unit-II
4. Unit-II
5. Unit-III
6. Unit-III
7. Unit-IV
8. Unit-IV

II. Essay Questions:

4X 12 = 48M

9. a. Unit-I
(OR)
b. Unit-I
10. a. Unit-II
(OR)
b. Unit-II
11. a. Unit-III
(OR)
b. Unit-III
12. a. Unit-IV
(OR)
b. Unit-IV

* Internal Exam carries 20 Marks

Sophomo
Anura
M. Ganapati

K. S. Shetty
B. Girish
K. S. Shetty
Blau

B.Sc. Botany
III Year: Semester-VI
Project / Dissertation Work

Credits - 4

Project work/Dissertation is considered as a special course involving application of knowledge in solving / analyzing /exploring a real life situation / difficult problem. The Project/Dissertation work will be of 4 credits. Studied subject specific project work can be handled, with a view to develop creative thinking, team spirit and skill. The project work at preliminary level should be assigned to students, in groups.

Project report in the form of dissertation is prepared and submitted by the students. It will be evaluated by the External and Internal Examiners. Head of the Department will chair the evaluation panel and proceedings of viva voce. It carries a maximum of 100 marks.

Project guidelines:

1. Understand the subject broadly.
2. Choose a topic of interest.
3. Refer to the books & interact with subject specific experts.
4. Try to understand the basic principles of Living organisms followed by Plants, with the help of Physics, Chemistry and Statistics.
5. Select the topic applicable locally to know the importance of the subject in daily life. Preferably choose, vegetation around the institution, around home, agricultural crops, vegetable markets and nearby relevant industries.
6. Put together, latest technology and methods, basic knowledge on selected theme, Importance / need, locally applicable.
7. Summarize three years knowledge on the subject, go through Skill enhancement course, correlate to real life and choose the project work.
8. Laboratory facilities, books to refer and faculty with research experience are essential to handle Project.
9. Analyze your Data and Draw a Conclusion
10. Communicate the Results
11. Work division among the group members should be followed
12. Maximum number of students in a group should not exceed 5.

Project Examination

Max. Marks: 100

1. Project Report	75 M
3. Seminar Presentation	25 M

Sulphane K. Mehta
M. Ganes *Shruti*

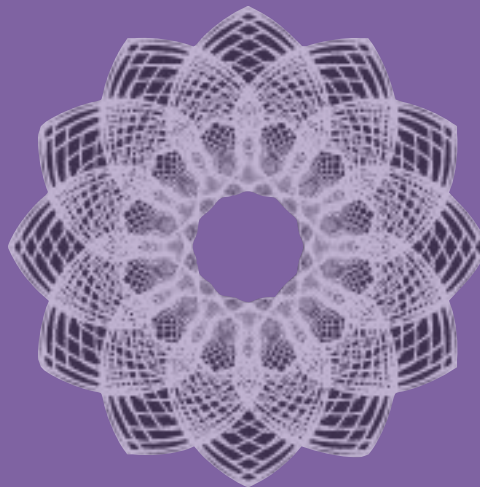
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B. Gumber
[Signature]



Computer Applications Syllabus for B.Sc.

(As per UGC CBCS w.e.f 2016-17)



Department of Mathematics
Osmania University
Hyderabad
Telangana

CONTENTS

<i>Course Template</i>	1
<i>Syllabus</i>	2
<i>Scheme of Examinations</i>	34
<i>M00Cs Resources</i>	38

Syllabus for Computer Applications

Proposed scheme for **B.Sc.** Programme under **Choice Based Credit System**

Code	Course Title	Course Type	HpW	Credits
SEMESTER - I				
BS106	Programming in C	DSC-3A	4T+2P=6	4 + 1 =5
SEMESTER - II				
BS206	Programming in C++	DSC-3B	4T+2P=6	4 + 1 =5
SEMESTER - III				
BS301	A: SciLab - 1	SEC-1	2T	2
	B: Python - 1			
BS306	Relational Database Management Systems	DSC-3C	4T+2P=6	4 + 1 =5
SEMESTER - IV				
BS401	C: SciLab - 2	SEC-2	2T	2
	D: Python - 2			
BS406	Computer Networks	DSC-3D	4T+2P=6	4 + 1 =5
SEMESTER - V				
BS501	Information Technologies -1	GE-1	2	2
BS502	E: R Basics - 1	SEC-3	2	2
	F: Ruby			
BS505	Multimedia Systems	DSC-3E	3T+2P=5	3 + 1 =4
BS506	Elective-A: Web Technologies	DSE-1E	3T+2P=5	3 + 1 =4
	Elective-B: Visual Programming	DSE-2E		
SEMESTER - VI				
BS601	Information Technologies -2	GE-2	2T	2
BS602	G: R Basics - 2	SEC-4	2T	2
	H: Ruby on Rails			
BS605	Mobile Applications	DSC-3F	3T+2P=5	3 + 1 =4
BS606	Elective-A: PHP Programming	DSE-1F	3T+2P=5	3 + 1 =4
	Elective-B: Information Security and Cyber Laws	DSE-2F		
Total Number of Credits				48

DSC-3A**Programming in C****BS106**

Theory	4 Hours/Week	4 credits
Practical	2 Hours/Week	1 credit

Unit - I

Computer Fundamentals: Introduction of Computers, Classification of Computers, Anatomy of a Computer, Memory Hierarchy, Introduction to OS, Operational Overview of a CPU.

Program Fundamentals: Generation and Classification of Programming Languages, Compiling, Interpreting, Loading, Linking of a Program, Developing Program, Software Development.

Algorithms: Definitions, Different Ways of Stating Algorithms (Step-form, Pseudo-code, Flowchart), Strategy for Designing Algorithms, Structured Programming Concept.

Basics of C: Overview of C, Developing Programs in C, Parts of Simple C Program, Structure of a C Program, Comments, Program Statements, C Tokens, Keywords, Identifiers, Data Types, Variables, Constants, Operators and Expressions, Expression Evaluation–precedence and associativity, Type Conversions.

Unit - II

Input-Output: Non-formatted and Formatted Input and Output Functions, Escape Sequences,

Control Statements: Selection Statements – if, if-else, nested if, nested if-else, comma operator, conditional operator, switch; Iterative Statements–while, for, do-while; Special Control Statement–goto, break, continue, return, exit.

Arrays and Strings: One and Two Dimensional Arrays, Character Arrays, Functions from ctype.h, string.h.

Unit - III

Functions: Concept of Function, Using Functions, Call-by-Value Vs Call-by-reference, Passing Arrays to Functions, Scope of Variables, Storage Classes, Inline Functions, and Recursion.

Pointers: Introduction, Address of Operator (&), Pointer, Uses of Pointers, Arrays and Pointers, Pointers and Strings, Dynamic Memory Allocation.

Unit - IV

User-Defined Data Types: Declaring a Structure (Union) and its members, Initialization Structure (Union), Accessing members of a Structure (Union), Structures verses Unions, Enumeration Types.

Files: Introduction, Using Files, Working with Text Files and Binary Files, Other File Management Functions.

Text Pradip Dey, Manas Ghosh, *Computer Fundamentals and Programming in C (2e)*

References Ivor Horton, *Beginning C*
 Ashok Kamthane, *Programming in C*
 Herbert Schildt, *The Complete Reference C*
 Paul Deitel, Harvey Deitel, *C How To Program*
 Byron S. Gottfried, *Theory and Problems of Programming with C*
 Brian W. Kernighan, Dennis M. Ritchie, *The C Programming Language*
 B. A. Forouzan, R. F. Gilberg, *A Structured Programming Approach Using C*

C Lab

BS106

Practical

2 Hours/Week

1 credit

- 1 Write a program to find the largest two numbers using if and conditional operator.
- 2 Write a program to calculate arithmetic operations of two numbers using switch.
- 3 Write a program to print the reverse of a given number.
- 4 Write a program to print whether the given number is a prime or not.
- 5 Write a program to find largest and smallest elements in a given list of numbers.
- 6 Write a program to find the sum of two matrices.
- 7 Write a program to find the product of two matrices.
- 8 Write a program to print the reverse of a given string.
- 9 Write a program to find the factorial of a positive integer using iteration and recursion.
- 10 Write a program to find the GCD of two positive integers using iteration and recursion.
- 11 Write a program to demonstrate the call by value and the call by reference concepts.
- 12 Write a program to illustrate the use of Enumeration data type.
- 13 Write a program to illustrate the use of structure concept.
- 14 Write a program to illustrate the use of union concept.
- 15 Write a program to write content into a file and display contents of a file
- 16 Write a program to copy content of one file into another file and display the content of new file.

Note
: Write the Pseudo Code and draw Flow Chart for the above programs.
Recommended to use Open Source Software: GCC on Linux; DevC++ (or) CodeBlocks on Windows 10.

DSC-3B**Programming in C++****BS206**

Theory	4 Hours/Week	4 credits
Practical	2 Hours/Week	1 credit

Unit - I

Introduction to C++: Applications, Example Programs, Tokens, Data Types, Operators, Expressions, Control Structures, Arrays, Strings, Pointers, Searching and Sorting Arrays.

Functions: Introduction, Prototype, Passing Data by Value, Reference Variables, Using Reference Variables as Parameters, Inline Functions, Default Arguments, Overloading Functions, Passing Arrays to Functions.

Unit - II

Object Oriented Programming: Procedural Programming verses Object-Oriented Programming, Terminology, Benefits, OOP Languages, and OOP Applications.

Classes: Introduction, Defining an Instance of a Class, Why Have Private Members? Separating Class Specification from Implementation, Inline Member Functions, Constructors, Passing Arguments to Constructors, Destructors, Overloading Constructors, Private Member Functions, Arrays of Objects, Instance and Static Members, Friends of Classes, Member-wise Assignment, Copy Constructors, Operator Overloading.

Unit - III

Inheritance: Introduction, Protected Members and Class Access, Base Class Access Specification, Constructors and Destructors in Base and Derived Classes, Redefining Base Class Functions, Polymorphism and Virtual Member Functions, Abstract Base Classes and Pure Virtual Functions, Multiple Inheritance.

C++ Streams: Stream Classes, Unformatted I/O Operations, Formatted I/O Operations.

Unit - IV

Exceptions: Introduction, Throwing an Exception, Handling an Exception, Object-Oriented Exception Handling with Classes, Multiple Exceptions, Extracting Data from the Exception Class, Re-throwing an Exception.

Templates: Function Templates-Introduction, Function Templates with Multiple Type, Overloading with Function Templates, Class Templates - Introduction, Defining Objects of the Class Template, Class Templates and Inheritance.

Text Tony Gaddis, *Starting out with C++: from control structures through objects (7e)*

References
 B. Lippman, *C++ Primer*
 Bruce Eckel, *Thinking in C++*
 K.R. Venugopal, *Mastering C++*
 Herbert Schildt, *C++: The Complete Reference*
 Bjarne Stroustrup, *The C++ Programming Language*
 Sourav Sahay, *Object Oriented Programming with C++*

C++ Lab

BS206

Practical

2 Hours/Week

1 credit

- 1 Write a program to print the sum of digits of a given number
- 2 Write a program to check whether the given number is Armstrong or not
- 3 Write a program to check whether the given string is Palindrome or not
- 4 Write a program to read student name, roll no, marks and display the same using class and object.
- 5 Write a program to find area of a rectangle, circle, and square using class and object.
- 6 Write a program to implement inline function inside and outside of a class for
 - a. Finding the area of a square
 - b. Finding the area of a cube
- 7 Write a program to implement friend function and friend class
- 8 Write a program to implement constructor and destructor with in a class.
- 9 Write a program to demonstrate hierarchical inheritance.
- 10 Write a program to demonstrate multiple inheritances.
- 11 Write a program to demonstrate the constructor overloading.
- 12 Write a program to demonstrate static polymorphism.
- 13 Write a program to demonstrate dynamic polymorphism.
- 14 Write a program to implement polymorphism using pure virtual functions.
- 15 Write a program to demonstrate the function templates and class templates.
- 16 Write a program to demonstrate exception handling using try, catch, and finally.

Note
: Recommended to use Open Source Software: GCC on Linux; DevC++ (or) CodeBlocks on Windows.

SEC-1
[A]

SciLab - 1

BS301

Theory

2 Hours/Week

2 credits

Unit - I

Introduction to Scilab – what is scilab, downloading & installing scilab, a quick taste of scilab.

The Scilab Environment – manipulating the command line, working directory, comments, variables in memory, recording sessions, the scilab menu bar, demos.

Scalars & Vectors – introduction, initializing vectors in scilab, mathematical operations on vectors, relational operations on vectors, logical operations on vectors, built-in logical functions.

Unit - II

Scalars & Vectors – elementary mathematical functions, mathematical functions on scalars, complex numbers, trigonometric functions, inverse trigonometric functions, hyperbolic functions.

Matrices – introduction, arithmetic operators for matrices, basic matrix processing.

Polynomials – introduction, creating polynomials, basic polynomial commands, finding roots of polynomial, polynomial arithmetic, miscellaneous polynomial handling.

Text

Er. Hema Ramachandran, Dr. Achuthsankar S. Nair, *Computer SCILAB–A Free Software to MATLAB*

References

Digite, *Introduction to Scilab*

Digite, *Optimization in Scilab*

Scilab Enterprises, *Scilab for Very Beginners*

Digite, *Introduction to Discrete Probabilities with Scilab*

Note:

Student friendly video lecturers pertaining to this course are available at

<http://spoken-tutorial.org/>

Teachers are advised to teach this courses in the computer lab itself, so that the interested students may derive some time to perform few programs their own.

SEC-1
[B]**Python - 1****BS301**

Theory

2 Hours/Week

2 credits

Unit - I

Introduction to Python: Python, Features of Python, Execution of a Python Program, Viewing the Byte Code, Flavors of Python, Python Virtual Machine, Frozen Binaries, Memory Management in Python, Garbage Collection in Python, Comparisons between C and Python, Comparisons between Java and Python.

Writing Our First Python Program: Installing Python for Windows, Installing numpy, Setting the Path to Python, Writing Our First Python Program, Executing a Python Program, Getting Help in Python, Getting Python Documentation Help, Reopening the Python Program in IDLE.

Data types in Python: Comments in Python, Doc strings, How Python Sees Variables, Data types in Python, Built-in data types, bool Data type, Sequences in Python, Sets, Literals in Python, Determining the Data type of a Variable, What about Characters, User-defined Data types, Constants in Python, Identifiers and Reserved words, Naming Conventions in Python.

Unit - II

Operators in Python: Arithmetic Operators, Assignment Operators, Unary Minus Operator, Relational Operators, Logical Operators, Boolean Operators, Bitwise Operators, Membership Operators, Identity Operators, Operator Precedence and Associativity, Mathematical Functions.

Input and Output: Output statements, Input Statements, Command Line Arguments.

Control Statements: Control Statements, The if Statement, A Word on Indentation, The if ... else Statement, The if ... elif ... else Statement, The while Loop, The for Loop, Infinite Loops, Nested Loops, The else Suite, The break Statement, The continue Statement, The pass Statement, The assert Statement, The return Statement.

Text R. Nageswara Rao, *Core Python Programming*, Dreamtech Press

References Mark Lutz, *Learning Python*
 Tony Gaddis, *Starting Out With Python*
 Kenneth A. Lambert, *Fundamentals of Python*
 James Payne, *Beginning Python using Python 2.6 and Python 3*
 Paul Gries, *Practical Programming: An Introduction to Computer Science using Python 3*

Note: Student friendly video lecturers pertaining to this course are available at <http://spoken-tutorial.org/>
 Teachers are advised to teach this courses in the computer lab itself, so that the interested students may derive some time to perform few programs their own.

DSC–3C**Relational Database Management Systems****BS306****Theory**
Practical4 Hours/Week
2 Hours/Week4 credits
1 credit**Unit – I**

Introduction to Databases: Introduction, Traditional File-Based Systems, Database Approach, Roles in the Database Environment, Advantages and Disadvantages of DBMSs, The Three-Level ANSI-SPARC Architecture, Database Languages, Data Models, Functions of a DBMS, Components of a DBMS.

Relational Model: Introduction, Terminology, Integrity Constraints, Views.

Unit – II

SQL: Introduction, Data Manipulation–Simple Queries, Sorting Results, Using the SQL Aggregate Functions, Grouping Results, Sub-queries, ANY and ALL, Multi-table Queries, EXISTS and NOT EXIST, Combining Result Tables, Database Updates.

SQL: The ISO SQL Data Types, Integrity Enhancement Feature–Domain Constraints, Entity Integrity, Referential Integrity, General Constraints, Data Definition–Creating a Database, Creating a Table, Changing a Table Definition, Removing a Table, Creating an Index, Removing an Index, Views–Creating a View, Removing a View, View Resolution, Restrictions on Views, View Updatability, WITH CHECK OPTION, Advantages and Disadvantages of Views, View Materialization, Transactions.

Unit – III

Advanced SQL: The SQL Programming Language–Declarations, Assignments, Control Statements, Exceptions, Cursors, Subprograms, Stored Procedures, Functions, and Packages, Triggers, Recursion.

Entity–Relationship Modeling: Entity Types, Relationship Types, Attributes, Keys, Strong and Weak Entity Types, Attributes on Relationships, Structural Constraints, Problems with ER Models–Fan Traps, Chasm Traps.

Enhanced Entity–Relationship Modeling: Specialization/Generalization, Aggregation, Composition.

Unit – IV

Functional–Dependencies: Anomalies, Partial Functional Dependency, Transitive Functional Dependency.

Normalization: The Purpose of Normalization, How Normalization Supports Database Design, Data Redundancy and Update Anomalies, Functional Dependencies in brief, The Process of Normalization, 1NF, 2NF, 3NF, BCNF. The Database Design Methodology for Relational Databases (Appendix–D).

Transaction Management: Transaction Support–Properties of Transactions, Database Architecture, Concurrency Control–The Need for Concurrency Control, Serializability and Recoverability, Locking Methods, Deadlock, Time Stamping Methods.

Text

Thomas M. Connolly, Carolyn E. Begg, *Database Systems–A Practical Approach to Design, Implementation, and Management (6e)*

**Reference
s**

Sharon Allen, Evan Terry, *Beginning Relational Data Modeling*

Jeffrey A. Hoffer, V. Ramesh, Heikki Topi, *Modern Database Management*

Raghu Ramakrishnan, Johannes Gehrke, *Database Management Systems*

Ramez Elmasri, Shamkant B. Navathe, *Fundamentals of Database Systems*

Abraham Silberschatz, Henry F. Korth, S. Sudarshan, *Database System Concepts*

Carlos Coronel, Steven Morris, Peter Rob, *Database Systems: Design, Implementation, and Management*

Relational Database Management Systems Lab**BS306****Practical**

2 Hours/Week

1 credit

Consider the relational schema for part of the **DreamHome** case study is:

Branch (branchNo, street, city, postcode)

Staff (staffNo, fName, IName, position, sex, DOB, salary, branchNo)

PropertyForRent (propertyNo, street, city, postcode, type, rooms, rent, ownerNo, staffNo, branchNo)

Client (clientNo, fName, IName, telNo, prefType, maxRent, eMail)

PrivateOwner (ownerNo, fName, IName, address, telNo, eMail, password)

Viewing (clientNo, propertyNo, viewDate, comment)

Registration (clientNo, branchNo, staffNo, dateJoined)

1. Create a database with name "DreamHome" and now create all the tables listed above with constraints.
2. Insert a new row into the table supplying data for all columns.
3. Modify data in the database using UPDATE
4. Delete data from the database using DELETE
5. Changing a table definition using ALTER
6. Removing a table using DROP
7. Removing rows in table using TRUNCATE
8. Create an index and removing an index
9. Practice other standard SQL commands for creating, modifying, displaying data of tables.
10. List full details of all staff.
11. List all staff with a salary greater than £10000.
12. List the property numbers of all properties that have been viewed.
13. Produce a list of salaries for all staff, showing only the staffNo, fName, IName, and salary details.
14. List all cities where there is either a branch office or a property for rent.
15. List all cities where there is a branch office but no properties for rent.
16. List all cities where there is both a branch office and at least one property for rent.
17. List the names and comments of all clients who have viewed a property for rent.
18. Produce a status report on property viewings.
19. List complete details of all staff who work at the branch in Glasgow.
20. List the addresses of all branch offices in London or Glasgow
21. List all staff with a salary between £20,000 and £30,000.
22. Identify all clients who have viewed all properties with three rooms.
23. How many properties cost more than £350 per month to rent?
24. How many different properties were viewed in May 2013?
25. Find the total number of Managers and the sum of their salaries.
26. Find the minimum, maximum, and average staff salary.
27. Find the number of staff working in each branch and the sum of their salaries.
28. List all managers and supervisors.
29. Find all owners with the string 'Glasgow' in their address.
30. List the details of all viewings on property PG4 where a comment has not been supplied.
31. Produce a list of salaries for all staff, arranged in descending order of salary.
32. Produce an abbreviated list of properties arranged in order of property type.
33. Find the number of staff working in each branch and the sum of their salaries.
34. For each branch office with more than one member of staff, find the number of staff working in each branch and the sum of their salaries.
35. List the staff who work in the branch at '163 Main St'.
36. List all staff whose salary is greater than the average salary, and show by how much their salary is greater than the average.
37. List the properties that are handled by staff who work in the branch at '163 Main St'.
38. Find all staff whose salary is larger than the salary of at least one member of staff at branch B003.
39. Find all staff whose salary is larger than the salary of every member of staff at branch B003
40. List the names of all clients who have viewed a property, along with any comments supplied.
41. For each branch office, list the staff numbers and names of staff who manage properties and the properties that they manage.
42. For each branch, list the staff numbers and names of staff who manage properties, including the city in which the branch is located and the properties that the staff manage.

43. Find the number of properties handled by each staff member, along with the branch number of the member of staff.
44. List all branch offices and any properties that are in the same city.
45. List all properties and any branch offices that are in the same city.
46. List the branch offices and properties that are in the same city along with any unmatched branches or properties.
47. Find all staff who work in a London branch office.
48. Construct a list of all cities where there is either a branch office or a property.
49. Construct a list of all cities where there is both a branch office and a property.
50. Create a view so that the manager at branch B003 can see the details only for staff who work in his or her branch office.
51. Create a view of the staff details at branch B003 that excludes salary information, so that only managers can access the salary details for staff who work at their branch.
52. Create a view of staff who manage properties for rent, which includes the branch number they work at, their staff number, and the number of properties they manage.
53. Removing a view using DROP VIEW
54. Give the user with authorization identifier Manager all privileges on the Staff table.
55. Give users Personnel and Director the privileges SELECT and UPDATE on column salary of the Staff table.
56. Revoke the privilege SELECT on the Branch table from all users.
57. Revoke all privileges you have given to Director on the Staff table.
58. Demonstrate exceptions in PL/SQL
59. Demonstrate cursors in PL/SQL
60. Write PL/SQL queries to create procedures.
61. Write PL/SQL queries to create functions.
62. Write PL/SQL queries to create package.
63. Write PL/SQL queries to create triggers.
64. Write PL/SQL queries using recursion.

Consider the relational schema for part of the **Hotel** case study is:

Hotel (hotelNo, hotelName, city)
Room (roomNo, hotelNo, type, price)
Booking (hotelNo, guestNo, dateFrom, dateTo, roomNo)
Guest (guestNo, guestName, guestAddress)

65. Create a database with name "Hotel" and now create all the tables listed above with constraints.
66. Insert a new row into the table supplying data for all columns.
67. Modify data in the database using UPDATE
68. Delete data from the database using DELETE
69. Changing a table definition using ALTER
70. Removing a table using DROP
71. Removing rows in table using TRUNCATE
72. Practice other standard SQL commands for creating, modifying, displaying data of tables.
73. List full details of all hotels.
74. List full details of all hotels in London.
75. List the names and addresses of all guests living in London, alphabetically ordered by name.
76. List all double or family rooms with a price below £40.00 per night, in ascending order of price.
77. List the bookings for which no dateTo has been specified.
78. How many hotels are there?
79. What is the average price of a room?
80. What is the total revenue per night from all double rooms?
81. How many different guests have made bookings for August?
82. List the price and type of all rooms at the Grosvenor Hotel.
83. List all guests currently staying at the Grosvenor Hotel.
84. List the details of all rooms at the Grosvenor Hotel, including the name of the guest staying in the room, if the room is occupied.
85. What is the total income from bookings for the Grosvenor Hotel today?
86. List the rooms that are currently unoccupied at the Grosvenor Hotel.
87. What is the lost income from unoccupied rooms at the Grosvenor Hotel?
88. List the number of rooms in each hotel.
89. List the number of rooms in each hotel in London.
90. What is the average number of bookings for each hotel in August?
91. What is the most commonly booked room type for each hotel in London?
92. What is the lost income from unoccupied rooms at each hotel today?

93. Insert rows into each of these tables.
94. Update the price of all rooms by 5%.
95. Investigate the SQL dialect on any DBMS that you are currently using. Determine the system's compliance with the DML statements of the ISO standard. Investigate the functionality of any extensions that the DBMS supports. Are there any functions not supported?
96. Demonstrate that queries written using the UNION operator can be rewritten using the OR operator to produce the same result.
97. Apply the syntax for inserting data into a table.
98. Create a view containing the cheapest hotels in the world.
99. Create the Hotel table using the integrity enhancement features of SQL.
100. Create a database trigger for the following situations:
 - (a) The price of all double rooms must be greater than £100.
 - (b) The price of double rooms must be greater than the price of the highest single room.
 - (c) A booking cannot be for a hotel room that is already booked for any of the specified dates.
 - (d) A guest cannot make two bookings with overlapping dates.
 - (e) Maintain an audit table with the names and addresses of all guests who make bookings for hotels in London (do not store duplicate guest details).

Note : Recommended to use open source database software like [MySQL](#), [MongoDB](#), [PostgreSQL](#), etc...

In practical examination, students have to

- Create database
- Create tables with their integrity constraints.
- Insert the data into tables and then execute the queries.
- Answer any **six** queries from **ten** queries given by the examiner.

SEC-2
[A]

SciLab – 2

BS401

Theory

2 Hours/Week

2 credits

Unit – I

Programming in scilab – introduction, variables & variable names, assignment statements, arithmetic, relational, logical operators, input & output, flow control/branching/conditional statements, break and continue, handling matrices with loops, scripts, the concept of functions, user defined functions, special function commands.

Menus and Dialog Boxes – introduction, a simple menu example, scilab window with greetings menu added, executing submenus from command line, linking menus to scilab code from external files, entering data through dialog boxes, printing a message in a message box, dialog box for entering a matrix.

Unit – II

Graphic Output – introduction, 2d plotting, function versions for graphic commands, 3d plotting, other graphic primitives, other graphic commands.

String Handling Functions – symbolic processing in scilab, creation of a linear combination of arguments, string to ASCII conversion, creation of a string of blank characters, conversion of a string to uppercase and lowercase, string matching, string concatenation, reversing a string, replacement of a string by another, length of a string, type checking.

Statistics – introduction, basic statistical functions, applying statistical functions on matrices, distributions, frequency of values of a matrix or vector, centre, weighted centre, central moment, correlation, covariance, variance matrix, percentiles, frequencies, cumulative sum, difference of two independent samples, fisher test.

Text

Er. Hema Ramachandran, Dr. Achuthsankar S. Nair, *Computer SCILAB–A Free Software to MATLAB*

References

Digite, *Introduction to Scilab*

Digite, *Optimization in Scilab*

Scilab Enterprises, *Scilab for Very Beginners*

Digite, *Introduction to Discrete Probabilities with Scilab*

Note:

Student friendly video lecturers pertaining to this course are available at <http://spoken-tutorial.org/>

Teachers are advised to teach this courses in the computer lab itself, so that the interested students may derive some time to perform few programs their own.

SEC-2
[B]

Python – 2

BS401

Theory

2 Hours/Week

2 credits

Unit – I

Arrays in Python: Array, Advantages of Arrays, Creating an Array, Importing the Array Module, Indexing and Slicing on Arrays, Processing the Arrays, Types of Arrays, Working with Arrays using numpy, Creating Arrays using array(), linspace, logspace, arange(), zeros() and ones() Functions, Mathematical Operations on Arrays, Comparing Arrays, Aliasing the Arrays, Viewing and Copying Arrays, Slicing and Indexing in numpy Arrays, Dimensions of Arrays, Attributes of an Array, The reshape() Method, The flatten() Method, Working with Multi-dimensional Arrays, Indexing in Multi-dimensional Arrays, Slicing the Multi-dimensional Arrays, Matrices in numpy, Getting Diagonal Elements of a Matrix, Finding Maximum and Minimum Elements, Finding Sum and Average of Elements, Products of Elements, Sorting the Matrix, Transpose of a Matrix, Matrix Addition and Multiplication, Random Numbers.

Strings and Characters: Creating Strings, Length of a String, Indexing in Strings, Slicing the Strings, Repeating the Strings, Concatenation of Strings, Checking Membership, Comparing Strings, Removing Spaces from a String, Finding Sub Strings, Counting Substrings in a String, Strings are Immutable, Replacing a String with another String, Splitting and Joining Strings, Changing Case of a String, Checking Starting and Ending of a String, String Testing Methods, Formatting the Strings, Working with Characters, Sorting Strings, Searching in the Strings, Finding Number of Characters and Words, Inserting Sub String into a String.

Unit – II

Functions: Difference between a Function and a Method, Defining a Function, Calling a Function, Returning Results from a Function, Returning Multiple Values from a Function, Functions are First Class Objects, Pass by Object Reference, Formal and Actual Arguments, Positional Arguments, Keyword Arguments, Default Arguments, Variable Length Arguments, Local and Global Variables, The Global Keyword, Passing a Group of Elements to a Function, Recursive Functions, Anonymous Functions or Lambdas, Function Decorators, Generators, Structured Programming, Creating our Own Modules in Python, The Special Variable name.

Lists and Tuples: List, Creating Lists using range() Function, Updating the Elements of a List, Concatenation of Two Lists, Repetition of Lists, Membership in Lists, Aliasing and Cloning Lists, Methods to Process Lists, Finding Biggest and Smallest Elements in a List, Sorting the List Elements, Number of Occurrences of an Element in the List, Finding Common Elements in Two Lists, Storing Different Types of Data in a List, Nested Lists, Nested Lists as Matrices, List Comprehensions, Tuples, Creating Tuples, Accessing the Tuple Elements, Basic Operations on Tuples, Functions to Process Tuples, Nested Tuples, Inserting Elements in a Tuple, Modifying Elements of a Tuple, Deleting Elements from a Tuple.

Dictionaries: Operations on Dictionaries, Dictionary Methods, Using for Loop with Dictionaries, Sorting the Elements of a Dictionary using Lambdas, Converting Lists into Dictionary, Converting Strings into Dictionary, Passing Dictionaries to Functions, Ordered Dictionaries.

Text R. Nageswara Rao, *Corer Python Programming*, Dreamtech Press

References Mark Lutz, *Learning Python*
 Tony Gaddis, *Starting Out With Python*
 Kenneth A. Lambert, *Fundamentals of Python*
 James Payne, *Beginning Python using Python 2.6 and Python 3*
 Paul Gries, *Practical Programming: An Introduction to Computer Science using Python 3*

Note: Student friendly video lecturers pertaining to this course are available at <http://spoken-tutorial.org/>

Teachers are advised to teach this courses in the computer lab itself, so that the interested students may derive some time to perform few programs their own.

DSC–3D**Computer Networks****BS406**

Theory	3 Hours/Week	3 credits
Practical	2 Hours/Week	1 credit

Unit – I

Introduction: Computer-System Architecture, Computing Environments.

Operating-System Structures: Operating-System Services, User Interface for Operating-System, System Calls, Types of System Calls, Operating System Structure.

Process Concept, CPU Scheduling Concepts, Scheduling Criteria, Overview of Main Memory, Virtual Memory, Mass-Storage Structure, File Systems and File System Implementation.

Unit – II

Introduction: Data Communication Components, Line Configuration, Topologies, Transmission Mode, Categories of Networks, ISO Reference Model–Layered Architecture, TCP/IP Reference Model.

Transmission Media: Guided Media–Twisted Pair Cable, Coaxial Cable, Optical Fiber, Unguided Media–Satellite Communication, and Cellular Telephony.

Unit – III

Data Link Layer: Error Detection–VRC, LRC, CRC, Checksum, Error Correction–Hamming Code, Burst Error Correction, Line Discipline–ENQ/ACK, Poll/Select, Flow Control–Stop-and-Wait, Sliding Window, Error Control–Stop-and-Wait ARQ, Sliding Window ARQ Go-Back-n ARQ, Selective-Reject ARQ.

Local Area Networks: Introduction to IEEE 802, Ethernet-CSMA/CD, Implementation, Token Ring,-Token Passing, Implementation. Overview of Multiplexing and Switching.

Unit – IV

Networking and Internetworking Devices: Repeaters, Bridges, Routers, Gateways, Brouters, Switches, Distance Vector Routing Algorithm. Transport Layer: Duties of Transport Layer, Connection.

Upper OSI Layers; Session Layer, Presentation Layer, Application Layer.

Text

Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, *Operating System Concepts (9e)*
Behrouz A. Forouzan, *Data Communication and Networking (2e Update)*

References

Andrew S. Tanenbaum, *Modern Operating Systems*
Dhananjay M. Dhandhere, *Operating Systems – A Concept Based Approach*
S.S. Shinde, *Computer Networks*
William Stallings, *Data and Computer Communications*
Andrew S. Tanenbaum, David J Wetherall, *Computer Networks*
Behrouz A Forouzan, Firouz Mosharraf, *Computer Networks A Top-Down Approach*
James F. Kurose, Keith W. Ross, *Computer Networking: A Top-Down Approach Featuring the Internet*

Computer Networks Lab

BS406

Practical

2 Hours/Week

1 credit

- 1 Use vi editor to create different files, writing data into files, modifying data in files.
- 2 Use different types of Unix commands on the files created in first program.
- 3 Write shell programs using 'case', 'then' and 'if' & 'else' statements.
- 4 Write shell programs using while, do-while and for loop statements.
- 5 Write a shell script that accepts two integers as its arguments and computes the value of first number raised to the power of the second number.
- 6 Write a shell script that takes a command-line argument and reports on whether it is directory, a file, or something else.
- 7 Write a shell script that accepts a file name, starting and ending line numbers as arguments and displays all the lines between the given line numbers.
- 8 Write a shell script that displays a list of all the files in the current directory to which the user has read, write and execute permissions.
- 9 Write a program to create a socket and implement connect function.
- 10 Write a program to display hello world using signals.
- 11 Write a program to implement the sliding window protocol.
- 12 Write a program to implement listener and talker.
- 13 Write a program to implement TCP echo using client-server program
- 14 Write a program to implement UDP echo using client-server program.
- 15 Write a TCP client-server program to convert a given string into reverse.
- 16 Write a UDP client-server program to convert a given string into reverse.

Note
:
Recommended to use Open Source Software like Fedora, Ubuntu, CentOS, etc...
Write above program using C language on Unix/Linux Systems.

GE-1

Information Technologies - 1

BS501

Theory

2 Hours/Week

2 credits

Unit - I

Introduction to Computers: What is a Computer? Characteristics of Computers, Generations of Computers, Classification of Computers, Basic Computer Organization, Applications of Computers.

Input and Output Devices: Input Devices, Output Devices, Soft Copy Devices, Hard Copy Devices.

Computer Memory and Processors: introduction, Memory Hierarchy, Processor Registers, Cache Memory, Primary Memory, Secondary Storage Devices, Hard Disks, Optical Drives, USB Flash Drives, Memory Cards.

Unit - II

Computer Software: Introduction, Classification of Computer Software, System Software, Applications Software, Firmware, Middleware, Acquiring Computer Software.

Operating Systems: Introduction, Evolution of OS, Process Management, Memory Management, File Management, Device Management, Security Management, Command Interpreter, Windows, Linux.

Text Reema Thareja, *Fundamentals of Computers*

References P. K. sinha, *Computer Fundamentals*

Anita Goel, *Computer Fundamentals*

V. Rajaraman, *Fundamentals of Computers*

E. Balagurusamy, *Fundamentals of Computers*

J. Glenn Brookshear, Dennis Brylow, *Computer Science An Overview*

Note: Student friendly video lecturers pertaining to this course are available at <http://spoken-tutorial.org/>

Teachers are advised to teach this courses in the computer lab itself, so that the interested students may derive some time to perform few programs their own.

SEC-3
[A]

R Basics- 1

BS502

Theory

2 Hours/Week

2 credits

Unit - I

Introduction – Statistical Programming, The R package, Installation of R and RStudio, Getting started in RStudio

Introduction to the R language – First steps, Basic features of R, Vectors in R, Data storage in R, Packages, libraries, and repositories, Getting help, Logical vectors and relational operators, Data frames and lists, Data input and output.

Unit - II

Programming statistical graphics – High level plots, Low level graphics functions.

Programming with R – Flow control, Managing complexity through functions, The replicate() function, General programming guidelines, Debugging and maintenance.

Text W. John Braun, Duncan J. Murdoch, *A First Course in Statistical Programming with R (2e)*

References Jared P. Lander, *R for Everyone*
Joshua F. Wiley, Larry A. Pace, *Beginning R (2e)*
Martin Laredo, *R Programming for Beginners For Data Science*

Note: Student friendly video lecturers pertaining to this course are available at <http://spoken-tutorial.org/>
Teachers are advised to teach this courses in the computer lab itself, so that the interested students may derive some time to perform few programs their own.

SEC-3
[B]

Ruby

BS502

Theory

2 Hours/Week

2 credits

Unit - I

Ruby Basics – Hello, Matz, Interactive Ruby. Ruby Is Object-Oriented, Ruby's Reserved Words, Variables, Strings, Numbers and Operators.

Conditional Love – The if Statement, The case Statement, The while Loop, The loop Method, The for loop.

Strings – Creating Strings, Concatenating Strings, Accessing Strings, Comparing Strings, Manipulating Strings, Case Conversion, Managing Whitespace, Incrementing Strings, Converting Strings, Regular Expressions.

Math – Class Hierarchy and Included Modules, Converting Numbers, Basic Math Operations, Math Methods, Math Functions.

Unit - II

Arrays – Creating Arrays, Accessing Elements, Concatenation, Set Operations, Comparing Arrays, Changing Elements, Deleting Elements, Multidimensional Arrays.

Hashes – Creating Hashes, Accessing Hashes, Iterating over Hashes, Changing Hashes.

Classes – Defining the Class, Instance Variables, Accessors, Class Variables, Class Methods, Inheritance, Modules, public, private, or protected.

Text Michael Fitzgerald, *Learning Ruby*

References Jay McGavren, *Head First Ruby: A Brain-Friendly Guide*
Peter Cooper, *Beginning Ruby From Novice to Professional*
David A. Black, *Ruby Programming (The Well-Founded Rubyist)*
David Flanagan, Yukihiro Matsumoto, *The Ruby Programming Language*

Note: Student friendly video lecturers pertaining to this course are available at <http://spoken-tutorial.org/>
Teachers are advised to teach this courses in the computer lab itself, so that the interested students may derive some time to perform few programs their own.

DSC–3E

Multimedia Systems

BS505

Theory	3 Hours/Week	3 credits
Practical	2 Hours/Week	1 credit

Unit – I

Multimedia: Introduction, Definitions, Where to Use Multimedia- Multimedia in Business, Schools, Home, Public Places, Virtual Reality; Delivering Multimedia.

Text: Meaning, Fonts and Faces, Using Text in Multimedia, Computers and Text, Font Editing and Design Tools, Hypermedia and Hypertext.

Images: Before You Start to Create, Making Still Images, Color.

Unit – II

Sound: The Power of Sound, Digital Audio, MIDI Audio, MIDI vs. Digital Audio, Multimedia System Sounds, Audio File Formats. Adding Sound to Your Multimedia Project.

Animation: The Power of Motion, Principles of Animation, Animation by Computer, Making Animations.

Video: Using Video, How Video Works and Is Displayed, Digital Video Containers, Obtaining Video Clips, Shooting and Editing Video.

Unit – III

Making Multimedia: The Stages of a Multimedia Project, the Intangibles, Hardware, Software, Authoring Systems.

The Internet and Multimedia: Internet History, Internetworking, Multimedia on the Web.

Designing for the World Wide Web: Developing for the Web, Text for the Web, Images for the Web, Sound for the Web, Animation for the Web, Video for the Web.

Text Tay Vaughan, *Multimedia: Making it work (8e)*

Reference Keyes, *Multimedia Handbook*

s K. Andleigh, K. Thakkar, *Multimedia System Design*

Ralf Steinmetz, Klara Naharstedt, *Multimedia: Computing, Communications Applications*

Student friendly video lecturers pertaining to this course are available at <http://spoken-tutorial.org/>

Multimedia Systems Lab

BS505

Practical

2 Hours/Week

1 credit

Implement the followings using Blender -

- 1 Create an animation using the tools panel and the properties panel to draw the following – Line, oval, circle, pencil, brush, lasso tool etc...
- 2 Create an animation using the tools panel and the properties panel to draw the following – rectangle, square, triangle, diamond, octagon etc...
- 3 Create an animation using text tool to set the font, size, color etc.
- 4 Create an animation using free transform tool that should use followings- Move Objects, Skew Objects, Stretch Objects, Rotate Objects, Stretch Objects while maintaining proportion, Rotate Objects after relocating the center dot
- 5 Create an animation using layers having following features- Insert layer, Delete layer, Guide layer, Mask layer.
- 6 Modify the document (changing background color etc.)using the following tools Eraser tool, Hand tool, Ink bottle tool, Zoom tool, Paint Bucket tool, Eyedropper tool
- 7 Create an animation for bus car race in which both starts from the same point and car wins the race.
- 8 Create an animation for bus car race in which both starts from the same point and bus wins the race.
- 9 Create an animation in which text Hello gets converted into GoodBye (using motion/shape tweening).
- 10 Create an animation in which text gets converted into digits (like hello is 85121215).
- 11 Create an animation having five images having fade-in fade-out effect.
- 12 Create an scene to show the sunrise (using multiple layers and motion tweening)
- 13 Create an scene to show the sunset (using multiple layers and motion tweening)
- 14 Create an animation to show the ripple effect.
- 15 Create an animation (using Shape tweening and shape hints) for transforming one shape into another.
- 16 Create an animation for bouncing ball (you may use motion guide layer).

Note Practical exercises based on concepts listed in theory using Presentation tools in office automation tool/ GIMP/Blender / Audacity/ Animation Tools/ Image Editors/ Video Editors.

DSE-1E**Web Technologies****BS506**

Theory	3 Hours/Week	3 credits
Practical	2 Hours/Week	1 credit

Unit - I

Structuring Documents for the Web: Introducing HTML and XHTML, Basic Text Formatting, Presentational Elements, Phrase Elements, Lists, Editing Text, Core Elements and Attributes, Attribute Groups

Links and Navigation: Basic Links, Creating Links with the <a> Element, Advanced E- mail Links.

Images, Audio, and Video: Adding Images Using the Element, Using Images as Links Image Maps, Choosing the Right Image Format, Adding Flash, Video and Audio to your web pages.

Tables: Introducing Tables, Grouping Section of a Table, Nested Tables, Accessing Tables

Forms: Introducing Forms, Form Controls, Sending Form Data to the Server

Frames: Introducing Frameset, <frame> Element, Creating Links Between Frames, Setting a Default Target Frame Using <base> Element, Nested Framesets, Inline or Floating Frames with <iframe>.

Unit - II

Cascading Style Sheets: Introducing CSS, Where you can Add CSS Rules.

CSS Properties: Controlling Text, Text Formatting, Text Pseudo Classes, Selectors, Lengths, Introducing the Box Model.

More Cascading Style Sheets: Links, Lists, Tables, Outlines, The :focus and :activate Pseudo classes Generated Content, Miscellaneous Properties, Additional Rules, Positioning and Layout with CSS

Page Layout: Understating the Site's Audience, Page Size, Designing Pages, Coding your Design, Developing for Mobile Devices.

Design Issues: Typography, Navigation, Tables, Forms.

Unit - III

Learning JavaScript: How to Add Script to Your Pages, the Document Object Model, Variables, Operators, Functions, Control Statements, Looping, Events, Built- In Objects,

Working with JavaScript: Practical Tips for Writing Scripts, Form Validation, Form Enhancements, JavaScript Libraries.

Putting Your site on the web: Meta tags, Testing your site, Talking the Leap to Live, Telling the World about your site, Understanding your visitors.

Text Jon Duckett, *Beginning HTML, XHTML, CSS and JavaScript*

References Chris Bates, *Web Programming*
M. Srinivasan, *Web Technology: Theory and Practice*
Achyut S. Godbole, Atul Kahate, *Web Technologies*
Kogent Learning Solutions Inc, *Web Technologies Black Book*
Ralph Moseley and M. T. Savaliya, *Developing Web Applications*
P.J. Deitel & H.M. Deitel, *Internet and World Wide Web How to program*

Web Technologies Lab

BS506

Practical

2 Hours/Week

1 credit

- 1 a. Write a HTML program using basic text formatting tags, <h1>, <p>,
, <pre>.
b. Write a HTML page for Example Cafe using above text formatting tags.
- 2 a. Write a HTML program using presentational element tags , <i>, , <sup>, <sub>, <big>, <small>, <hr>
b. Write a HTML program using phrase element tags <blockquote>, <cite>, <abbr>, <acronym>, <code>, <address>
- 3 a. Write a HTML program using different list types.
b. Write a HTML page that displays ingredients and instructions to prepare a recipe.
- 4 a. Write a HTML program using grouping elements <div> and .
b. Write a HTML Menu page for Example cafe site.
- 5 a. Write a HTML program using images, audios, videos.
b. Write a HTML program to create your time table.
- 6 Write a HTML program to create a form using text inputs, password inputs, multiple line text input, buttons, check boxes, radio buttons, select boxes, file select boxes.
- 7 Write a HTML program to create a frames and links between frames.
- 8 Write a HTML program to create different types of style sheets.
- 9 Write a HTML program to create CSS on links, lists, tables and generated content.
- 10 Write a HTML program to create your college web site using multi column layouts.
- 11 Write a HTML program to create your college web site using for mobile device.
- 12 Write a HTML program to create login form and verify username and password using DOM
- 13 a. Write a JavaScript program to calculate area of rectangle using function.
b. Write a JavaScript program to wish good morning, good afternoon, good evening depending on the current time.
- 14 a. Write a JavaScript program using switch case?
b. Write a JavaScript program to print multiplication table of given number using loop.
- 15 a. Write a JavaScript programs using any 5 events.
b. Write a JavaScript program using JavaScript built in objects.
- 16 Write a JavaScript program to create registration form and validate all fields using form validation

DSE–2E**Visual Programming****BS506**

Theory	3 Hours/Week	3 credits
Practical	2 Hours/Week	1 credit

Unit – I

Introduction to VB: Writing windows application with VB, Programming languages -procedural, object oriented, event driven; VB Environment, Writing first VB project, compiling, debugging, and running the programs.

Controls : Introduction to controls textboxes, frames, check boxes, option buttons, images, setting borders and styles, the shape control, the line control, working with multiple controls and their properties, designing the user interface, keyboard access, tab controls, default & cancel property, coding for controls.

Variables, constants, and Calculation: Data types, naming rules and conversion, constants-named and intrinsic, declaring variables, scope of variables, val function, arithmetic operations, formatting data Counting and accumulating Sums.

Unit – II

Decisions and Conditions : If statement, Conditions-comparing numeric variables and constants, comparing strings, compound conditions (and, or, not), nested if statements, using if statements with option buttons & check boxes, displaying message in message box, input validation. Calling event procedures, debugging VB projects, Debugging Step-by-Step Tutorial.

Modular programming: Menus, using common dialog box, writing general procedure. Forms Handling : Multiple forms, creating, adding, removing forms, hide, show method, load, unload statement, me keyword, referring to objects on a different forms, Variables and constants in Multiple-Forms.

Iteration Handling: Lists Boxes and Combo Boxes, Do/loops, for/next loops, using msgbox function, using string function.

Unit – III

Arrays: control Arrays, the case structure, single-dimension arrays, for Each/Next statement, table lookup, using list boxes with array, multidimensional arrays.

Database Connectivity: VB and database, using the data control, viewing a database file- step-by-step, Navigating the Database in code, using list boxes and comboboxes as data-bound controls, adding a lookup table and navigation-stepby-step, updating a database file, Recordsets, working with database fields, creating a new Dynaset.

Advanced topics in VB: ActiveX controls, Dynamic link libraries (DLL), Multiple Document interface (MDI).

Text

Julia Case Bradley, Anita C. Millspaugh, *Programming in Visual Basic 6.0 (TMHE 2000–14th Reprint 2004)*

References

Diane Zak, *Programming with Microsoft Visual Basic 2012*

Tony Gaddis, Kip Irvine, *Starting Out With Visual Basic 2012*

Visual Programming Lab

BS506

Practical

2 Hours/Week

1 credit

- 1 Write a program to print a table of numbers from 5 to 15 and their squares and cubes.
- 2 Write a program to print the largest of three numbers.
- 3 Write a program to print the factorial of a number.
- 4 Write a program to print the GCD of any two positive integers.
- 5 Write a program to print the given number in reverse order of digits.
- 6 Write a program to print the given number is prime or not.
- 7 Create an application that prompts the user to enter today's sales for five stores. The program should then display a simple bar graph comparing each store's sales.
- 8 Create an application that allows the user to enter each month's amount of rainfall and calculates the total and average rainfall for a year.
- 9 Write code that declares a string array with three elements and then stores your first, middle, and last names in the array's elements.
- 10 Enter a list of positive numbers terminated by zero. Find the sum and average of these numbers.
- 11 A person deposits Rs. 1000 in a fixed account yielding 5% interest. Complete the amount in the account at the end of each year for n years.
- 12 Read n numbers. Count the number of negative numbers, positive numbers and zeros in the list.
- 13 Read n numbers. Count the number of negative numbers, positive numbers and zeroes in the list. (Use arrays.)
- 14 Read a single dimension array. Find the sum and average of these numbers.
- 15 Read a two dimension array. Find the sum of two 2D Array.

Create a database Employee and Make a form to allow data entry to Employee Form with the following command buttons:

Employee Form

16	Employee Name: <input style="width: 200px;" type="text"/>								
	Employee Id: <input style="width: 200px;" type="text"/>								
	Date of Joining: <input style="width: 200px;" type="text"/>								
	Designation: <input style="width: 200px;" type="text"/>								
	Department: <input style="width: 200px;" type="text"/>								
	Address: <input style="width: 200px;" type="text"/>								
	Basic Pay: <input style="width: 200px;" type="text"/>								
<table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td style="padding: 5px 15px;">PREV</td> <td style="padding: 5px 15px;">NEXT</td> <td style="padding: 5px 15px;">FIRST</td> <td style="padding: 5px 15px;">LAST</td> <td style="padding: 5px 15px;">ADD</td> <td style="padding: 5px 15px;">SAVE</td> <td style="padding: 5px 15px;">DELETE</td> <td style="padding: 5px 15px;">CANCEL</td> </tr> </table>		PREV	NEXT	FIRST	LAST	ADD	SAVE	DELETE	CANCEL
PREV	NEXT	FIRST	LAST	ADD	SAVE	DELETE	CANCEL		

GE-2

Information Technologies – 2

BS601

Theory

2 Hours/Week

2 credits

Unit – I

Introduction to Algorithms and Programming Languages: Algorithm, Control Structures, Flowcharts, Pseudo code, Programming Languages, Generations of Programming Languages.

Database Systems: File Oriented Approach, Database Oriented Approach, Database Views, Three-Schema Architecture, Database Models, Components of DBMS, Introduction of SQL Queries.

Unit – II

Computer Networks: Introduction, Connection Media, Data Transmission Mode, Data Multiplexing, Data Switching, Network Topologies, Types of Networks, Networking Devices, OSI Model.

The Internet: Internet Services, Types of Internet Connections, Internet Security.

Emerging Computer Technologies: Distributed Networking, Peer-to-peer Computing, Grid Computing, Cloud Computing, Utility Computing, OnDemand Computing, Wireless Network, Bluetooth, Artificial Intelligence.

Text Reema Thareja, *Fundamentals of Computers*

References P. K. sinha, *Computer Fundamentals*

Anita Goel, *Computer Fundamentals*

V. Rajaraman, *Fundamentals of Computers*

E. Balagurusamy, *Fundamentals of Computers*

J. Glenn Brookshear, Dennis Brylow, *Computer Science An Overview*

Note: Student friendly video lecturers pertaining to this course are available at <http://spoken-tutorial.org/>

Teachers are advised to teach this courses in the computer lab itself, so that the interested students may derive some time to perform few programs their own.

SEC-4
[A]

R Basics – 2

BS602

Theory

2 Hours/Week

2 credits

Unit – I

Simulation – Generation of pseudorandom numbers, Simulation of other random variables (Bernoulli, Binomial, Poisson, Exponential, Normal), Multivariate random number generation, Markov chain simulation, Monte Carlo integration.

Unit – II

Computational linear algebra – Vectors and matrices in R, Matrix Multiplication, Inversion, Other operations. Numerical optimization – The golden section search method, Newton–Raphson, Built-in functions, Linear programming (Solving LPP in R, Maximization and other kinds of constraints, Special situations).

Text W. John Braun, Duncan J. Murdoch, *A First Course in Statistical Programming with R (2e)*

References Jared P. Lander, *R for Everyone*
Joshua F. Wiley, Larry A. Pace, *Beginning R (2e)*
Martin Laredo, *R Programming for Beginners For Data Science*

Note: Student friendly video lecturers pertaining to this course are available at <http://spoken-tutorial.org/>
Teachers are advised to teach this courses in the computer lab itself, so that the interested students may derive some time to perform few programs their own.

SEC-4
[B]**Ruby on Rails**

BS602

Theory

2 Hours/Week

2 credits

Unit - I

Getting Started with Rails: What Is Rails? A Brief History of Rails, writing and executing simple rail programs.
 Understanding Rails: understanding MVC, rails' standard packages, understanding rails' main principles.
 Ruby's Data Types: Hello, Ruby! Ruby's essential data types, everything is an object, identifiers and variables, working with numbers, Booleans, strings, symbols, regular expressions, ranges, arrays, hashes.

Unit - II

Programming Ruby: defining methods, conditionals – if/elsif/else/unless, ternary operator, case statement, looping – for/in loop, while and until loops, blocks and iterators, exception handling, raising errors, objects and classes, defining and instantiating classes, attributes and accessor methods, methods visibility, single inheritance, monkey patching, singleton methods and eigenclasses. A Working Sample: Creating a New Rails Application, Creating Databases, Scaffolding and Migrations, Putting It All Together: Creating a Rails Application.

Text Antonio Cangiano, *Ruby on Rails for Microsoft Developers (Bible)*

References J. Mark Locklear, Learning Rails 5
 Noel Rappin, *Professional Ruby on Rails*
 Antonio Cangiano, *Ruby on Rails for Microsoft Developers*
 David Griffiths, Head First Rails A learner's companion to Ruby on Rails
 Michael Hartl, *Ruby on Rails Tutorial Learn Web Development with Rails*

Note: Student friendly video lecturers pertaining to this course are available at <http://spoken-tutorial.org/>
 Teachers are advised to teach this courses in the computer lab itself, so that the interested students may derive some time to perform few programs their own.

DSC–3F**Mobile Applications****BS605**

Theory	3 Hours/Week	3 credits
Practical	2 Hours/Week	1 credit

Unit – I

Introduction to Programming and App Inventor: Introduction, What Is a Computer Program? Introducing App Inventor, Getting Hands-On with App, Tutorial 1-1,1-2,1-3,1-4 Working with Media: Displaying Images, Tutorial 2-1,2-2,2-3,Duplicating Blocks and Using Dropdowns, Sounds, Color Blocks, Layout Components, Tutorial 2-7 Input, Variables, and Calculations: The Text Box Component, Performing Calculations, Tutorial 3-1, 3-2 ,Storing Data with Variables Tutorial 3-3, Creating Blocks with Type blocking, Math Functions.

Unit – II

Decision Blocks and Boolean: Introduction to Decision Blocks, Relational Operators and the if Block, Tutorial 4-1, The if then else Block Tutorial 4-2, A First Look At Comparing Strings, Logical Operators, Tutorial 4-4, Nested Decision Blocks, Tutorial 4-5 The if then else if Block, The Screen's Initialize Event, The ListPickerComponent, The CheckBox Component, Repetition Blocks, Times, and Dates: The Notifier Component, The while Loop, Tutorial 5-1, The for each Loop Tutorial 5-2, The Clock Component, The DatePicker Component Procedures and Functions.

Unit – III

Lists -Graphics and Animation: The Canvas Component, Tutorial 9-1, The Ball and ImageSprite Component, Tutorial 9-2, 9-3,Using the Clock Component to Create AnimationsWorking with Text: Concatenating Strings, Comparing Strings, Trimming a String, Converting Case, Finding a Substring Tutorial 10-3,Replacing a Substring , Extracting a Substring, Splitting a Substring Text to Speech and Text Messaging.

Text Tony Gaddis, Rebecca Halsey, *Starting Out with App Inventor for Android (1e)*

References Mark L. Murphy, *Beginning Android*
 J.F. DiMarzio, *Android – A Programmer's Guide*
 W Frank Ableson, Robi Sen, Chris King, *Android in Action*
 Lucas Jordan, Pieter Greyling, *Practical Android Projects*
<http://appinventor.mit.edu/>

Mobile Applications Lab

BS605

Practical

2 Hours/Week

1 credit

- 1 Create the Screen for the Hello World App
- 2 Develop a mobile app to Create Good Morning Translator App
- 3 Design a mobile app to change the Screen's Background Image
- 4 Create a mobile app for layout components and Color Blocks
- 5 Design the mobile app for the Kilometer Converter
- 6 Create mobile app to calculate Test Average
- 7 Develop a mobile app to demonstrate Range Checker
- 8 Develop a mobile app for Grader App
- 9 Design a mobile app to demonstrate checkbox components
- 10 Demonstrate a mobile app for while loop
- 11 Design a mobile app to Calculate Sum of Consecutive Numbers
- 12 Design a mobile app to create Lights
- 13 Design a mobile app to demonstrate lists
- 14 Design a mobile app to validate an Email Address
- 15 Design a mobile app to display images of all states and union territories in India
- 16 Design a mobile app of your college having college information, features, events and placements

DSE-1F**PHP Programming****BS606**

Theory	3 Hours/Week	3 credits
Practical	2 Hours/Week	1 credit

Unit – I

Introducing PHP – What is PHP? Why use PHP? Evolution of PHP, Installing PHP, Other ways to run PHP, Creating your first script. PHP Language Basics – Using variables, Understanding Data Types, Operators and Expressions, Constants. Decisions and Loops – Making Decisions, Doing Repetitive Tasks with Looping, Mixing Decisions and Looping with HTML. Strings – Creating and Accessing Strings, Searching Strings, Replacing Text with Strings, Dealing with Upper and Lowercase, Formatting Strings. Arrays – Creating Arrays, Accessing Array Elements, Looping Through Arrays with for-each, Working with Multidimensional Arrays, Manipulating Arrays.

Unit – II

Functions – What is a Function? Why Functions are useful? Calling Functions, Working with Variable Functions, Writing your own Functions, Working with References, Writing Recursive Functions. Objects – Introduction OOP Concepts, Creating Classes and Objects in PHP, Creating and using Properties, Working with Methods, Object Overloading with `_get()`, `_set()` and `_call()`, Using Inheritance to Extend Power of Objects, Constructors and Destructors, Automatically Loading Class Files, Storing as Strings. Handling HTML Forms with PHP – How HTML form works, Capturing Form Data with PHP, Dealing with Multi-Value Fields, Generating Web Forms with PHP, Storing PHP Variables in Forms, Creating File Upload Forms, Redirecting After a Form Submission.

Unit – III

Working with Files and Directories - Getting Information on Files, Opening and Closing Files, Reading and Writing to Files, Copying, Renaming, and Deleting Files, Working with Directories. Introducing Databases and SQL – Deciding How to Store Data, Understanding Relational Databases, Setting Up MySQL, A Quick Play with MySQL, Connecting MySQL from PHP. Retrieving Data from MySQL with PHP – Retrieving Data with SELECT, Creating a Member Record Viewer. Manipulating MySQL Data with PHP – Inserting, Updating, and Deleting Records.

Text Matt Doyle, *Beginning PHP 5.3* (Wrox – Wiley Publishing)

References Ellie Quigley, *PHP and MySQL by Example*
 Joel Murach, Ray Harris, *Murach's PHP and MySQL*
 Brett McLaughlin, *PHP & MySQL: The Missing Manual*
 Luke Welling, Laura Thomson, *PHP and MySQL Web Development*
 W. Jason Gilmore, *Beginning PHP and MySQL From Novice to Professional*
 Andrew Curioso, Ronald Bradford, Patrick Galbraith, *Expert PHP and MySQL*

PHP Programming

BS606

Practical

2 Hours/Week

1 credit

- 1 a) Write a PHP script to find the factorial of a given number.
b) Write a PHP script to find the sum of digits of a given number.
- 2 a) Write a PHP script to find whether the given number is a prime or not.
b) Write a PHP script to demonstrate the use of break, continue statements using nested loops.
- 3 a) Write a PHP script to display the Fibonacci sequence with HTML page.
b) Write a PHP script to create a chess board.
- 4 a) Write a PHP script using built-in string function like strpos(), strpos(), substr_count(), etc...
b) Write a PHP script to transform a string to uppercase, lowercase letters, make a string's first character uppercase.
- 5 a) Write a PHP script that inserts a new item in an array in any position.
b) Write a PHP function to check whether all array values are strings or not.
- 6 a) Write a PHP script to count number of elements in an array and display a range of array elements.
b) Write a PHP script to sort a multi-dimensional array set by a specific key.
- 7 a) Write a PHP script using a function to display the entered string in reverse.
b) Write a PHP script using function for sorting words in a block of text by length.
- 8 a) Write a PHP script for creating the Fibonacci sequence with recursive function.
b) Write a PHP script using pass by value and pass by reference mechanisms in passing arguments to functions.
- 9 a) Write a PHP script to demonstrate the defining and using object properties.
b) Write a PHP script to demonstrate the inheritance.
- 10 a) Write a PHP script to demonstrate the object overloading with _get(), _set(), and _call().
b) Write a PHP script to demonstrate the overloading property accesses with _get() and _set().
- 11 a) Write a PHP script to demonstrate the method overloading and method overriding mechanisms.
b) Write a PHP script to demonstrate the use of final classes and final methods.
- 12 a) Write a PHP script to demonstrate the use interfaces.
b) Write a PHP script using constructors and destructors.
- 13 Write a PHP application to handling HTML forms with PHP script.
- 14 a) Write a PHP script to create a file, write data into file and display the file's data.
b) Write a PHP script to check and change file permissions, copying, renaming and deleting files.
- 15 a) Write a PHP application for connecting to MySQL and reading data from database table.
b) Write a PHP application for inserting, updating, deleting records in the database table.
- 16 Write a PHP application for student registration form.

DSE–2F

Information Security and Cyber Laws

BS606

Theory	3 Hours/Week	3 credits
Practical	2 Hours/Week	1 credit

Unit – I

Introduction to Information Systems and Security – Information Systems, Types of IS, Development of IS, Introduction to Information Security, Need for Information Security, Threats to Information Systems, Information Assurance, Cyber Security.

Introduction to Application Security and Counter Measures – Introduction to Application Security, Data Security Considerations, Security Technologies, Security Threats, Security Threats to E-Commerce.

Unit – II

E-Cash and Electronic Payment System, Credit/Debit/Smart Cards, Digital Signature, Cryptography and Encryption.

Introduction to Security Measures – Secure Information System Development, Application Development Security, Information Security Governance and Risk Management, Security Architecture and Design, Security Issues in Hardware, Data Storage, and Downloadable Devices, Physical Security of IT Assets, Backup Security Measures.

Unit – III

Introduction to Security Policies and Cyber Laws – Need for an Information Security Policy, Information Security Standards – ISO, Introducing Various Security Policies and Their Review Process, Introduction to Indian Cyber Law, Objective and Scope of the IT Act, 2000, Intellectual Property Issues, Overview of Intellectual-Property- Related Legislation in India, Patent, Copyright, Law Related to Semiconductor Layout and Design, Software License.

Text

Dr. Surya Prakash T, Ritendra G, Praveen Kumar S, KLSI, *Introduction to information security and cyber laws (Dreamtech Publication)*

References

Anderson, Ross, *Security Engineering*

G.R.F. Snyder, T. Pardoe, *Network Security*

Mark Stamp, *Information Security: Principles and Practice*

A. Basta, W.Halton, *Computer Security: Concepts, Issues and Implementation*

Mark S. Merkow, Jim Breithaupt, *Information Security: Principles and Practice*

Information Security and Cyber Laws Lab

BS606

Practical

2 Hours/Week

1 credit

- 1 Demonstrate the use of Network tools: ping, ipconfig, ifconfig etc...
- 2 Demonstrate the use of Network tools: tracert, arp, netstat, whois etc...
- 3 Use of Password cracking tools: John the Ripper, Ophcrack.
Verify the strength of passwords using these tools.
- 4 Write a program for performing encryption and decryption operations of Caesar cipher.
- 5 Write a program for performing encryption and decryption operations of Rail cipher.
- 6 Write a program for performing encryption and decryption operations of Monoalphabetic cipher.
- 7 Write a program for performing encryption and decryption operations of Playfair cipher.
- 8 Write a program for performing encryption and decryption operations using Transposition technique.
- 9 Use nmap to analyze a remote machine.
- 10 Use zenmap to analyze a remote machine.
- 11 Use Burp proxy to capture and modify the message.
- 12 Demonstrate sending of a protected word document.
- 13 Demonstrate sending of a digitally signed document.
- 14 Demonstrate sending of a protected worksheet.
- 15 Demonstrate use of steganography tools.
- 16 Demonstrate use of gpg utility for signing and encrypting purposes.

UG (B.Sc.) Scheme of Examinations
Computer Applications
 (CBCS 2016-17)

Elaborations

Paper	Credits	Theory Exam		Practical Exam
		University Exam	Internal Exam	
DSC	4	80 Marks	20 Marks	25 Marks
DSE	3	60 Marks	15 Marks	25 Marks
SEC	2	40 Marks	10 Marks	No Practical Exam
GE	2	40 Marks	10 Marks	

- DSC** – Discipline specific core course
DSE – Discipline specific elective course
SEC – Skill enhancement course
GE – Generic elective

4 Credit Core (DSC) Paper

University Exam (Theory)

Time: 3 Hrs.

Maximum marks: 80

Section - A (5 X 4M = 20 Marks)

Answer any five of the following eight questions. Each carries four marks.

- Q1. From Unit 1
- Q2. From Unit 1
- Q3. From Unit 2
- Q4. From Unit 2
- Q5. From Unit 3
- Q6. From Unit 3
- Q7. From Unit 4
- Q8. From Unit 4

Section - B (4 X 15M = 60 Marks)

Answer all the following four questions. Each carries FIFTEEN marks.

- Q09. (a) or (b) from Unit 1
- Q10. (a) or (b) from Unit 2
- Q11. (a) or (b) from Unit 3
- Q12. (a) or (b) from Unit 4

Internal Exam (Theory)

Time: 1 Hr.

Maximum marks: 20

- Two internal exams (one at the middle of the semester and the other at the end) of one-hour duration are to be conducted carrying 15 marks each.
- Average of the scores of two exams should be taken into account.
- Following is the examination pattern.
 - 10 MCQs (multiple choice questions) of half mark each,
 - 10 FIBs (Fill in the Blanks) of half mark each
 - 5 SAQs (short answered questions) of one mark each
 - Totaling 15 marks.
 - 5 marks meant for assignment.

University Exam (Practical)

Time: 2 Hrs.

Maximum marks: 25

- The question paper is to be typeset with **four** programs with due weightage to **all the units** from the question bank provided in the syllabus.
- The candidates are to answer any **two** of them in the practical exam.
- Each question has to carry **six** marks totaling **12** marks.
- Viva – **8** marks
- Record – **5** marks

3 Credit Core (DSE) Paper

University Exam (Theory)

Time: 3 Hrs.

Maximum marks: 60

Section - A (5 X 3M = 15 Marks)

Answer any five of the following eight questions. Each carries three marks.

- Q1. From Unit 1
- Q2. From Unit 1
- Q3. From Unit 2
- Q4. From Unit 2
- Q5. From Unit 3
- Q6. From Unit 3
- Q7. From Any Unit
- Q8. From Any Unit

Section - B (3 X 15M = 45 Marks)

Answer all the following three questions. Each carries fifteen marks.

- Q09. (a) or (b) from Unit 1
- Q10. (a) or (b) from Unit 2
- Q11. (a) or (b) from Unit 3

Internal Exam (Theory)

Time: 1 Hr.

Maximum marks: 20

- Two internal exams (one at the middle of the semester and the other at the end) of one-hour duration are to be conducted carrying 15 marks each.
- Average of the scores of two exams should be taken into account.
- Following is the examination pattern.
 - 10 MCQs (multiple choice questions) of half mark each,
 - 10 FIBs (Fill in the Blanks) of half mark each
 - 5 SAQs (short answered questions) of one mark each
 - Totaling 15 marks.
 - No assignment is required.

University Exam (Practical)

Time: 2 Hrs.

Maximum marks: 25

- The question paper is to be typeset with **four** programs with due weightage to **all the units** from the question bank provided in the syllabus.
- The candidates are to answer any **two** of them in the practical exam.
- Each question has to carry **six** marks totaling **12** marks.
- Viva – **8** marks
- Record – **5** marks

2 Credit Core (SEC & GE) Papers

University Exam (Theory)

Time: 2 Hrs.

Maximum marks: 40

Section - A (2 X 5M = 10 Marks)

Answer any two of the following four questions. Each carries five marks.

- Q1. From Unit 1
- Q2. From Unit 1
- Q3. From Unit 2
- Q4. From Unit 2

Section - B (2 X 15M = 30 Marks)

Answer all the following two questions. Each carries fifteen marks.

- Q09. (a) or (b) from Unit 1
- Q10. (a) or (b) from Unit 2

Internal Exam (Theory)

Time: 1/2 Hr.

Maximum marks: 10

- One internal exam at the end of the semester, of half an hour duration is to be conducted carrying 10 marks.
- Following is the examination pattern.
 - 10 MCQs (multiple choice questions) of one mark each,
 - No assignment is required.

MOOCs [Massive Online Open Courses] Free Resources

E-Learning:

- NPTEL :nptel.ac.in [Core Subjects Certification]
- C++ INSTITUTE :cppinstitute.org [C++ Certification]
- ORACLEEDUCATION :education.oracle.com [Java, DBMS Certification]
- BIG DATA UNIVERSITY :bigdatauniversity.com [Big Data Certification]
- COURSERA :coursera.org [Core Subjects Certification]
- CODEACADEMY :codecademy.com [Coding Certification]
- KHANACADEMY :khanacademy.org [Core Subjects Certification]
- PIXAR IN A BOX :khanacademy.org/partner-content/pixar
- VIDEOLECTURES :videlectures.net
- YOUTUBEEDU :plus.google.com/+YouTubeEDU/posts
- DISNEY RESEARCH :disneyresearch.com
- ALISON :alison.com [Core Subjects Certification]
- INTERNET ARCHIVE :archive.org

Freeware:

- SCILAB : scilab.org [MatLab Equivalent]
- GEOGEBRA :geogebra.org [Software for Class Room Teaching]

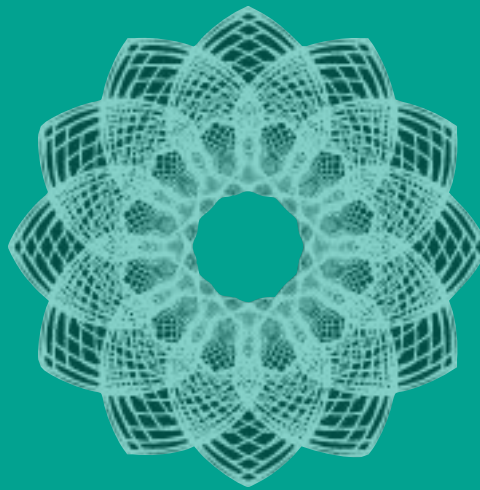
Search Engine:

- WOLFRAM ALPHA :wolframalpha.com [Computing Engine]
- CITESEER :citeseerx.ist.psu.edu [Searching Research Articles]
- DOAJ :doaj.org [Open Access to Journals]



Computer Science Syllabus for B.Sc.

(As per UGC CBCS w.e.f 2016-17)



Department of Mathematics
Osmania University
Hyderabad
Telangana

CONTENTS

<i>Course Template</i>	1
<i>Syllabus</i>	2
<i>Scheme of Examinations</i>	34
<i>M00Cs Resources</i>	38

Syllabus for Computer Science

Proposed scheme for **B.Sc.** Programme under **Choice Based Credit System**

Code	Course Title	Course Type	HpW	Credits
SEMESTER - I				
BS106	Programming in C	DSC-3A	4T+2P=6	4 + 1 =5
SEMESTER - II				
BS206	Programming in C++	DSC-3B	4T+2P=6	4 + 1 =5
SEMESTER - III				
BS301	A: SciLab - 1	SEC-1	2T	2
	B: Boolean Algebra			
BS306	Data Structures	DSC-3C	4T+2P=6	4 + 1 =5
SEMESTER - IV				
BS401	C: SciLab - 2	SEC-2	2T	2
	D: Digital Logic			
BS406	Database Management Systems	DSC-3D	4T+2P=6	4 + 1 =5
SEMESTER - V				
BS501	Information Technologies -1	GE-1	2	2
BS502	E: Python - 1	SEC-3	2	2
	F: Computer Organization			
BS505	Programming in Java	DSC-3E	3T+2P=5	3 + 1 =4
BS506	Elective-A: Operating Systems	DSE-1E	3T+2P=5	3 + 1 =4
	Elective-B: Software Engineering	DSE-2E		
SEMESTER - VI				
BS601	Information Technologies -2	GE-2	2T	2
BS602	G: Python - 2	SEC-4	2T	2
	H: Information Security			
BS605	Computer Networks	DSC-3F	3T+2P=5	3 + 1 =4
BS606	Elective-A: PHP with MySQL	DSE-1F	3T+2P=5	3 + 1 =4
	Elective-B: Web Technologies	DSE-2F		
Total Number of Credits				48

DSC-3A**Programming in C****BS106**

Theory	4 Hours/Week	4 credits
Practical	2 Hours/Week	1 credit

Unit - I

Computer Fundamentals: Introduction of Computers, Classification of Computers, Anatomy of a Computer, Memory Hierarchy, Introduction to OS, Operational Overview of a CPU.

Program Fundamentals: Generation and Classification of Programming Languages, Compiling, Interpreting, Loading, Linking of a Program, Developing Program, Software Development.

Algorithms: Definitions, Different Ways of Stating Algorithms (Step-form, Pseudo-code, Flowchart), Strategy for Designing Algorithms, Structured Programming Concept.

Basics of C: Overview of C, Developing Programs in C, Parts of Simple C Program, Structure of a C Program, Comments, Program Statements, C Tokens, Keywords, Identifiers, Data Types, Variables, Constants, Operators and Expressions, Expression Evaluation–precedence and associativity, Type Conversions.

Unit - II

Input-Output: Non-formatted and Formatted Input and Output Functions, Escape Sequences,

Control Statements: Selection Statements – if, if-else, nested if, nested if-else, comma operator, conditional operator, switch; Iterative Statements–while, for, do-while; Special Control Statement–goto, break, continue, return, exit.

Arrays and Strings: One-dimensional Arrays, Character Arrays, Functions from ctype.h, string.h, Multidimensional Arrays.

Unit - III

Functions: Concept of Function, Using Functions, Call-by-Value Vs Call-by-reference, Passing Arrays to Functions, Scope of Variables, Storage Classes, Inline Functions, and Recursion.

Pointers: Introduction, Address of Operator (&), Pointer, Uses of Pointers, Arrays and Pointers, Pointers and Strings, Pointers to Pointers, Array of Pointers, Pointer to Array, Dynamic Memory Allocation.

Unit - IV

User-defined Data Types: Declaring a Structure (Union) and its members, Initialization Structure (Union), Accessing members of a Structure (Union), Array of Structures (Union), Structures verses Unions, Enumeration Types.

Files: Introduction, Using Files in C, Working with Text Files, Working with Binary Files, Files of Records, Random Access to Files of Records, Other File Management Functions.

Text Pradip Dey, Manas Ghosh, *Computer Fundamentals and Programming in C (2e)*

References Ivor Horton, *Beginning C*
 Ashok Kamthane, *Programming in C*
 Herbert Schildt, *The Complete Reference C*
 Paul Deitel, Harvey Deitel, *C How To Program*
 Byron S. Gottfried, *Theory and Problems of Programming with C*
 Brian W. Kernighan, Dennis M. Ritchie, *The C Programming Language*
 B. A. Forouzan, R. F. Gilberg, *A Structured Programming Approach Using C*

C Lab

BS106

Practical

2 Hours/Week

1 credit

- 1 Write a program to find the largest two (three) numbers using if and conditional operator.
- 2 Write a program to print the reverse of a given number.
- 3 Write a program to print the prime number from 2 to n where n is given by user.
- 4 Write a program to find the roots of a quadratic equation using switch statement.
- 5 Write a program to print a triangle of stars as follows (take number of lines from user):

```
      *
     ***
    *****
   *********
  ***********
```

- 6 Write a program to find largest and smallest elements in a given list of numbers.
- 7 Write a program to find the product of two matrices..
- 8 Write a program to find the GCD of two numbers using iteration and recursion.
- 9 Write a program to illustrate use of storage classes.
- 10 Write a program to demonstrate the call by value and the call by reference concepts.
- 11 Write a program that prints a table indicating the number of occurrences of each alphabet in the text entered as command line arguments.
- 12 Write a program to illustrate use of data type enum.
- 13 Write a program to demonstrate use of string functions string.h header file.
- 14 Write a program that opens a file and counts the number of characters in a file.
- 15 Write a program to create a structure Student containing fields for Roll No., Name, Class, Year and Total Marks. Create 10 students and store them in a file.
- 16 Write a program that opens an existing text file and copies it to a new text file with all lowercase letters changed to capital letters and all other characters unchanged.

Note : Write the Pseudo Code and draw Flow Chart for the above programs.
Recommended to use Open Source Software: GCC on Linux; DevC++ (or) CodeBlocks on Windows 10.

DSC-3B**Programming in C++****BS206**

Theory	4 Hours/Week	4 credits
Practical	2 Hours/Week	1 credit

Unit - I

Introduction to C++: Applications, Example Programs, Tokens, Data Types, Operators, Expressions, Control Structures, Arrays, Strings, Pointers, Searching and Sorting Arrays.

Functions: Introduction, Prototype, Passing Data by Value, Reference Variables, Using Reference Variables as Parameters, Inline Functions, Default Arguments, Overloading Functions, Passing Arrays to Functions.

Object Oriented Programming: Procedural and Object-Oriented Programming, Terminology, Benefits, OOP Languages, and OOP Applications.

Unit - II

Classes: Introduction, Defining an Instance of a Class, Why Have Private Members? Separating Class Specification from Implementation, Inline Member Functions, Constructors, Passing Arguments to Constructors, Destructors, Overloading Constructors, Private Member Functions, Arrays of Objects, Instance and Static Members, Friends of Classes, Member-wise Assignment, Copy Constructors, Operator Overloading, Object Conversion, Aggregation.

Unit - III

Inheritance: Introduction, Protected Members and Class Access, Base Class Access Specification, Constructors and Destructors in Base and Derived Classes, Redefining Base Class Functions, Class Hierarchies, Polymorphism and Virtual Member Functions, Abstract Base Classes and Pure Virtual Functions, Multiple Inheritance.

C++ Streams: Stream Classes, Unformatted I/O Operations, Formatted I/O Operations.

Unit - IV

Exceptions: Introduction, Throwing an Exception, Handling an Exception, Object-Oriented Exception Handling with Classes, Multiple Exceptions, Extracting Data from the Exception Class, Re-throwing an Exception, Handling the `bad_alloc` Exception.

Templates: Function Templates-Introduction, Function Templates with Multiple Type, Overloading with Function Templates, Class Templates - Introduction, Defining Objects of the Class Template, Class Templates and Inheritance, Introduction to the STL.

Text Tony Gaddis, *Starting out with C++: from control structures through objects (7e)*

Reference s B. Lippman, *C++ Primer*
 Bruce Eckel, *Thinking in C++*
 K.R. Venugopal, *Mastering C++*
 Herbert Schildt, *C++: The Complete Reference*
 Bjarne Stroustrup, *The C++ Programming Language*
 Sourav Sahay, *Object Oriented Programming with C++*

C++ Lab**BS206****Practical**

2 Hours/Week

1 credit

- 1 Write a program to.
 - a. Print the sum of digits of a given number.
 - b. Check whether the given number is Armstrong or not
 - c. Print the prime number from 2 to n where n is natural number given.
- 2 Write a program to find largest and smallest elements in a given list of numbers and sort the given list.
- 3 Write a program to read the student name, roll no, marks and display the same using class and object.
- 4 Write a program to implement the dynamic memory allocation and de-allocation using new and delete operators using class and object.
- 5 Write a program to find area of a rectangle, circle, and square using constructors.
- 6 Write a program to implement copy constructor.
- 7 Write a program using friend functions and friend class.
- 8 Write a program to implement constructors
 - Default Constructor, Parameterized Constructor, Copy Constructor
 - Define the constructor inside/outside of the class
 - Implement all three constructors within a single class as well as use multiple classes(individual classes)
- 9 Write a program to implement the following concepts using class and object
 - Function overloading
 - Operator overloading (unary/binary(+ and -))
- 10 Write a program to demonstrate single inheritance, multilevel inheritance and multiple inheritances.
- 11 Write a program to implement the overloaded constructors in inheritance.
- 12 Write a program to implement the polymorphism and the following concepts using class and object.
 - Virtual functions
 - Pure virtual functions
- 13 Write a program to implement the virtual concepts for following concepts
 - Constructor (not applied)
 - Destructor (applied)
- 14 Write a program to demonstrate static polymorphism using method overloading.
- 15 Write a program to demonstrate dynamic polymorphism using method overriding and dynamic method dispatch.
- 16 Write a program to implement the template (generic) concepts
 - Without template class and object
 - With template class and object

Note Write the Pseudo Code and draw Flow Chart for the above programs.

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Recommended to use Open Source Software: GCC on Linux; DevC++ (or) CodeBlocks on Windows.

SEC-1
[A]

SciLab - 1

BS301

Theory

2 Hours/Week

2 credits

Unit - I

Introduction to Scilab – what is scilab, downloading & installing scilab, a quick taste of scilab.

The Scilab Environment – manipulating the command line, working directory, comments, variables in memory, recording sessions, the scilab menu bar, demos.

Scalars & Vectors – introduction, initializing vectors in scilab, mathematical operations on vectors, relational operations on vectors, logical operations on vectors, built-in logical functions.

Unit - II

Scalars & Vectors – elementary mathematical functions, mathematical functions on scalars, complex numbers, trigonometric functions, inverse trigonometric functions, hyperbolic functions.

Matrices – introduction, arithmetic operators for matrices, basic matrix processing.

Polynomials – introduction, creating polynomials, basic polynomial commands, finding roots of polynomial, polynomial arithmetic, miscellaneous polynomial handling.

Text

Er. Hema Ramachandran, Dr. Achuthsankar S. Nair, *Computer SCILAB–A Free Software to MATLAB*

References

Digite, *Introduction to Scilab*

Digite, *Optimization in Scilab*

Scilab Enterprises, *Scilab for Very Beginners*

Digite, *Introduction to Discrete Probabilities with Scilab*

Note:

Student friendly video lecturers pertaining to this course are available at

<http://spoken-tutorial.org/>

Teachers are advised to teach this courses in the computer lab itself, so that the interested students may derive some time to perform few programs their own.

SEC-1
[B]**Boolean Algebra****BS301****Theory**

2 Hours/Week

2 credits

Unit - I

Introduction Number Systems and Conversion: Digital Systems and Switching Circuits, Number Systems and Conversion, Binary Arithmetic, Representation of Negative Numbers, Binary Codes.

Boolean Algebra: Basic Operations, Boolean Expressions and Truth Tables, Basic Theorems, Commutative, Associative, Distributive, and DeMorgan's Laws, Simplification Theorems, Multiplying Out and Factoring, Complementing Boolean Expressions.

Unit - II

Boolean Algebra: Multiplying Out and Factoring Expressions, Exclusive-OR and Equivalence Operations, The Consensus Theorem, Algebraic Simplification of Switching Expressions, Proving Validity of an Equation, Programmed Exercises.

Applications of Boolean Algebra Minterm and Maxterm Expansions: Conversion of English Sentences to Boolean Equations: Combinational Logic Design Using a Truth Table, Minterm and Maxterm Expansions, General Minterm and Maxterm Expansions, Examples of Truth Table Construction, Design of Binary Adders and Subtracters.

Text

Charles H. Roth, Jr. and Larry L. Kinney, *Fundamentals of Logic Design (7e)*

References

M. Morris Mano, Michael D. Ciletti, *Digital Design (4e)*

A. Saha and N. Manna, *Digital Principles and Logic Design*

M. Rafiquzzaman, *Fundamentals of Digital Logic and Microcontrollers (6e)*

Elliott Mendelson, *Theory and Problems of Boolean Algebra and Switching Circuit*

M. Morris Mano, Charles R. Kime, Tom Martin, *Logic and Computer Design Fundamentals*

DSC–3C**Data Structures****BS306**

Theory	4 Hours/Week	4 credits
Practical	2 Hours/Week	1 credit

Unit – I

Fundamental Concepts: Introduction to Data Structures, Types of Data Structures, Introduction to Algorithm, Pseudo-code, Flow Chart, Analysis of Algorithms.

Linear Data Structure Using Arrays: 1-D Arrays, 2-D Arrays, N-D Arrays, Memory Representation and Address Calculation of 1-D, 2-D, N-D Arrays, Concept of Ordered List, String Manipulation, Pros and Cons of Arrays.

Stacks: Concept, Primitive Operations, Abstract Data Type, Representation Stacks Using Arrays, Prefix, Infix, Postfix Notations for Arithmetic Expression, Applications of Stacks– Converting Infix Expression to Postfix Expression, Evaluating the Postfix Expression, Checking Well-formed (Nested) Parenthesis, Processing of Function Calls, Reversing a String.

Unit – II

Recursion: Introduction, Recurrence, Use of Stack in Recursion, Variants of Recursion, Execution of Recursive Calls, Recursive Functions, Iteration versus Recursion.

Queues: Concept, Primitive Operations, Abstract Data Type, Representation Queues Using Arrays, Circular Queue, Double-Ended Queue, Applications of Queues.

Linked Lists: Introduction, Concept, Terminology, Primitive Operations-creating, inserting, deleting, traversing, Representation of Linked Lists, Linked List Abstract Data Type, Linked List Variants - Singly Linked List, Doubly Linked List, Linear and Circular Linked List, Representation Stacks and Queues Using Linked Singly Lists, Application of Linked List–Garbage Collection.

Unit – III

Trees: Introduction, Representation of a General Tree, Binary Tree Introduction, Binary Tree Abstract Data Type, Implementation of Binary Trees, Binary Tree Traversals – Preorder, Inorder, Postorder Traversals, Applications of Binary Trees Briefly.

Graphs: Introduction, Graph Abstract Data Type, Representation of Graphs, Graph Traversal – Depth-First Search, Breadth-First Search, Spanning Tree – Prim’s Algorithm, Kruskal’s Algorithm.

Hashing: Introduction, Hash Functions, Collision Resolution Strategies.

Unit – IV

Searching and Sorting: Sequential (Linear) Search, Binary Search, Bubble Sort, Insertion Sort, Selection Sort, Quick Sort, Merge Sort, and Comparison of Sorting Techniques.

Heaps: Concept, Implementation, Abstract Data Type, Heap Sort.

Text Varsha H. Patil, *Data Structures Using C++*

References Nell Dale, *C++ Plus Data Structures*
 Seymour Lipschutz, *Data Structures (Revised 1e)*
 Adam Drozdek, *Data Structures and Algorithms in C++*
 Mark Allen Weiss, *Data structures and Algorithm Analysis in C++ (4e)*
 D.S. Malik, *C++ Programming: Program Design Including Data Structures (6e)*
 Michael Main, Walter Savitch, *Data Structures and Other Objects Using C++ (4e)*
 Michael T. Goodrich, R. Tamassia, David M. Mount, *Data Structures and Algorithms in C++*
 Yonghui Wu, Jiande Wang, *Data Structure Practice for Collegiate Programming Contests and Education*

Data Structures Lab**BS306****Practical**

2 Hours/Week

1 credit

- 1 Write programs to implement the following using an array: a) Stack ADT b) Queue ADT.
- 2 Write a program to convert the given infix expression to postfix expression using stack.
- 3 Write a program to evaluate a postfix expression using stack.
- 4 Write a program to ensure the parentheses are nested correctly in an arithmetic expression.
- 5 Write a program to find following using Recursion
 - a) Factorial of +ve Integer b) n^{th} term of the Fibonacci Sequence c) GCD of two +ve integers
- 6 Write a program to create a single linked list and write functions to implement the following operations.
 - a) Insert an element at a specified position
 - b) Delete a specified element in the list
 - c) Search for an element and find its position in the list
 - d) Sort the elements in the list ascending order
- 7 Write a program to create a double linked list and write functions to implement the following operations.
 - a) Insert an element at a specified position
 - b) Delete a specified element in the list
 - c) Search for an element and find its position in the list
 - d) Sort the elements in the list ascending order
- 8 Write a program to create singular circular linked lists and function to implement the following operations.
 - a) Insert an element at a specified position
 - b) Delete a specified element in the list
 - c) Search for an element and find its position in the list
- 9 Write programs to implement the following using a single linked list:
 - a) Stack ADT b) Queue ADT.
- 10 Write a program to implement Binary search technique using Iterative method and Recursive methods.
- 11 Write a program for sorting the given list numbers in ascending order using the following technique: Bubble sort and Selection sort
- 12 Write a program for sorting the given list numbers in ascending order using the following technique: Insertion sort and Quick sort
- 13 Write a program for sorting the given list numbers in ascending order using the following technique: Merge sort and Heap sort
- 14 Write a program to traverse a binary tree in following way.
 - a) Pre-order b) In-order c) Post-order
- 15 Write a program to the implementation graph traversals – BFS and DFS.
- 16 Write a program to find the minimum spanning tree for a weighted graph using
 - a) Prim's Algorithm b) Kruskal's Algorithm.

Note Write the Pseudo Code for the above programs.

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Recommended to use Open Source Software: GCC on Linux; DevC++ (or) CodeBlocks on Windows.

SEC-2
[A]

SciLab – 2

BS401

Theory

2 Hours/Week

2 credits

Unit – I

Programming in scilab – introduction, variables & variable names, assignment statements, arithmetic, relational, logical operators, input & output, flow control/branching/conditional statements, break and continue, handling matrices with loops, scripts, the concept of functions, user defined functions, special function commands.

Menus and Dialog Boxes – introduction, a simple menu example, scilab window with greetings menu added, executing submenus from command line, linking menus to scilab code from external files, entering data through dialog boxes, printing a message in a message box, dialog box for entering a matrix.

Unit – II

Graphic Output – introduction, 2d plotting, function versions for graphic commands, 3d plotting, other graphic primitives, other graphic commands.

String Handling Functions – symbolic processing in scilab, creation of a linear combination of arguments, string to ASCII conversion, creation of a string of blank characters, conversion of a string to uppercase and lowercase, string matching, string concatenation, reversing a string, replacement of a string by another, length of a string, type checking.

Statistics – introduction, basic statistical functions, applying statistical functions on matrices, distributions, frequency of values of a matrix or vector, centre, weighted centre, central moment, correlation, covariance, variance matrix, percentiles, frequencies, cumulative sum, difference of two independent samples, fisher test.

Text

Er. Hema Ramachandran, Dr. Achuthsankar S. Nair, *Computer SCILAB–A Free Software to MATLAB*

References

Digite, *Introduction to Scilab*

Digite, *Optimization in Scilab*

Scilab Enterprises, *Scilab for Very Beginners*

Digite, *Introduction to Discrete Probabilities with Scilab*

Note:

Student friendly video lectures pertaining to this course are available at

<http://spoken-tutorial.org/>

Teachers are advised to teach this courses in the computer lab itself, so that the interested students may derive some time to perform few programs their own.

SEC-2
[B]**Digital Logic****BS401****Theory**

2 Hours/Week

2 credits

Unit - I

Karnaugh Maps: Minimum Forms of Switching Functions, Two- and Three-Variable Karnaugh Maps, Four-Variable Karnaugh Maps, Determination of Minimum Expressions Using Essential Prime Implicants, Other Uses of Karnaugh Maps, Other Forms of Karnaugh Maps, Programmed Exercises.

Multi-Level Gate Circuits NAND and NOR Gates: Multi-Level Gate Circuits, NAND and NOR Gates, Design of Two-Level NAND- and NOR-Gate Circuits, Design of Multi-Level NAND- and NOR-Gate Circuits, Circuit Conversion Using Alternative Gate Symbols, Design of Two-Level, Multiple-Output Circuits, Multiple-Output NAND- and NOR-Gate Circuits.

Unit - II

Combinational Circuit Design and Simulation Using Gates: Design of Circuits with Limited Gate Fan-In, Gate Delays and Timing Diagrams, Hazards in Combinational Logic, Simulation and Testing of Logic Circuits.

Multiplexers, Decoders: Multiplexers, Three-State Buffers, Decoders and Encoders, Read-Only Memories.

Text

Charles H. Roth, Jr. and Larry L. Kinney, *Fundamentals of Logic Design (7e)*

References

M. Morris Mano, Michael D. Ciletti, *Digital Design (4e)*

A. Saha and N. Manna, *Digital Principles and Logic Design*

M. Rafiqzaman, *Fundamentals of Digital Logic and Microcontrollers (6e)*

Elliott Mendelson, *Theory and Problems of Boolean Algebra and Switching Circuit*

M. Morris Mano, Charles R. Kime, Tom Martin, *Logic and Computer Design Fundamentals*

DSC–3D**Database Management Systems****BS406**

Theory	4 Hours/Week	4 credits
Practical	2 Hours/Week	1 credit

Unit – I

Introduction to Databases: Introduction, Traditional File-Based Systems, Database Approach, Roles in the Database Environment, Advantages and Disadvantages of DBMSs, The Three-Level ANSI-SPARC Architecture, Database Languages, Data Models, Functions of a DBMS, Components of a DBMS.

Relational Model: Introduction, Terminology, Integrity Constraints, Views.

The Relational Algebra: Unary Operations, Set Operations, Join Operations, Division Operation, Aggregation and Grouping Operations.

Unit – II

SQL: Introduction, Data Manipulation–Simple Queries, Sorting Results, Using the SQL Aggregate Functions, Grouping Results, Sub-queries, ANY and ALL, Multi-table Queries, EXISTS and NOT EXIST, Combining Result Tables, Database Updates.

SQL: The ISO SQL Data Types, Integrity Enhancement Feature–Domain Constraints, Entity Integrity, Referential Integrity, General Constraints, Data Definition–Creating a Database, Creating a Table, Changing a Table Definition, Removing a Table, Creating an Index, Removing an Index, Views–Creating a View, Removing a View, View Resolution, Restrictions on Views, View Updatability, WITH CHECK OPTION, Advantages and Disadvantages of Views, View Materialization, Transactions, Discretionary Access Control–Granting Privileges to Other Users, Revoking Privileges from Users.

Advanced SQL: The SQL Programming Language–Declarations, Assignments, Control Statements, Exceptions, Cursors, Subprograms, Stored Procedures, Functions, and Packages, Triggers, Recursion.

Unit – III

Entity–Relationship Modeling: Entity Types, Relationship Types, Attributes, Keys, Strong and Weak Entity Types, Attributes on Relationships, Structural Constraints, Problems with ER Models–Fan Traps, Chasm Traps.

Enhanced Entity–Relationship Modeling: Specialization/Generalization, Aggregation, Composition.

Functional–Dependencies: Anomalies, Partial Functional Dependency, Transitive Functional Dependency, Multi Valued Dependency, Join Dependency.

Normalization: The Purpose of Normalization, How Normalization Supports Database Design, Data Redundancy and Update Anomalies, Functional Dependencies in brief, The Process of Normalization, 1NF, 2NF, 3NF, BCNF. The Database Design Methodology for Relational Databases (Appendix–D).

Unit – IV

Transaction Management: Transaction Support–Properties of Transactions, Database Architecture, Concurrency Control–The Need for Concurrency Control, Serializability and Recoverability, Locking Methods, Deadlock, Time Stamping Methods, Multi-version Timestamp Ordering, Optimistic Techniques, Granularity of Data Items, Database Recovery–The Need for Recovery, Transactions and Recovery, Recovery Facilities, Recovery Techniques, Nested Transaction Model.

Security: Database Security–Threats, Computer-Based Controls–Authorization, Access Controls, Views, Backup and Recovery, Integrity, Encryption, RAID.

Text Thomas M. Connolly, Carolyn E. Begg, *Database Systems–A Practical Approach to Design, Implementation, and Management (6e)*

References Sharon Allen, Evan Terry, *Beginning Relational Data Modeling*
 Jeffrey A. Hoffer, V. Ramesh, Heikki Topi, *Modern Database Management*
 Raghu Ramakrishnan, Johannes Gehrke, *Database Management Systems*
 Ramez Elmasri, Shamkant B. Navathe, *Fundamentals of Database Systems*
 Abraham Silberschatz, Henry F. Korth, S. Sudarshan, *Database System Concepts*
 C Coronel, S Morris, Peter Rob, *Database Systems: Design, Implementation, and Management*

Database Management Systems Lab**BS406****Practical**

2 Hours/Week

1 credit

Consider the relational schema for part of the **DreamHome** case study is:

Branch (branchNo, street, city, postcode)

Staff (staffNo, fName, IName, position, sex, DOB, salary, branchNo)

PropertyForRent (propertyNo, street, city, postcode, type, rooms, rent, ownerNo, staffNo, branchNo)

Client (clientNo, fName, IName, telNo, prefType, maxRent, eMail)

PrivateOwner (ownerNo, fName, IName, address, telNo, eMail, password)

Viewing (clientNo, propertyNo, viewDate, comment)

Registration (clientNo, branchNo, staffNo, dateJoined)

1. Create a database with name "DreamHome" and now create all the tables listed above with constraints.
2. Insert a new row into the table supplying data for all columns.
3. Modify data in the database using UPDATE
4. Delete data from the database using DELETE
5. Changing a table definition using ALTER
6. Removing a table using DROP
7. Removing rows in table using TRUNCATE
8. Create an index and removing an index
9. Practice other standard SQL commands for creating, modifying, displaying data of tables.
10. List full details of all staff.
11. List all staff with a salary greater than £10000.
12. List the property numbers of all properties that have been viewed.
13. Produce a list of salaries for all staff, showing only the staffNo, fName, IName, and salary details.
14. List all cities where there is either a branch office or a property for rent.
15. List all cities where there is a branch office but no properties for rent.
16. List all cities where there is both a branch office and at least one property for rent.
17. List the names and comments of all clients who have viewed a property for rent.
18. Produce a status report on property viewings.
19. List complete details of all staff who work at the branch in Glasgow.
20. List the addresses of all branch offices in London or Glasgow
21. List all staff with a salary between £20,000 and £30,000.
22. Identify all clients who have viewed all properties with three rooms.
23. How many properties cost more than £350 per month to rent?
24. How many different properties were viewed in May 2013?
25. Find the total number of Managers and the sum of their salaries.
26. Find the minimum, maximum, and average staff salary.
27. Find the number of staff working in each branch and the sum of their salaries.
28. List all managers and supervisors.
29. Find all owners with the string 'Glasgow' in their address.
30. List the details of all viewings on property PG4 where a comment has not been supplied.
31. Produce a list of salaries for all staff, arranged in descending order of salary.
32. Produce an abbreviated list of properties arranged in order of property type.
33. Find the number of staff working in each branch and the sum of their salaries.
34. For each branch office with more than one member of staff, find the number of staff working in each branch and the sum of their salaries.
35. List the staff who work in the branch at '163 Main St'.
36. List all staff whose salary is greater than the average salary, and show by how much their salary is greater than the average.
37. List the properties that are handled by staff who work in the branch at '163 Main St'.
38. Find all staff whose salary is larger than the salary of at least one member of staff at branch B003.
39. Find all staff whose salary is larger than the salary of every member of staff at branch B003
40. List the names of all clients who have viewed a property, along with any comments supplied.
41. For each branch office, list the staff numbers and names of staff who manage properties and the properties that they manage.
42. For each branch, list the staff numbers and names of staff who manage properties, including the city in which the branch is located and the properties that the staff manage.

43. Find the number of properties handled by each staff member, along with the branch number of the member of staff.
44. List all branch offices and any properties that are in the same city.
45. List all properties and any branch offices that are in the same city.
46. List the branch offices and properties that are in the same city along with any unmatched branches or properties.
47. Find all staff who work in a London branch office.
48. Construct a list of all cities where there is either a branch office or a property.
49. Construct a list of all cities where there is both a branch office and a property.
50. Create a view so that the manager at branch B003 can see the details only for staff who work in his or her branch office.
51. Create a view of the staff details at branch B003 that excludes salary information, so that only managers can access the salary details for staff who work at their branch.
52. Create a view of staff who manage properties for rent, which includes the branch number they work at, their staff number, and the number of properties they manage.
53. Removing a view using DROP VIEW
54. Give the user with authorization identifier Manager all privileges on the Staff table.
55. Give users Personnel and Director the privileges SELECT and UPDATE on column salary of the Staff table.
56. Revoke the privilege SELECT on the Branch table from all users.
57. Revoke all privileges you have given to Director on the Staff table.
58. Demonstrate exceptions in PL/SQL
59. Demonstrate cursors in PL/SQL
60. Write PL/SQL queries to create procedures.
61. Write PL/SQL queries to create functions.
62. Write PL/SQL queries to create package.
63. Write PL/SQL queries to create triggers.
64. Write PL/SQL queries using recursion.

Consider the relational schema for part of the **Hotel** case study is:

Hotel (hotelNo, hotelName, city)
Room (roomNo, hotelNo, type, price)
Booking (hotelNo, guestNo, dateFrom, dateTo, roomNo)
Guest (guestNo, guestName, guestAddress)

65. Create a database with name "Hotel" and now create all the tables listed above with constraints.
66. Insert a new row into the table supplying data for all columns.
67. Modify data in the database using UPDATE
68. Delete data from the database using DELETE
69. Changing a table definition using ALTER
70. Removing a table using DROP
71. Removing rows in table using TRUNCATE
72. Practice other standard SQL commands for creating, modifying, displaying data of tables.
73. List full details of all hotels.
74. List full details of all hotels in London.
75. List the names and addresses of all guests living in London, alphabetically ordered by name.
76. List all double or family rooms with a price below £40.00 per night, in ascending order of price.
77. List the bookings for which no dateTo has been specified.
78. How many hotels are there?
79. What is the average price of a room?
80. What is the total revenue per night from all double rooms?
81. How many different guests have made bookings for August?
82. List the price and type of all rooms at the Grosvenor Hotel.
83. List all guests currently staying at the Grosvenor Hotel.
84. List the details of all rooms at the Grosvenor Hotel, including the name of the guest staying in the room.
85. What is the total income from bookings for the Grosvenor Hotel today?
86. List the rooms that are currently unoccupied at the Grosvenor Hotel.
87. What is the lost income from unoccupied rooms at the Grosvenor Hotel?
88. List the number of rooms in each hotel.
89. List the number of rooms in each hotel in London.
90. What is the average number of bookings for each hotel in August?
91. What is the most commonly booked room type for each hotel in London?
92. What is the lost income from unoccupied rooms at each hotel today?
93. Insert rows into each of these tables.

94. Update the price of all rooms by 5%.
95. Demonstrate that queries written using the UNION operator and same can be rewritten using the OR.
96. Apply the syntax for inserting data into a table.
97. Create a view containing the cheapest hotels in the world.
98. Create the Hotel table using the integrity enhancement features of SQL.
99. Create a database trigger for the following situations:
 - (a) The price of all double rooms must be greater than £100.
 - (b) The price of double rooms must be greater than the price of the highest single room.
 - (c) A booking cannot be for a hotel room that is already booked for any of the specified dates.
 - (d) A guest cannot make two bookings with overlapping dates.
 - (e) Maintain an audit table with the names and addresses of all guests who make bookings for hotels in London (do not store duplicate guest details).

Given relation schemas are

Sailors(sid : integer, sname : string, rating : integer, age : real)

Boats(bid : integer, bname : string, color : string)

Reserves(sid : integer, bid : integer, day : date)

100. Find the names and ages of all sailors.
101. Find all sailors with a rating above 7.
102. Find the names of sailors who have reserved boat 103.
103. Find the sids of sailors who have reserved a red boat.
104. Find the names of sailors who have reserved a red boat.
105. Find the colors of boats reserved by Lubber.
106. Find the names of sailors who have reserved at least one boat.
107. Find the names of sailors who have reserved at least two boats.
108. Compute increments for the ratings of persons who have sailed two different boats on the same day.
109. Find the ages of sailors whose name begins and ends with B and has at least three characters.
110. Find the names of sailors who have reserved a red or a green boat.
111. Find the names of sailors who have reserved a red and a green boat.
112. Find the sids of all sailors who have reserved red boats but not green boats.
113. Find all sids of sailors who have a rating of 10 or have reserved boat 104.
114. Find the names of sailors who have not reserved a red boat.
115. Find sailors whose rating is better than some sailor called Horatio.
116. Find sailors whose rating is better than every sailor called Horatio.
117. Find the names of sailors who have reserved all boats.
118. Find the names of sailors who have reserved at least two boats.
119. Find the names of sailors who have reserved all boats called Interlake.
120. Find sailors who have reserved all red boats.
121. Find the sailor name, boat id, and reservation date for each reservation.
122. Find the sids of sailors with age over 20 who have not reserved a red boat.
123. Find the average age of all sailors.
124. Find the average age of sailors with a rating of 10.
125. Find the name and age of the oldest sailor.
126. Count the number of different sailor names.
127. Find the names of sailors who are older than the oldest sailor with a rating of 10.
128. Find the sailors with the highest rating.
129. Find the age of the youngest sailor for each rating level.
130. Find age of the youngest sailor who is eligible to vote for each rating level with at least 2 such sailors.
131. Find the average age of sailors for each rating level that has at least two sailors.
132. For each red boat, find the number of reservations for this boat.
133. Find the average age of sailors who are of voting age (i.e., at least 18 years old) for each rating level that has at least two sailors.
134. Delete the records of sailors who have rating 8 (deleting some rows in a table).
135. Loading data which is present in the text into the table.

Note Recommended to use open source database software like [MySQL](#), [MongoDB](#), [PostgreSQL](#), etc...

: In practical examination, students have to

- Create database
- Create tables with their integrity constraints.
- Insert the data into tables and then execute the queries.
- Answer any **six** queries from **ten** queries given by the examiner.

GE-1

Information Technologies - 1

BS501

Theory

2 Hours/Week

2 credits

Unit - I

Introduction to Computers: What is a Computer? Characteristics of Computers, Generations of Computers, Classification of Computers, Basic Computer Organization, Applications of Computers.

Input and Output Devices: Input Devices, Output Devices, Soft Copy Devices, Hard Copy Devices.

Computer Memory and Processors: introduction, Memory Hierarchy, Processor Registers, Cache Memory, Primary Memory, Secondary Storage Devices, Hard Disks, Optical Drives, USB Flash Drives, Memory Cards.

Unit - II

Computer Software: Introduction, Classification of Computer Software, System Software, Applications Software, Firmware, Middleware, Acquiring Computer Software.

Operating Systems: Introduction, Evolution of OS, Process Management, Memory Management, File Management, Device Management, Security Management, Command Interpreter, Windows, Linux.

Text Reema Thareja, *Fundamentals of Computers*

Reference P. K. sinha, *Computer Fundamentals*

s Anita Goel, *Computer Fundamentals*

V. Rajaraman, *Fundamentals of Computers*

E. Balagurusamy, *Fundamentals of Computers*

J. Glenn Brookshear, Dennis Brylow, *Computer Science An Overview*

Note: Student friendly video lecturers pertaining to this course are available at <http://spoken-tutorial.org/>

Teachers are advised to teach this courses in the computer lab itself, so that the interested students may derive some time to perform few programs their own.

SEC-3
[A]**Python - 1**

BS502

Theory

2 Hours/Week

2 credits

Unit - I

Introduction to Python: Python, Features of Python, Execution of a Python Program, Viewing the Byte Code, Flavors of Python, Python Virtual Machine, Frozen Binaries, Memory Management in Python, Garbage Collection in Python, Comparisons between C and Python, Comparisons between Java and Python.

Writing Our First Python Program: Installing Python for Windows, Installing numpy, Setting the Path to Python, Writing Our First Python Program, Executing a Python Program, Getting Help in Python, Getting Python Documentation Help, Reopening the Python Program in IDLE.

Data types in Python: Comments in Python, Doc strings, How Python Sees Variables, Data types in Python, Built-in data types, bool Data type, Sequences in Python, Sets, Literals in Python, Determining the Data type of a Variable, What about Characters, User-defined Data types, Constants in Python, Identifiers and Reserved words, Naming Conventions in Python.

Unit - II

Operators in Python: Arithmetic Operators, Assignment Operators, Unary Minus Operator, Relational Operators, Logical Operators, Boolean Operators, Bitwise Operators, Membership Operators, Identity Operators, Operator Precedence and Associativity, Mathematical Functions.

Input and Output: Output statements, Input Statements, Command Line Arguments.

Control Statements: Control Statements, The if Statement, A Word on Indentation, The if ... else Statement, The if ... elif ... else Statement, The while Loop, The for Loop, Infinite Loops, Nested Loops, The else Suite, The break Statement, The continue Statement, The pass Statement, The assert Statement, The return Statement.

Text R. Nageswara Rao, *Core Python Programming*, Dreamtech Press

References Mark Lutz, *Learning Python*
 Tony Gaddis, *Starting Out With Python*
 Kenneth A. Lambert, *Fundamentals of Python*
 James Payne, *Beginning Python using Python 2.6 and Python 3*
 Paul Gries, *Practical Programming: An Introduction to Computer Science using Python 3*

Note: Student friendly video lectures pertaining to this course are available at <http://spoken-tutorial.org/>
 Teachers are advised to teach this courses in the computer lab itself, so that the interested students may derive some time to perform few programs their own.

SEC–3
[B]**Computer Organization**

BS502

Theory

2 Hours/Week

2 credits

Unit – I

Latches and Flip-Flops: Introduction, Set-Reset Latch, Gated Latches, Edge-Triggered D Flip-Flop, S-R Flip-Flop, J-K Flip-Flop, T Flip-Flop, Flip-Flops with Additional Inputs, Asynchronous Sequential Circuits.
Registers and Counters: Registers and Register Transfers, Shift Registers, Design of Binary Counters, Counter Design Using D Flip-Flops, Counter Design Using S-R and J-K Flip-Flops, Derivation of Flip-Flop Input Equations.

Unit – II

Sequential Circuit Design: Design Example—Code Converter, Design of Iterative Circuits, Design of Sequential Circuits Using ROMs and PLAs, Simulation and Testing of Sequential Circuits, Computer-Aided Design.
Circuits for Arithmetic Operations: Serial Adder with Accumulator, Design of a Binary Multiplier, Design of a Binary Divider.

TextCharles H. Roth, Jr. and Larry L. Kinney, *Fundamentals of Logic Design (7e)***References**M. Morris Mano, Michael D. Ciletti, *Digital Design (4e)*A. Saha and N. Manna, *Digital Principles and Logic Design*M. Rafiquzzaman, *Fundamentals of Digital Logic and Microcontrollers (6e)*Elliott Mendelson, *Theory and Problems of Boolean Algebra and Switching Circuit*M. Morris Mano, Charles R. Kime, Tom Martin, *Logic and Computer Design Fundamentals*

DSC–3E**Programming in Java****BS505**

Theory	3 Hours/Week	3 credits
Practical	2 Hours/Week	1 credit

Unit – I

Introduction: Java Essentials, JVM, Java Features, Creation and Execution of Programs, Data Types, Type Conversion, Casting, Conditional Statements, Loops, Branching Mechanism, Classes, Objects, Class Declaration, Creating Objects, Method Declaration and Invocation, Method Overloading, Constructors–Parameterized Constructors, Constructor Overloading, Cleaning-up unused Objects, Class Variables & Methods-static Keyword, this Keyword, One-Dimensional Arrays, Two-Dimensional Arrays, Command-Line Arguments, Inner Class.

Inheritance: Introduction, Types of Inheritance, extends Keyword, Examples, Method Overriding, super, final Keywords, Abstract classes, Interfaces, Abstract Classes Verses Interfaces.

Unit – II

Packages–Creating and Using Packages, Access Protection, Wrapper Classes, String Class, StringBuffer Class.

Exception: Introduction, Types, Exception Handling Techniques, User-Defined Exception.

Multithreading: Introduction, Main Thread, Creation of New Threads – By Inheriting the Thread Class or Implementing the Runnable Interface, Thread Lifecycle, Thread Priority, Synchronization.

Input/Output: Introduction, java.io Package, File Class, FileInputStream Class, FileOutputStream Class, Scanner Class, BufferedInputStream Class, BufferedOutputStream Class, RandomAccessFile Class.

Unit – III

Applets: Introduction, Example, Life Cycle, Applet Class, Common Methods Used in Displaying the Output.

Event Handling: Introduction, Types of Events, Example. AWT: Introduction, Components, Containers, Button, Label, Checkbox, Radio Buttons, Container Class, Layouts. Swing: Introduction, Differences between Swing and AWT, JFrame, JApplet, JPanel, Components in Swings, Layout Managers, JTable, Dialog Box.

Database Handling Using JDBC: Introduction, Types of JDBC Drivers, Load the Driver, Establish Connection, Create Statement, Execute Query, Iterate Resultset, Scrollable Resultset, Developing a JDBS Application.

Text Sachin Malhotra, Saurabh Choudhary, *Programming in Java (2e)*

References Bruce Eckel, *Thinking in Java (4e)*
 Herbert Schildt, *Java: The Complete Reference (9e)*
 Y. Daniel Liang, *Introduction to Java Programming (10e)*
 Paul Deitel, Harvey Deitel, *Java: How To Program (10e)*
 Cay S. Horstmann, *Core Java Volume I – Fundamentals (10e)*
 C. Thomas Wu, *An introduction to object-oriented programming with Java (5e)*
 Tony Gaddis, *Starting Out with Java From Control Structures Through Objects (6e)*
 Jeanne Boyarsky, Scott Selikoff, *OCA: Oracle Certified Associate Java SE 8 Programmer–I Study Guide*

Java Lab**BS505****Practical**

2 Hours/Week

1 credit

- Write java programs to find the following
- 1 a) largest of given three numbers b) reverses the digits of a number
c) given number is prime or not d) GCD of given two integers
 - 2 Write java programs that implement the following
a) default constructor b) parameterized constructor c) constructor overloading
 - 3 a) Write a java program to find the smallest of given list integers using array and scanner class.
b) Write a java program for multiplication of two matrices.
 - 4 a) Write a java program for demonstrating an inner classes or nested classes.
b) Write a java program to implement method overloading, method overriding, dynamic method dispatch
 - 5 Write a java program to implement single, multilevel, hierarchal, multiple, hybrid inheritances.
 - 6 Write java programs that demonstrate the use of abstract, this, super, static, final keywords
 - 7 a) Write a java program for creating a package and using a package.
b) Write a java program to demonstrate the use of wrapper classes.
 - 8 a) Write a java program using all five keywords of exception handling mechanism.
b) Write a java program for creating customized (user) exception
 - 9 a) Write a java program that checks whether a given string is a palindrome or not.
b) Write a java program for sorting a given list of names in ascending order.
 - 10 a) Write a java program to create a file, write the data and display the data.
b) Write a java program that reads a file name from user and displays its information.
 - 11 a) Write a java program for controlling main thread.
b) Write a java program for creating new thread by extending Thread class.
 - 12 a) Write a java program for creating new thread by implementing Runnable interface.
b) Write a java program for thread synchronization.
 - 13 a) Write a java program to create following AWT components: Button, Checkbox, Choice, and List.
b) Write java programs to create AWT application using containers and layouts.
 - 14 a) Write java programs to create a simple Applet and create swing based Applet.
b) Write a java program to handle different types of events in a swing application.
 - 15 Write java programs to create a swing application using swing components and layouts.
 - 16 Write a java program to store and retrieve data from database using JDBC.

Note : Write the program using simple text editors (not IDE), compile and run from command prompt.

Encourage students to develop small java applications using IDE, like giving as assignment.

Write a small java application using some features of java.

DSE-1E**Operating Systems****BS506**

Theory	3 Hours/Week	3 credits
Practical	2 Hours/Week	1 credit

Unit – I

Introduction: Computer-System Architecture, Computing Environments.

Operating-System Structures: Operating-System Services, User Interface for Operating-System, System Calls, Types of System Calls, Operating System Structure.

Process Management: Process Concept, Process Scheduling, Operations on Processes, Inter process Communication, Examples–Producer-Consumer Problem.

Process Synchronization: Critical-Section Problem, Peterson’s Solution, Synchronization, Semaphores, Monitors.

Unit – II

CPU Scheduling: Concepts, Scheduling Criteria, Scheduling Algorithms.

Deadlocks: System Model, Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock.

Unit – III

Main Memory: Introduction, Swapping, Contiguous Memory Allocation, Segmentation, Paging.

Virtual Memory: Introduction, Demand Paging, Page Replacement, Allocation of Frames, Thrashing.

Mass-Storage Structure: Overview, Disk Scheduling, RAID Structure.

File Systems: File Concept, Access Methods, Directory and Disk Structure, File-System Mounting, Protection.

File System Implementation, Directory Implementation, Allocation Methods, Free-Space Management.

Text Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, *Operating System Concepts (9e)*

References Naresh Chauhan, *Principles of Operating Systems*
 Thomas W. Doeppner, *Operating Systems in Depth*
 Andrew S. Tanenbaum, *Modern Operating Systems*
 William Stallings, *Operating Systems – Internals and Design Principles*
 Dhananjay M. Dhandhere, *Operating Systems – A Concept Based Approach*

Operating Systems Lab

BS506

Practical

2 Hours/Week

1 credit

- 1 a) Use vi editor to create different files, writing data into files, modifying data in files.
b) Use different types of Unix commands on the files created in first program.
- 2 Write shell programs using 'case', 'then' and 'if' & 'else' statements.
- 3 Write shell programs using while, do-while and for loop statements.
- 4 a) Write a shell script that accepts two integers as its arguments and computes the value of first number raised to the power of the second number.
b) Write a shell script that takes a command -line argument and reports on whether it is directory, a file, or something else.
- 5 a) Write a shell script that accepts a file name, starting and ending line numbers as arguments and displays all the lines between the given line numbers..
b) Write a shell script that deletes all lines containing a specified word in one or more files supplied as arguments to it.
- 6 a) Write a shell script that displays a list of all the files in the current directory to which the user has read, write and execute permissions.
b) Develop an interactive script that ask for a word and a file name and then tells how many times that word occurred in the file.
- 7 Write a program that simulate the following Unix commands like ls, mv, cp.
- 8 Write a program to convert upper case to lower case letters of a given ASCII file.
- 9 Write a program to program to search the given pattern in a file.
- 10 Write a program to demonstrate FCFS process schedules on the given data.
- 11 Write a program to demonstrate SJF process schedules on the given data.
- 12 Write a program to demonstrate Priority Scheduling on the given burst time and arrival times.
- 13 Write a program to demonstrate Round Robin Scheduling on the given burst time and arrival times.
- 14 Write a program to implementing Producer and Consumer problem using Semaphores.
- 15 Write a program to simulate FIFO, LRU, LFU Page replacement algorithms.
- 16 Write a program to simulate Sequential, Indexed, and Linked file allocation strategies.

Note
: Recommended to use Open Source Software like Fedora, Ubuntu, CentOS, etc..

DSE-2E**Software Engineering****BS506**

Theory	3 Hours/Week	3 credits
Practical	2 Hours/Week	1 credit

Unit - I

Software Engineering – Introduction, Program Versus Software, Software Engineering, Software Development Process and its Stages, Generic Software Development Process Models, Code of Ethics and Professional Practice, Software Development and Maintenance Cost Breakup.

Requirement Engineering Processes – Requirement Engineering Process, Feasibility Study, Cost and Benefit Analysis, Requirement Specification, Characteristics of a Good Requirement and Validation Techniques, Requirements Management Planning, Process of Requirement Change Management.

Software Requirement Specifications – Introduction, Stakeholder Analysis, Software Requirements Document, IEEE Standard of Software Requirement Specifications, Organizing Functional Requirements, Traceability and Validation of Specifications.

Unit - II

Architectural Styles – Introduction, Architecture Styles, Object Oriented Architecture, Inter-organizational Communication, Cloud Computing Architecture Style, Core, Configurable and Customizable Architecture, Design Models, Architectural Design Principles.

Object Oriented System Analysis – Introduction, Object Oriented Design, Object Oriented Design Models, Object Oriented Analysis, Data Modeling, Comparison Between Top Down Structured and Object Oriented Analysis, Description of Logical and Static Modeling, Identification of Class Relationships.

Object Oriented Design Using UML – Introduction, Sequence Diagram, State Machine Diagram, Timing Diagram, Describing Detailed Object Oriented Design, Decision Tree and Decision Table, Composite Structure Diagram, Generating Test Cases, Moving Towards Physical Design, Structured Methods.

Unit - III

Software Development – Introduction, Good Coding Practices, Code Reuse, Design Pattern, Generator Based Reuse, Application/Software Developed on Product Lines Approach, Component Based Software Engineering, Agile Methods.

Verification, Validation and Software Testing – Introduction, Software Verification and Validation Process, Software Testing, System Testing, Object Oriented Testing Strategy, Test Cases, Equivalence Partitioning (Black Box Testing), Art of Debugging.

Measurement and Metrics for Assessing Software Quality – Introduction, ISO 9126 Quality Standards, Quality Management Models, Ways to Build Quality in Software, Software Quality Control and Metrics, Defect Density Metrics, Chidamber and Kemerer Metric Suites for Object Oriented System, Class Coupling Metric-Coupling Between Objects, Monitoring Dynamic Quality Attributes (Visible Externally) of a Software.

Text Rajesh Narang, *Software Engineering: Principles and Practices*

References Ian Sommerville, *Software Engineering*
 R. Mall, *Fundamentals of Software Engineering*
 Pankaj Jalote, *An Integrated Approach to Software Engineering*
 Frank Tsui, Orlando Karam, Barbara Bernal, *Essentials of Software Engineering*
 Roger S Pressman, B R Maxim, *Software Engineering – A Practitioner’s Approach*
 Grady Booch, *The Unified Modeling Language User Guide*

Software Engineering Lab

BS506

Practical

2 Hours/Week

1 credit

Case Studies:

- 1 Banking System
- 2 Hotel management system
- 3 Inventory Control System
- 4 Library management system
- 5 Railway Reservation System

Choose any two of above case studies and do the following exercises for that case studies

- 1 Write the complete problem statement
- 2 Write the software requirements specification document
- 3 Draw the entity relationship diagram
- 4 Draw the data flow diagrams
- 5 Draw use case diagrams
- 6 Draw activity diagrams for all use cases
- 7 Draw sequence diagrams for all use cases
- 8 Draw collaboration diagram
- 9 Assign objects in sequence diagrams to classes and make class diagram.

Note : To draw dataflow diagrams using Microsoft Visio Software, SmartDraw, etc...

To draw UML diagrams using Rational Rose Software, StarUML, etc...

The teacher should define the boundaries for the above case study problems and make the practice of problems mentioned.

GE-2

Information Technologies – 2

BS601

Theory

2 Hours/Week

2 credits

Unit – I

Introduction to Algorithms and Programming Languages: Algorithm, Control Structures, Flowcharts, Pseudo code, Programming Languages, Generations of Programming Languages.

Database Systems: File Oriented Approach, Database Oriented Approach, Database Views, Three-Schema Architecture, Database Models, Components of DBMS, Introduction of SQL Queries.

Unit – II

Computer Networks: Introduction, Connection Media, Data Transmission Mode, Data Multiplexing, Data Switching, Network Topologies, Types of Networks, Networking Devices, OSI Model.

The Internet: Internet Services, Types of Internet Connections, Internet Security.

Emerging Computer Technologies: Distributed Networking, Peer-to-peer Computing, Grid Computing, Cloud Computing, Utility Computing, On0demand Computing, Wireless Network, Bluetooth, Artificial Intelligence.

Text Reema Thareja, *Fundamentals of Computers*

Reference P. K. sinha, *Computer Fundamentals*

s Anita Goel, *Computer Fundamentals*

V. Rajaraman, *Fundamentals of Computers*

E. Balagurusamy, *Fundamentals of Computers*

J. Glenn Brookshear, Dennis Brylow, *Computer Science An Overview*

Note: Student friendly video lecturers pertaining to this course are available at <http://spoken-tutorial.org/>

Teachers are advised to teach this courses in the computer lab itself, so that the interested students may derive some time to perform few programs their own.

SEC-4
[A]

Python – 2

BS602

Theory

2 Hours/Week

2 credits

Unit – I

Arrays in Python: Array, Advantages of Arrays, Creating an Array, Importing the Array Module, Indexing and Slicing on Arrays, Processing the Arrays, Types of Arrays, Working with Arrays using numpy, Creating Arrays using array(), linspace, logspace, arange(), zeros() and ones() Functions, Mathematical Operations on Arrays, Comparing Arrays, Aliasing the Arrays, Viewing and Copying Arrays, Slicing and Indexing in numpy Arrays, Dimensions of Arrays, Attributes of an Array, The reshape() Method, The flatten() Method, Working with Multi-dimensional Arrays, Indexing in Multi-dimensional Arrays, Slicing the Multi-dimensional Arrays, Matrices in numpy, Getting Diagonal Elements of a Matrix, Finding Maximum and Minimum Elements, Finding Sum and Average of Elements, Products of Elements, Sorting the Matrix, Transpose of a Matrix, Matrix Addition and Multiplication, Random Numbers.

Strings and Characters: Creating Strings, Length of a String, Indexing in Strings, Slicing the Strings, Repeating the Strings, Concatenation of Strings, Checking Membership, Comparing Strings, Removing Spaces from a String, Finding Sub Strings, Counting Substrings in a String, Strings are Immutable, Replacing a String with another String, Splitting and Joining Strings, Changing Case of a String, Checking Starting and Ending of a String, String Testing Methods, Formatting the Strings, Working with Characters, Sorting Strings, Searching in the Strings, Finding Number of Characters and Words, Inserting Sub String into a String.

Unit – II

Functions: Difference between a Function and a Method, Defining a Function, Calling a Function, Returning Results from a Function, Returning Multiple Values from a Function, Functions are First Class Objects, Pass by Object Reference, Formal and Actual Arguments, Positional Arguments, Keyword Arguments, Default Arguments, Variable Length Arguments, Local and Global Variables, The Global Keyword, Passing a Group of Elements to a Function, Recursive Functions, Anonymous Functions or Lambdas, Function Decorators, Generators, Structured Programming, Creating our Own Modules in Python, The Special Variable name.

Lists and Tuples: List, Creating Lists using range() Function, Updating the Elements of a List, Concatenation of Two Lists, Repetition of Lists, Membership in Lists, Aliasing and Cloning Lists, Methods to Process Lists, Finding Biggest and Smallest Elements in a List, Sorting the List Elements, Number of Occurrences of an Element in the List, Finding Common Elements in Two Lists, Storing Different Types of Data in a List, Nested Lists, Nested Lists as Matrices, List Comprehensions, Tuples, Creating Tuples, Accessing the Tuple Elements, Basic Operations on Tuples, Functions to Process Tuples, Nested Tuples, Inserting Elements in a Tuple, Modifying Elements of a Tuple, Deleting Elements from a Tuple.

Dictionaries: Operations on Dictionaries, Dictionary Methods, Using for Loop with Dictionaries, Sorting the Elements of a Dictionary using Lambdas, Converting Lists into Dictionary, Converting Strings into Dictionary, Passing Dictionaries to Functions, Ordered Dictionaries.

Text R. Nageswara Rao, *Corer Python Programming*, Dreamtech Press

References Mark Lutz, *Learning Python*
 Tony Gaddis, *Starting Out With Python*
 Kenneth A. Lambert, *Fundamentals of Python*
 James Payne, *Beginning Python using Python 2.6 and Python 3*
 Paul Gries, *Practical Programming: An Introduction to Computer Science using Python 3*

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SEC-4
[B]

Information Security

BS602

Theory

2 Hours/Week

2 credits

Unit - I

Introduction to Information Security – Need for Information Security, Threats to Information Systems, Information Assurance, Cyber Security.

Introduction to Application Security and Counter Measures – Introduction to Application Security, Data Security Considerations, Security Technologies, Security Threats, Security Threats to E-Commerce, E-Cash and Electronic Payment System.

Unit - II

Credit/Debit/Smart Cards, Digital Signature, Cryptography and Encryption, Information Security Governance and Risk Management.

Introduction to Security Policies and Cyber Laws – Need for an Information Security Policy, Introduction to Indian Cyber Law, Objective and Scope of the IT Act, 2000, Intellectual Property Issues, Overview of Intellectual-Property- Related Legislation in India, Patent, Copyright.

Text

Dr. Surya Prakash T, Ritendra G, Praveen Kumar S, KLSI, *Introduction to information security and cyber laws (Dreamtech Publication)*

Reference s

Anderson, Ross, *Security Engineering*

G.R.F. Snyder, T. Pardoe, *Network Security*

Mark Stamp, *Information Security: Principles and Practice*

A. Basta, W.Halton, *Computer Security: Concepts, Issues and Implementation*

Mark S. Merkow, Jim Breithaupt, *Information Security: Principles and Practice*

DSC–3F**Computer Networks****BS605**

Theory	3 Hours/Week	3 credits
Practical	2 Hours/Week	1 credit

Unit – I

Introduction: Data Communication Components, Line Configuration, Topologies, Transmission Mode, Categories of Networks, ISO Reference Model–Layered Architecture, Functions of Layers, TCP/IP Reference Model.

Transmission Media: Guided Media–Twisted Pair Cable, Coaxial Cable, Optical Fiber, Unguided Media–Satellite Communication, and Cellular Telephony.

Multiplexing: Frequency–Division Multiplexing, Time–Division Multiplexing.

Unit – II

Data Link Layer: Error Detection–VRC, LRC, CRC, Checksum, Error Correction–Hamming Code, Burst Error Correction, Line Discipline–ENQ/ACK, Poll/Select, Flow Control–Stop-and-Wait, Sliding Window, Error Control–Stop-and-Wait ARQ, Sliding Window ARQ Go-Back-n ARQ, Selective-Reject ARQ.

Local Area Networks: Introduction to IEEE 802, Ethernet-CSMA/CD, Implementation, Token Ring–Token Passing, Implementation.

Switching: Circuit Switching, Packet Switching, Message Switching.

Unit – III

Networking and Internetworking Devices: Repeaters, Bridges, Routers, Gateways, Brouters, Switches, Distance Vector Routing Algorithm, Link State Routing Algorithm.

Transport Layer: Duties of Transport Layer, Connection.

Upper OSI Layers; Session Layer, Presentation Layer, Application Layer.

Text Behrouz A. Forouzan, *Data Communication and Networking (2e Update)*

References S.S. Shinde, *Computer Networks*
 William Stallings, *Data and Computer Communications*
 Andrew S. Tanenbaum, David J Wetherall, *Computer Networks*
 Behrouz A Forouzan, Firouz Mosharraf, *Computer Networks A Top-Down Approach*
 James F. Kurose, Keith W. Ross, *Computer Networking: A Top-Down Approach Featuring the Internet*

Networks Lab

BS605

Practical

2 Hours/Week

1 credit

- 1 Write a program to create a socket and implement connect function.
- 2 Write a program to get MAC address.
- 3 Write a program to display hello world using signals.
- 4 Write a program for socket pair system call using IPC.
- 5 Write a program to implement the sliding window protocol.
- 6 Write a program to identify the category of IP address for a given IP address.
- 7 Write a program to print details of DNS host.
- 8 Write a program to implement listener and talker.
- 9 Write a program to implement TCP echo using client–server program.
- 10 Write a program to implement UDP echo using client–server program.
- 11 Write a UDP client–server program to convert lowercase letters to uppercase letters.
- 12 Write a TCP client–server program to convert a given string into reverse.
- 13 Write a UDP client–server program to convert a given string into reverse.
- 14 Write a program to implement TCP iterative client–server program.
- 15 Write a program to implement time service using TCP client–server program.
- 16 Write a program to implement time service using UDP client–server program.

Note
: Write above program using C language on Unix/Linux systems.

DSE-1F**PHP with MySQL****BS606**

Theory	3 Hours/Week	3 credits
Practical	2 Hours/Week	1 credit

Unit – I

Introducing PHP – What is PHP? Why use PHP? Evolution of PHP, Installing PHP, Other ways to run PHP, Creating your first script. PHP Language Basics – Using variables, Understanding Data Types, Operators and Expressions, Constants. Decisions and Loops – Making Decisions, Doing Repetitive Tasks with Looping, Mixing Decisions and Looping with HTML.

Strings – Creating and Accessing Strings, Searching Strings, Replacing Text with Strings, Dealing with Upper and Lowercase, Formatting Strings. Arrays – Creating Arrays, Accessing Array Elements, Looping Through Arrays with for-each, Working with Multidimensional Arrays, Manipulating Arrays.

Unit – II

Functions – What is a Function? Why Functions are useful? Calling Functions, Working with Variable Functions, Writing your own Functions, Working with References, Writing Recursive Functions.

Objects – Introduction OOP Concepts, Creating Classes and Objects in PHP, Creating and using Properties, Working with Methods, Object Overloading with `_get()`, `_set()` and `_call()`, Using Inheritance to Extend Power of Objects, Constructors and Destructors, Automatically Loading Class Files, Storing as Strings.

Handling HTML Forms with PHP – How HTML form works, Capturing Form Data with PHP, Dealing with Multi-Value Fields, Generating Web Forms with PHP, Storing PHP Variables in Forms, Creating File Upload Forms, Redirecting After a Form Submission.

Unit – III

Working with Files and Directories - Getting Information on Files, Opening and Closing Files, Reading and Writing to Files, Copying, Renaming, and Deleting Files, Working with Directories.

Introducing Databases and SQL – Deciding How to Store Data, Understanding Relational Databases, Setting Up MySQL, A Quick Play with MySQL, Connecting MySQL from PHP.

Retrieving Data from MySQL with PHP – Setting Up the Book Club Database, Retrieving Data with SELECT, Creating a Member Record Viewer. Manipulating MySQL Data with PHP – Inserting, Updating, and Deleting Records, Building a Member Registration Application.

Text Matt Doyle, *Beginning PHP 5.3* (Wrox – Wiley Publishing)

References Ellie Quigley, *PHP and MySQL by Example*
 Joel Murach, Ray Harris, *Murach's PHP and MySQL*
 Brett McLaughlin, *PHP & MySQL: The Missing Manual*
 Luke Welling, Laura Thomson, *PHP and MySQL Web Development*
 W. Jason Gilmore, *Beginning PHP and MySQL From Novice to Professional*
 Andrew Curioso, Ronald Bradford, Patrick Galbraith, *Expert PHP and MySQL*

PHP with MySQL Lab**BS606****Practical**

2 Hours/Week

1 credit

- 1 a) Write a PHP script to find the factorial of a given number.
b) Write a PHP script to find the sum of digits of a given number.
- 2 a) Write a PHP script to find whether the given number is a prime or not.
b) Write a PHP script to demonstrate the use of break, continue statements using nested loops.
- 3 a) Write a PHP script to display the Fibonacci sequence with HTML page.
b) Write a PHP script to create a chess board.
- 4 a) Write a PHP script using built-in string function like strpos(), strpos(), substr_count(), etc...
b) Write a PHP script to transform a string to uppercase, lowercase letters, make a string's first character uppercase.
- 5 a) Write a PHP script that inserts a new item in an array in any position.
b) Write a PHP function to check whether all array values are strings or not.
- 6 a) Write a PHP script to count number of elements in an array and display a range of array elements.
b) Write a PHP script to sort a multi-dimensional array set by a specific key.
- 7 a) Write a PHP script using a function to display the entered string in reverse.
b) Write a PHP script using function for sorting words in a block of text by length.
- 8 a) Write a PHP script for creating the Fibonacci sequence with recursive function.
b) Write a PHP script using pass by value and pass by reference mechanisms in passing arguments to functions.
- 9 a) Write a PHP script to demonstrate the defining and using object properties.
b) Write a PHP script to demonstrate the inheritance.
- 10 a) Write a PHP script to demonstrate the object overloading with _get(), _set(), and _call().
b) Write a PHP script to demonstrate the overloading property accesses with _get() and _set().
- 11 a) Write a PHP script to demonstrate the method overloading and method overriding mechanisms.
b) Write a PHP script to demonstrate the use of final classes and final methods.
- 12 a) Write a PHP script to demonstrate the use interfaces.
b) Write a PHP script using constructors and destructors.
- 13 Write a PHP application to handling HTML forms with PHP script.
- 14 a) Write a PHP script to create a file, write data into file and display the file's data.
b) Write a PHP script to check and change file permissions, copying, renaming and deleting files.
- 15 a) Write a PHP application for connecting to MySQL and reading data from database table.
b) Write a PHP application for inserting, updating, deleting records in the database table.
- 16 Write a PHP application for student registration form.

DSE–2F**Web Technologies****BS606**

Theory	3 Hours/Week	3 credits
Practical	2 Hours/Week	1 credit

Unit – I

Structuring Documents for the Web: Introducing HTML and XHTML, Basic Text Formatting, Presentational Elements, Phrase Elements, Lists, Editing Text, Core Elements and Attributes, Attribute Groups

Links and Navigation: Basic Links, Creating Links with the <a> Element, Advanced E- mail Links.

Images, Audio, and Video: Adding Images Using the Element, Using Images as Links Image Maps, Choosing the Right Image Format, Adding Flash, Video and Audio to your web pages.

Tables: Introducing Tables, Grouping Section of a Table, Nested Tables, Accessing Tables

Forms: Introducing Forms, Form Controls, Sending Form Data to the Server

Frames: Introducing Frameset, <frame> Element, Creating Links Between Frames, Setting a Default Target Frame Using <base> Element, Nested Framesets, Inline or Floating Frames with <iframe>.

Unit – II

Cascading Style Sheets: Introducing CSS, Where you can Add CSS Rules.

CSS Properties: Controlling Text, Text Formatting, Text Pseudo Classes, Selectors, Lengths, Introducing the Box Model.

More Cascading Style Sheets: Links, Lists, Tables, Outlines, The :focus and :activate Pseudo classes Generated Content, Miscellaneous Properties, Additional Rules, Positioning and Layout with CSS

Page Layout: Understating the Site’s Audience, Page Size, Designing Pages, Coding your Design, Developing for Mobile Devices.

Design Issues: Typography, Navigation, Tables, Forms.

Unit – III

Learning JavaScript: How to Add Script to Your Pages, the Document Object Model, Variables, Operators, Functions, Control Statements, Looping, Events, Built- In Objects,

Working with JavaScript: Practical Tips for Writing Scripts, Form Validation, Form Enhancements, JavaScript Libraries.

Putting Your site on the web: Meta tags, Testing your site, Talking the Leap to Live, Telling the World about your site, Understanding your visitors.

Text Jon Duckett, *Beginning HTML, XHTML, CSS and JavaScript*

References Chris Bates, *Web Programming*
M. Srinivasan, *Web Technology: Theory and Practice*
Achyut S. Godbole, Atul Kahate, *Web Technologies*
Kogent Learning Solutions Inc, *Web Technologies Black Book*
Ralph Moseley and M. T. Savaliya, *Developing Web Applications*
P.J. Deitel & H.M. Deitel, *Internet and World Wide Web How to program*

Web Technologies Lab

BS606

Practical

2 Hours/Week

1 credit

- 1 a. Write a HTML program using basic text formatting tags, <h1>, <p>,
, <pre>.
b. Write a HTML page for Example Cafe using above text formatting tags.
- 2 a. Write a HTML program using presentational element tags , <i>, , <sup>, <sub>, <big>, <small>, <hr>
b. Write a HTML program using phrase element tags <blockquote>, <cite>, <abbr>, <acronym>, <code>, <address>
- 3 a. Write a HTML program using different list types.
b. Write a HTML page that displays ingredients and instructions to prepare a recipe.
- 4 a. Write a HTML program using grouping elements <div> and .
b. Write a HTML Menu page for Example cafe site.
- 5 a. Write a HTML program using images, audios, videos.
b. Write a HTML program to create your time table.
- 6 Write a HTML program to create a form using text inputs, password inputs, multiple line text input, buttons, check boxes, radio buttons, select boxes, file select boxes.
- 7 Write a HTML program to create a frames and links between frames.
- 8 Write a HTML program to create different types of style sheets.
- 9 Write a HTML program to create CSS on links, lists, tables and generated content.
- 10 Write a HTML program to create your college web site using multi column layouts.
- 11 Write a HTML program to create your college web site using for mobile device.
- 12 Write a HTML program to create login form and verify username and password using DOM
- 13 a. Write a JavaScript program to calculate area of rectangle using function.
b. Write a JavaScript program to wish good morning, good afternoon, good evening depending on the current time.
- 14 a. Write a JavaScript program using switch case?
b. Write a JavaScript program to print multiplication table of given number using loop.
- 15 a. Write a JavaScript programs using any 5 events.
b. Write a JavaScript program using JavaScript built in objects.
- 16 Write a JavaScript program to create registration form and validate all fields using form validation

UG (B.Sc.) Scheme of Examinations
Computer Science
 (CBCS 2016-17)

Elaborations

Paper	Credits	Theory Exam		Practical Exam
		University Exam	Internal Exam	
DSC	4	80 Marks	20 Marks	25 Marks
DSE	3	60 Marks	15 Marks	25 Marks
SEC	2	40 Marks	10 Marks	No Practical Exam
GE	2	40 Marks	10 Marks	

- DSC** – Discipline specific core course
DSE – Discipline specific elective course
SEC – Skill enhancement course
GE – Generic elective

4 Credit Core (DSC) Paper

University Exam (Theory)

Time: 3 Hrs.

Maximum marks: 80

Section - A (5 X 4M = 20 Marks)

Answer any five of the following eight questions. Each carries four marks.

- Q1. From Unit 1
- Q2. From Unit 1
- Q3. From Unit 2
- Q4. From Unit 2
- Q5. From Unit 3
- Q6. From Unit 3
- Q7. From Unit 4
- Q8. From Unit 4

Section - B (4 X 15M = 60 Marks)

Answer all the following four questions. Each carries FIFTEEN marks.

- Q09. (a) or (b) from Unit 1
- Q10. (a) or (b) from Unit 2
- Q11. (a) or (b) from Unit 3
- Q12. (a) or (b) from Unit 4

Internal Exam (Theory)

Time: 1 Hr.

Maximum marks: 20

- Two internal exams (one at the middle of the semester and the other at the end) of one-hour duration are to be conducted carrying 15 marks each.
- Average of the scores of two exams should be taken into account.
- Following is the examination pattern.
 - 10 MCQs (multiple choice questions) of half mark each,
 - 10 FIBs (Fill in the Blanks) of half mark each
 - 5 SAQs (short answered questions) of one mark each
 - Totaling 15 marks.
 - 5 marks meant for assignment.

University Exam (Practical)

Time: 2 Hrs.

Maximum marks: 25

- The question paper is to be typeset with **four** programs with due weightage to **all the units** from the question bank provided in the syllabus.
- The candidates are to answer any **two** of them in the practical exam.
- Each question has to carry **six** marks totaling **12** marks.
- Viva – **8** marks
- Record – **5** marks

3 Credit Core (DSE) Paper

University Exam (Theory)

Time: 3 Hrs.

Maximum marks: 60

Section - A (5 X 3M = 15 Marks)

Answer any five of the following eight questions. Each carries three marks.

- Q1. From Unit 1
- Q2. From Unit 1
- Q3. From Unit 2
- Q4. From Unit 2
- Q5. From Unit 3
- Q6. From Unit 3
- Q7. From Any Unit
- Q8. From Any Unit

Section - B (3 X 15M = 45 Marks)

Answer all the following three questions. Each carries fifteen marks.

- Q09. (a) or (b) from Unit 1
- Q10. (a) or (b) from Unit 2
- Q11. (a) or (b) from Unit 3

Internal Exam (Theory)

Time: 1 Hr.

Maximum marks: 20

- Two internal exams (one at the middle of the semester and the other at the end) of one-hour duration are to be conducted carrying 15 marks each.
- Average of the scores of two exams should be taken into account.
- Following is the examination pattern.
 - 10 MCQs (multiple choice questions) of half mark each,
 - 10 FIBs (Fill in the Blanks) of half mark each
 - 5 SAQs (short answered questions) of one mark each
 - Totaling 15 marks.
 - No assignment is required.

University Exam (Practical)

Time: 2 Hrs.

Maximum marks: 25

- The question paper is to be typeset with **four** programs with due weightage to **all the units** from the question bank provided in the syllabus.
- The candidates are to answer any **two** of them in the practical exam.
- Each question has to carry **six** marks totaling **12** marks.
- Viva – **8** marks
- Record – **5** marks

2 Credit Core (SEC & GE) Papers

University Exam (Theory)

Time: 2 Hrs.

Maximum marks: 40

Section - A (2 X 5M = 10 Marks)

Answer any two of the following four questions. Each carries five marks.

- Q1. From Unit 1
- Q2. From Unit 1
- Q3. From Unit 2
- Q4. From Unit 2

Section - B (2 X 15M = 30 Marks)

Answer all the following two questions. Each carries fifteen marks.

- Q09. (a) or (b) from Unit 1
- Q10. (a) or (b) from Unit 2

Internal Exam (Theory)

Time: 1/2 Hr.

Maximum marks: 10

- One internal exam at the end of the semester, of half an hour duration is to be conducted carrying 10 marks.
- Following is the examination pattern.
 - 10 MCQs (multiple choice questions) of one mark each,
 - No assignment is required.

MOOCs [Massive Online Open Courses] Free Resources

E-Learning:

- NPTEL :nptel.ac.in [Core Subjects Certification]
- C++ INSTITUTE :cppinstitute.org [C++ Certification]
- ORACLEEDUCATION :education.oracle.com [Java, DBMS Certification]
- BIG DATA UNIVERSITY :bigdatauniversity.com [Big Data Certification]
- COURSERA :coursera.org [Core Subjects Certification]
- CODEACADEMY :codecademy.com [Coding Certification]
- KHANACADEMY :khanacademy.org [Core Subjects Certification]
- PIXAR IN A BOX :khanacademy.org/partner-content/pixar
- VIDEOLECTURES :videlectures.net
- YOUTUBEEDU :plus.google.com/+YouTubeEDU/posts
- DISNEY RESEARCH :disneyresearch.com
- ALISON :alison.com [Core Subjects Certification]
- INTERNET ARCHIVE :archive.org

Freeware:

- SCILAB : scilab.org [MatLab Equivalent]
- GEOGEBRA :geogebra.org [Software for Class Room Teaching]

Search Engine:

- WOLFRAM ALPHA :wolframalpha.com [Computing Engine]
- CITESEER :citeseerx.ist.psu.edu [Searching Research Articles]
- DOAJ :doaj.org [Open Access to Journals]

**Telangana State Council of Higher Education, Govt. of Telangana B.Sc., CBCS Common
Core Syllabi for all Universities in Telangana
PROPOSED SCHEME FOR CHOICE BASED CREDIT SYSTEM IN
B.Sc., Chemistry**

FIRST YEAR- SEMSTER I				
CODE	COURSE TITLE	COURSE TYPE	HPW	CREDITS
BS 101	Communication	AECC-1	2	2
BS 102	English	CC-1A	5	5
BS 103	Second language	CC-2A	5	5
BS 104	Optional I	DSC-1A	4T+2P=6	4+1=5
BS 105	Optional II	DSC-2A	4T+2P=6	4+1=5
BS 106	Optional III- Chemistry - I	DSC-3A	4T } = 6	4 } = 5
	Laboratory Course – I (Qualitative Analysis – I)		2P }	1 }
Total Credits				27
FIRST YEAR- SEMSTER II				
BS 201	Environmental studies	AECC-2	2	2
BS 202	English	CC-1B	5	5
BS 203	Second language	CC-2B	5	5
BS 204	Optional I	DSC-1B	4T+2P=6	4+1=5
BS 205	Optional II	DSC-2B	4T+2P=6	4+1=5
BS 206	Optional III- Chemistry - II	DSC-3B	4T } = 6	4 } = 5
	Laboratory Course - II (Qualitative Analysis – II)		2P }	1 }
Total Credits				27
SECOND YEAR- SEMSTER III				
BS 301	Safety Rules in Chemistry Laboratory and Lab Reagents	SEC-I	2	2
BS 302	English	CC-1C	5	5
BS 303	Second language	CC-2C	5	5
BS 304	Optional I	DSC-1C	4T+2P=6	4+1=5
BS 305	Optional II	DSC-2C	4T+2P=6	4+1=5
BS 306	Optional III- Chemistry - III	DSC-3C	4T } = 6	4 } = 5
	Laboratory Course - III (Quantitative Analysis – I)		2P }	1 }
Total Credits				27
SECOND YEAR- SEMSTER IV				
BS 401	Remedial Methods for Pollution, Drinking Water and Soil Fertility	SEC-2	2	2
BS 402	English	CC-1D	5	5
BS 403	Second language	CC-2D	5	5
BS 404	Optional I	DSC-1D	4T+2P=6	4+1=5
BS 405	Optional II	DSC-2D	4T+2P=6	4+1=5
BS 406	Optional III- Chemistry - IV	DSC-3D	4T } = 6	4 } = 5
	Laboratory Course - IV (Quantitative Analysis – II)		2P }	1 }
Total Credits				27

* **Optional III Chemistry** AECC: Ability Enhancement Compulsory Course; SEC: Skill Enhancement Course; DSC: Discipline Specific Course; GE: Generic Elective;

B.Sc I yr CHEMISTRY
SEMESTER WISE SYLLABUS
SEMESTER I
Paper – I
Chemistry - I

Unit-I (Inorganic Chemistry)

15h(1 hr/week)

S1-I-1. s-block elements:

General Characteristics of groups I and II elements, Diagonal relationship between Li and Mg, Be and Al **2 h**

S1-I-2. p-block elements 1:

7 h

Group-13: Synthesis and structure of diborane and higher Boranes (B_4H_{10} and B_5H_9), Boron nitrogen compounds ($B_3N_3H_6$ and BN), Lewis acid nature of BX_3

Group – 14: Carbides-Classification – ionic, covalent, interstitial – synthesis. Structures and reactivity. Industrial application. Silicones – Preparation – a) direct silicon process b) use of Grignard reagent c) aromatic silylation. Classification – straight chain, cyclic and cross-linked.

Group – 15: Nitrides – Classification – ionic, covalent and interstitial. Reactivity – hydrolysis. Preparation and reactions of hydrazine, hydroxyl amine, phosphazenes.

S1-I-3. General Principles of Inorganic qualitative analysis

6 h

Anion analysis: Theory of sodium carbonate extract, classification and reactions of anions- CO_3^{2-} , Cl^- , Br^- , SO_4^{2-} , PO_4^{3-} , BO_3^{3-} , CH_3COO^- , NO_3^- .

Cation Analysis: Principles involved - Solubility product, common ion effect, general discussion for the separation and identification of group I individual cations (Hg_2^{2+} , Ag^+ , Pb^+) with flow chart and chemical equations. Principle involved in separation of group II & IV cations.

General discussion for the separation and identification of group II (Hg^{2+} , Pb^{2+} , Bi^{3+} , Cd^{2+} , Sb^{2+}), III (Al^{3+} , Fe^{3+}), IV (Mn^{2+} , Zn^{2+}) individual cations with flow chart and chemical equations. Application of concept of hydrolysis in group V cation analysis. General discussion for the separation and identification of group V individual cations (Ba^{2+} , Sr^{2+} , Ca^{2+}) with flow chart and chemical equations. Theory of flame test. Identification of Group VI cations (Mg^{2+} , NH_4^+).

Unit - II (Organic Chemistry)

15h(1 hr/week)

S1-O-1:Structural Theory in Organic Chemistry

6 h

Bond polarization: Factors influencing the polarization of covalent bonds, electro negativity – inductive effect. Application of inductive effect (a) Basicity of amines (b) Acidity of carboxylic acids (c) Stability of carbonium ions. Resonance - Mesomeric effect, application to (a) acidity of phenol. (b) acidity of carboxylic acids and basicity of anilines. Stability of carbo cations, carbanions and free radicals. Hyper conjugation and its application to stability of carbonium ions, Free radicals and alkenes.

Types of organic reactions: Addition reactions- electrophilic, nucleophilic and free radical. Substitution reactions – electrophilic, nucleophilic and free radical. Elimination and Rearrangement reactions– Examples.

S1-O-2:Acyclic Hydrocarbons

6 h

Alkanes– Methods of preparation: Corey-House reaction, Wurtz reaction, from Grignard reagent, Kolbe synthesis. Chemical reactivity - inert nature, free radical substitution, Halogenation example- reactivity, selectivity and orientation.

Alkenes - Preparation of alkenes (with mechanism) (a) by dehydration of alcohols (b) dehydrohalogenation of alkyl halides (c) by dehalogenation of 1,2 dihalides, Zaitsev's rule. Properties: Addition of Hydrogen – heat of hydrogenation and stability of alkenes. trans-addition of halogen and its mechanism. Addition of HX, Markonikov's rule, addition of H₂O, HOX, H₂SO₄ with mechanism and addition of HBr in the presence of peroxide (anti – Markonikov's addition). Oxidation (cis – additions) – hydroxylation by KMnO₄, OsO₄, trans addition- peracids (via epoxidation), hydroboration, ozonolysis – location of double bond. Dienes – Types of dienes, reactions of conjugated dienes – 1,2 and 1,4 addition of HBr to 1,3 – butadiene and Diels – Alder reaction.

Alkynes– Preparation by dehydrohalogenation of vicinal dihalides, dehalogenation of tetrahalides. Physical Properties: Acidity of terminal alkynes (formation of metal acetylides) preparation of higher alkynes, Chemical reactivity – electrophilic addition of X₂, HX, H₂O (tautomerism), Oxidation (formation of enediol, 1,2 diones and carboxylic acids) and reduction (Metal-ammonia reduction, catalytic hydrogenation)

S1-O-3:Alicyclic Hydrocarbons

3 h

Nomenclature, preaprtion by Freunds method, Dickmann, heating dicarboxylic metal salts. Properties – reactivity of cyclo propane and cyclo butane by comparing with alkanes. Stability of cycloalkanes – Baeyer strain theory, Sachse and Mohr predictions and Pitzer strain theory. Conformational structures ofcyclopentane, cyclohexane.

Unit-III (Physical Chemistry)**15 h (1 hr/week)****S1-P-1: Atomic structure and elementary quantum mechanics****6 h**

Black body radiation, heat capacities of solids, Rayleigh Jeans law, Planck's radiation law, photoelectric effect, Limitations of classical mechanics, Compton effect, De Broglie's hypothesis. Heisenberg's uncertainty principle, Schrodinger's wave equation and its importance. Physical interpretation of the wave function, significance of ψ and ψ^2 , a particle in a box, energy levels, wave functions and probability densities. Schrodinger wave equation for H-atom. Separation of variables, radial and angular functions (only equation), hydrogen like wave functions, quantum numbers and their importance.

S1-P-2: Gaseous State**5 h**

Deviation of real gases from ideal behavior. van der Waals equation of state. Critical phenomenon. PV isotherms of real gases, continuity of state. Andrew's isotherms of CO₂. The van der Waal's equation and critical state. Derivation of relationship between critical constants and van der Waal's constants. The law of corresponding states, reduced equation of states. Joule Thomson effect and inversion temperature of a gas. Liquefaction of gases: i) Linde's method based on Joule Thomson effect ii) Claude's method based on adiabatic expansion of a gas.

S1-P-3: Liquid State**4 h**

Intermolecular forces, structure of liquids (qualitative description). Structural differences between solids, liquids and gases. Surface tension and its determination using stalagmometer. Viscosity of a liquid and determination of coefficient of viscosity using Ostwald viscometer. Effect of temperature on surface tension and coefficient of viscosity of a liquid (qualitative treatment only). Liquid crystals, the mesomorphic state: Classification of liquid crystals into Smectic and Nematic, differences between liquid crystal and solid / liquid. Application of liquid crystals as LCD devices.

Unit – IV (General Chemistry)**15 h (1 hr/week)****S1-G-1 Chemical Bonding****11 h**

Ionic solids- lattice and solvation energy, solubility of ionic solids, Fajan's rule, polarity and polarizability of ions, covalent nature of ionic bond, covalent bond - Common hybridization and shapes of molecules.

Molecular orbital theory: Shapes and sign convention of atomic orbitals. Modes of overlapping. Concept of σ and π bonds. Criteria for orbital overlap. LCAO concept. Types of molecular orbitals- bonding, antibonding and non bonding. MOED of homonuclear diatomics - H₂, N₂, O₂, O₂⁻, O₂²⁻, F₂ (unhybridized diagrams only) and heteronuclear diatomics CO, CN⁻, NO, NO⁺ and HF. Bond order, stability and magnetic properties.

S1-G-2 Evaluation of analytical data**4 h**

Significant figures, accuracy and precision. Errors-classification of errors- determinate and indeterminate errors, absolute and relative errors, propagation of errors in mathematical operations – addition, subtraction, division and multiplication (with respect to determinate errors).

References:

Unit- I

1. Principles of Inorganic Chemistry by Puri, Sharma and Kalia Vishal Publications 1996.
2. Concise Inorganic Chemistry by J.D. Lee 3rd edn.
3. Basic Inorganic Chemistry by F.A.Cotton, G.Wilkinson and Paul.L. Gaus 3rd edn Wiley Publishers 2001. Chem.
4. Vogel's Qualitative Inorganic Analysis by Svehla
5. Inorganic Chemistry Principles of structure and reactivity by James E.Huhey, E.A. Keiter and R.L. Keiter 4th edn.
6. Chemistry of the elements by N.N.Greenwood and A. Earnshaw Pergamon Press 1989.
7. Inorganic Chemistry by Shriver and Atkins 3rd edn Oxford Press 1999.
8. Qualitative analysis by Welcher and Hahn.
9. Textbook of Inorganic Chemistry by R Gopalan
10. College Practical chemistry by V K Ahluwalia, Sunitha Dhingra and Adarsh Gulati

Unit- II

1. Text book of organic chemistry by Morrison and Boyd.
2. Text book of organic chemistry by Graham Solomons.
3. Text book of organic chemistry by Bruice Yuranis Powla.
4. Text book of organic chemistry by Soni.
5. General Organic chemistry by Sachin Kumar Ghosh.
6. Text book of organic chemistry by C N pillai

Unit III

1. Principles of physical chemistry by Prutton and Marron.
2. Text Book of Physical Chemistry by Soni and Dharmahara..
3. Text Book of Physical Chemistry by Puri and Sharma.
4. Text Book of Physical Chemistry by K. L. Kapoor.
5. Physical Chemistry through problems by S.K. Dogra.
6. Text Book of Physical Chemistry by R.P. Verma.
7. Elements of Physical Chemistry by Lewis Glasstone.

Unit IV

1. Principles of Inorganic Chemistry by Puri, Sharma and Kalia Vishal Publications 1996.
2. Concise Inorganic Chemistry by J.D. Lee 3rd edn.
3. Basic Inorganic Chemistry by F.A.Cotton, G.Wilkinson and Paul.L. Gaus 3rd edn Wiley Publishers 2001. Chem
4. Analytical chemistry by G. L. David Krupadanam, D. Vijaya Prasad, K. Varaprasada Rao, K.L.N. Reddy and C. Sudhakar

Laboratory Course

45h (3 h / week)

Paper I Qualitative Analysis - I

I. Preparations:

1. Tetrammine copper (II) sulphate,
2. Potash alum $\text{KAl}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$,
3. Bis (dimethylglyoximato) nickel(II)

II. Analysis of two anions (one simple and one interfering)

B.Sc I yr CHEMISTRY
SEMESTER WISE SYLLABUS
SEMESTER II
Paper II
Chemistry - II

Unit-I (Inorganic Chemistry)

15 h (1 hr/week)

S2-I-1 p-block Elements -II

7 h

Oxides: Types of oxides (a) Normal- acidic, basic amphoteric and neutral (b) Mixed (c) sub oxide (d) peroxide (e) superoxide. Structure of oxides of C, N, P, S and Cl - reactivity, thermal stability, hydrolysis.

Oxy acids: Structure and acidic nature of oxyacids of B, C, N, P, S and Cl. Redox properties of oxyacids of Nitrogen: HNO_2 (reaction with FeSO_4 , KMnO_4 , $\text{K}_2\text{Cr}_2\text{O}_7$), HNO_3 (reaction with H_2S , Cu), HNO_4 (reaction with KBr, Aniline), $\text{H}_2\text{N}_2\text{O}_2$ (reaction with KMnO_4). Redox properties of oxyacids of Potassium: H_3PO_2 (reaction with HgCl_2), H_3PO_3 (reaction with AgNO_3 , CuSO_4).

Redox properties of oxyacids of Sulphur: H_2SO_3 (reaction with KMnO_4 , $\text{K}_2\text{Cr}_2\text{O}_7$), H_2SO_4 (reaction with Zn, Fe, Cu), $\text{H}_2\text{S}_2\text{O}_3$ (reaction with Cu, Au), H_2SO_5 (reaction with KI, FeSO_4), $\text{H}_2\text{S}_2\text{O}_8$ (reaction with FeSO_4 , KI)

Interhalogens- classification- general preparation- structures of AB , AB_3 , AB_5 and AB_7 type and reactivity. Poly halides- definition and structure of ICl_2^- , ICl_4^- and I_3^- . Comparison of Pseudohalogens with halogens.

S2-I-2 Chemistry of Zero group elements

2 h

General preparation, structure, bonding and reactivity of Xenon compounds – Oxides, Halides and Oxy-halides. Clathrate compounds and Anomalous behavior of He (II)

S2-I-3 Chemistry of d-block elements

6 h

Characteristics of d-block elements with special reference to electronic configuration variable valence, ability to form complexes, magnetic properties & catalytic properties. Stability of various oxidation states and SRP Comparative treatment of second and third transition series with their 3d analogues. Study of Ti, Cr and Cu triads. Titanium triad – electronic configuration and reactivity of +3 and +4 states – oxides and halides. Chromium triad – reactivity of +3 and +6 states. Copper triad – reactivity of +1, +2 and +3 states.

Unit - II(Organic chemistry)

15 h (1 hr/week)

S2-O-1: Aromatic Hydrocarbons

7h

Concept of aromaticity – definition, Huckel's rule – application to Benzenoids and Non – Benzenoids (cyclopropenyl cation, cyclopentadienyl anion and tropylium cation).

Preparations: From acetylene, phenols, benzene carboxylic acids and sulphonic acids

Reactions - General mechanism of electrophilic substitution, mechanism of nitration, sulphonation, and halogenation, Friedel Craft's alkylation (polyalkylation) and acylation. Orientation of aromatic substitution - Definition of ortho, para, and meta directing groups. Ring activating and deactivating groups with examples. Orientation – (i) activating groups: Amino, methoxy and alkyl groups. (ii) Deactivating groups - carboxy, nitro, nitrile, carbonyl and sulphonic acid & halo groups.

S2-O-2: Arenes and Polynuclear Aromatic Hydrocarbons**3 h**

Preparation of alkyl benzenes by Friedel Craft's alkylation, Friedel Craft's acylation followed by reduction, Wurtz-Fittig reaction. Chemical reactivity: Ring substitution reactions, side chain substitution reactions and oxidation.

Polynuclear hydrocarbons – Structure of naphthalene and anthracene (Molecular Orbital diagram and resonance energy) Reactivity towards electrophilic substitution. Nitration and sulphonation as examples.

S2-O-3: Halogen compounds**5 hrs**

Nomenclature and classification: alkyl (primary, secondary, tertiary), aryl, aralkyl, allyl, vinyl, benzyl. Chemical reactivity - reduction, formation of RMgX, Nucleophilic substitution reactions – classification into S_N^1 and S_N^2 . Mechanism and energy profile diagrams of S_N^1 and S_N^2 reactions. Stereochemistry of S_N^2 (Walden Inversion) 2-bromobutane, S_N^1 (Racemisation) 1-bromo-1-phenylpropane explanation of both by taking the example of optically active alkyl halide. Structure and reactivity – Ease of hydrolysis - comparison of alkyl, vinyl, allyl, aryl, and benzyl halides.

Unit – III (Physical Chemistry)**15 h (1 hr/week)****S2-P-1: Solutions****5 h**

Liquid - liquid mixtures, ideal liquid mixtures, Raoult's and Henry's laws. Non ideal systems. Azeotropes HCl-H₂O and C₂H₅OH - H₂O systems. Fractional distillation, Partially miscible liquids- Phenol – Water, Trimethyl amine – Water and Nicotine – Water systems. Lower upper consolute temperatures. Effect of impurity on consolute temperature. Immiscible liquids and steam distillation. Nernst distribution law. Calculation of the partition coefficient. Applications of distribution law with solvent extraction.

S2-P-2: Dilute Solutions & Colligative Properties**5 h**

Dilute Solutions, Colligative Properties, Raoult's law, relative lowering of vapour pressure, molecular weight determination. Osmosis - laws of osmotic pressure, its measurement, determination of molecular weight from osmotic pressure. Elevation of boiling point and depression of freezing point. Derivation of relation between molecular weight and elevation in boiling point and depression in freezing point. Experimental methods for determining various colligative properties. Abnormal molar mass, Van't Hoff factor, degree of dissociation and association of solutes.

S2-P-3: Solid state Chemistry**5 h**

Laws of Crystallography – (i) Law of Constancy of interfacial angles (ii) Law of Symmetry, Symmetry elements in crystals (iii) Law of rationality of indices. Definition of space lattice, unit cell. Bravais Lattices and Seven Crystal systems (a brief review). X-ray diffraction by crystals; Derivation of Bragg's equation, Determination of structure of NaCl, KCl & CsCl (Bragg's method and Powder method).

Unit – IV (General Chemistry)**15 h (1 hr/week)**

S2-G-1: Theory of Quantitative Analysis**5 hours**

Volumetric Analysis: Introduction, standard solutions, indicators, end point, titration curves, Types of titrations: i) neutralization titration- principle, theory of acid base indicators, titration curves and selection of indicators- strong acid - strong base, strong acid –weak base, weak acid- strong base and weak acid –weak base.

Gravimetric analysis- Introduction, nucleation, precipitation, growth of precipitate, filtration and washing, drying and incineration of precipitate, coprecipitation and post precipitation. Determination of Ni^{2+}

S3-G-2: Theories of bonding in metals:**5 h**

Valence bond theory, Explanation of metallic properties and its limitations, Free electron theory, thermal and electrical conductivity of metals, limitations, Band theory, formation of bands, explanation of conductors, semiconductors n-type and p-type, extrinsic & intrinsic semiconductors, and insulators.

S2-G-3: Material Science**5 h**

Classification of materials- classification as metals, ceramics, organic polymers, composites, biological materials etc. The property of super conductivity of materials.

Super conducting materials- elements, alloys and compounds. Properties of super conductors- zero resistivity, Meisener effect and thermal properties. Composites- meaning of composites, advanced composites, classification –particle reinforced fiber reinforced and structural composites general characters of composite materials-Particle-reinforced composites – large particle and dispersion- strengthened composite. Fiber reinforced composites (continuous and discontinuous fiber composites).

References

Unit I

1. Principles of Inorganic Chemistry by Puri, Sharma and Kalia Vishal Publications 1996.
2. Concise Inorganic Chemistry by J.D. Lee 3rd edn.
3. Basic Inorganic Chemistry by F.A.Cotton, G.Wilkinson and Paul.L. Gaus 3rd edn
4. Wiley Publishers 2001. Chem
5. Chemistry of the elements by N.N.Greenwood and A. Earnshaw Pergamon Press 1989.
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Unit II

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4. Text book of organic chemistry by Soni.
5. General Organic chemistry by Sachin kumar Ghosh.
6. Text book of organic chemistry by C N pillai

Unit III

1. Principles of physical chemistry by Prutton and Marron.
2. Text Book of Physical Chemistry by Soni and Dharmahara.
3. Text Book of Physical Chemistry by Puri and Sharma
4. Text Book of Physical Chemistry by K. L. Kapoor
5. Physical Chemistry through problems by S.K. Dogra.
6. Elements of Physical Chemistry by Lewis and Glasstone.
7. Material science by Kakani & Kakani

Unit IV

1. Vogel's Text Book of Quantitative Analysis by G.H.Jeffery, J.Bassett, J.Mendham and R.C. Denney 5th edn Addison Wesley Longman Inc. 1999.
2. Quantitative Analysis by Day and Underwood Prentice Hall (India) VI Edn..
3. Nano: The Essentials by T. Pradeep, McGraw-Hill Education.
4. Chemistry of nanomaterials: Synthesis, Properties and applications by CNR Rao et.al.
5. Nanostructured Materials and Nanotechnology, edited by Hari Singh Nalwa, Academic Press
6. College Practical chemistry by V K Ahluwalia, Sunitha Dhingra and Adarsh Gulati

Laboratory Course

45hrs (3 h / week)

Paper II - Qualitative Analysis - II

I Semi micro analysis of mixtures

Analysis of two anions and two cations in the given mixture.

Anions: CO_3^{2-} , SO_3^{2-} , S^{2-} , Cl^- , Br^- , I^- , CH_3COO^- , NO_3^- , PO_4^{3-} , BO_3^{3-} , SO_4^{2-}

Cations: Ag^+ , Pb^{2+} , Hg^+ , Hg^{2+}
 Pb^{2+} , Bi^{3+} , Cd^{2+} , Cu^{2+} , $\text{As}^{3+/5+}$, $\text{Sb}^{3+/5+}$, $\text{Sn}^{2+/4+}$
 Al^{3+} , Cr^{3+} , Fe^{3+}
 Zn^{2+} , Ni^{2+} , Co^{2+} , Mn^{2+}
 Ca^{2+} , Sr^{2+} , Ba^{2+}
 Mg^{2+} , NH_4^+

**Telangana State Council of Higher Education, Govt. of Telangana B.Sc., CBCS Common
Core Syllabi for all Universities in Telangana
PROPOSED SCHEME FOR CHOICE BASED CREDIT SYSTEM IN
B.Sc., Chemistry from 2019-2020**

FIRST YEAR- SEMESTER I				
CODE	COURSE TITLE	COURSE TYPE	HPW	CREDITS
BS 101	Ability Enhancement Compulsory Course AECC-1	ES	2	2
BS 102	English	CC-1A	4	4
BS 103	Second language	CC-2A	4	4
BS 104	Optional I	DSC-1A	4T+3P=7	4+1=5
BS 105	Optional II	DSC-2A	4T+3P=7	4+1=5
BS 106	Optional III- Chemistry - I	DSC-3A	4T } = 7 3P	4 } = 5 1
	Laboratory Course – I (Qualitative Analysis - Semi Micro Analysis of Mixtures)			
	Total Credits		31	25
FIRST YEAR- SEMSTER II				
BS 201	Ability Enhancement Compulsory Course AECC-2	BCS	2	2
BS 202	English	CC-1B	4	4
BS 203	Second language	CC-2B	4	4
BS 204	Optional I	DSC-1B	4T+3P=7	4+1=5
BS 205	Optional II	DSC-2B	4T+3P=7	4+1=5
BS 206	Optional III- Chemistry - II	DSC-3B	4T } = 7 3P	4 } = 5 1
	Laboratory Course - II (Quantitative Analysis – Titrations)			
	Total Credits		31	25
SECOND YEAR- SEMSTER III				
BS 301	i) Safety Rules in Chemistry Laboratory and Lab Reagents ii) Remedial methods for pollution, drinking water and Soil fertility	SEC-1 SEC-2	2 2	2 2
BS 302	English	CC-1C	3	3
BS 303	Second language	CC-2C	3	3
BS 304	Optional I	DSC-1C	4T+3P=7	4+1=5
BS 305	Optional II	DSC-2C	4T+3P=7	4+1=5
BS 306	Optional III- Chemistry - III	DSC-3C	4T } = 7 3P	4 } = 5 1
	Laboratory Course - III (Synthesis of Organic compounds)			
	Total Credits		31	25
SECOND YEAR- SEMSTER IV				
BS 401	i) Materials and their Applications ii) Chemistry of Cosmetics and Food Processing	SEC-3 SEC-4	2 2	2 2
BS 402	English	CC-1D	3	3
BS 403	Second language	CC-2D	3	3
BS 404	Optional I	DSC-1D	4T+3P=7	4+1=5
BS 405	Optional II	DSC-2D	4T+3P=7	4+1=5
BS 406	Optional III- Chemistry - IV	DSC-3D	4T } = 7 3P	4 } = 5 1
	Laboratory Course - IV (Qualitative Analysis of Organic Compounds)			
	Total Credits		31	25

* AECC: Ability Enhancement Compulsory Course, SEC: Skill Enhancement Course, DSC: Discipline Specific Course, GE: Generic Elective, ES: Environmental Science , BCS : Basic computer skills.

B.Sc. I Yr CHEMISTRY
SEMESTER WISE SYLLABUS
SEMESTER I
Paper – I
Chemistry - I

Unit-I (Inorganic Chemistry) 15 h (1 hr/week)
S1- I-1. Chemical Bonding 8 h

Ionic solids- lattice and solvation energy, solubility of ionic solids, Fajan's rule, polarity and polarizability of ions. VSPER Theory - Common hybridization-sp, sp^2 , sp^3 , sp^3d , sp^3d^2 and sp^3d^3 , shapes of molecules. Molecular orbital theory: Shapes and sign convention of atomic orbitals. Modes of bonds. Criteria for orbital overlap. LCAO concept. π and σ overlapping. Concept of Types of molecular orbitals- bonding, antibonding and non bonding. MOED of homonuclear diatomics - H_2 , N_2 , O_2^- , O_2^{2-} , F_2 (unhybridized diagrams only) and heteronuclear diatomics CO , CN^- , NO , NO^+ and HF . Bond order, stability and magnetic properties.

S1-I-2. P-Block Elements 1 7 h

Group-13: Structure of diborane and higher Boranes (B_4H_{10} and B_5H_9), Boron nitrogen compounds ($B_3N_3H_6$ and BN), Lewis acid nature of BX_3 .
Group - 14: Carbides-Classification - ionic, covalent, interstitial - .Structures and reactivity. Industrial applications. Silicones - Classification - straight chain, cyclic and cross-linked.
Group - 15: Nitrides - Classification - ionic, covalent and interstitial. Reactivity - hydrolysis. Reactions of hydrazine, hydroxyl amine, phosphazenes.

Unit - II (Organic Chemistry) 15h(1 hr/week)

S1-O-1: Structural Theory in Organic Chemistry 5 h

Bond polarization: Factors influencing the polarization of covalent bonds, electro negativity - inductive effect. Application of inductive effect (a) Basicity of amines (b) Acidity of carboxylic acids (c) Stability of carbonium ions. Resonance - Mesomeric effect, application to (a) acidity of phenol. (b) acidity of carboxylic acids and basicity of anilines. Stability of carbo cations, carbanions and free radicals. Hyper conjugation and its application to stability of carbonium ions, free radicals and alkenes.

S1-O-2: Acyclic Hydrocarbons 6 h

Alkanes- Methods of preparation: From Grignard reagent, Kolbe synthesis. Chemical reactivity - inert nature, free radical substitution, Halogenation example- reactivity, selectivity and orientation.

Alkenes - Preparation of alkenes (with mechanism) (a) by dehydration of alcohols (b) dehydrohalogenation of alkyl halides (c) by dehalogenation of 1,2 dihalides, Zaitsev's rule. Properties: Anti-addition of halogen and its mechanism. Addition of HX , Markonikov's rule, addition of H_2O , HOX , H_2SO_4 with mechanism and addition of HBr in the presence of peroxide (anti - Markonikov's addition). Oxidation (cis - additions) - hydroxylation by $KMnO_4$, OsO_4 ,

anti addition- peracids (via epoxidation), hydroboration, ozonolysis – location of double bond. Dienes – Types of dienes, reactions of conjugated dienes – 1,2 and 1,4 addition of HBr to 1,3 – butadiene and Diels – Alder reaction.

Alkynes– Preparation by dehydrohalogenation of vicinal dihalides, dehalogenation of tetrahalides. Physical Properties: Chemical reactivity – electrophilic addition of X_2 , HX, H_2O (tautomerism), Oxidation (formation of enediol, 1,2 diones and carboxylic acids) and reduction (Metal-ammonia reduction, catalytic hydrogenation).

Aromatic Hydrocarbons

4h

Introduction to aromaticity: Huckel's rule – Benzene, Naphthalene and Anthracene. Reactions - General mechanism of electrophilic substitution, mechanism of nitration, sulphonation and halogenation, Friedel Craft's alkylation and acylation. Orientation of aromatic substitution - Definition of ortho, para, and meta directing groups. Ring activating and deactivating groups with examples. Orientation – (i) activating groups: Amino, methoxy and alkyl groups. (ii) Deactivating groups - nitro, nitrile, carbonyl, carboxylic acid, sulphonic acid and halo groups.

Unit – III (Physical Chemistry)

15h(1 hr/week)

S1-P-1: Atomic structure and elementary quantum mechanics

3 h

Black body radiation, heat capacities of solids, Rayleigh Jeans law, Planck's radiation law, photoelectric effect, Limitations of classical mechanics, Compton effect, de Broglie's hypothesis. Heisenberg's uncertainty principle.

S1-P-2: Gaseous State

5 h

Deviation of real gases from ideal behavior. van der Waals equation of state. Critical phenomenon. PV isotherms of real gases, continuity of state. Andrew's isotherms of CO_2 . The van der Waal's equation and critical state. Derivation of relationship between critical constants and van der Waal's constants. The law of corresponding states, reduced equation of states. Joule Thomson effect and inversion temperature of a gas. Liquifaction of gases: i) Linde's method based on Joule Thomson effect ii) Claude's method based on adiabatic expansion of a gas.

S1-P-3: Liquid State and Solutions

4 h

Liquid State

Intermolecular forces, structure of liquids (qualitative description). Structural differences between solids, liquids and gases. Surface tension and its determination using stalagmometer. Viscosity of a liquid and determination of coefficient of viscosity using Ostwald viscometer. Effect of temperature on surface tension and coefficient of viscosity of a liquid (qualitative treatment only).

Solutions

3 h

Liquid - liquid mixtures, ideal liquid mixtures, Raoult's and Henry's laws. Non ideal systems. Azeotropes: HCl- H_2O and $C_2H_5OH - H_2O$ systems. Fractional distillation. Partially miscible liquids: Phenol – Water, Trimethyl amine – Water and Nicotine – Water systems.

Unit - IV (General Chemistry)

15h(1 hr/week)

S1-G-1. General Principles of Inorganic Qualitative Analysis

6 h

Anion analysis: Theory of sodium carbonate extract, classification and reactions of anions- CO_3^{2-} , Cl^- , Br^- , SO_4^{2-} , PO_4^{3-} , BO_3^{3-} , CH_3COO^- , NO_3^- . Interfering ions. Cation Analysis: Principles involved - Solubility product, common ion effect, general discussion for the separation and identification of group I individual cations (Hg_2^{2+} , Ag^+ , Pb^{2+}) with flow chart and chemical equations. Principle involved in separation of group II & IV cations. General discussion for the separation and identification of group II (Hg^{2+} , Pb^{2+} , Bi^{3+} , Cd^{2+} , Sb^{3+}), III (Al^{3+} , Fe^{3+}), IV (Mn^{2+} , Zn^{2+}) individual cations with flow chart and chemical equations. General discussion for the separation and identification of group V individual cations (Ba^{2+} , Sr^{2+} , Ca^{2+}) with flow chart and chemical equations. Theory of flame test. Identification of Group VI cations (Mg^{2+} , NH_4^+).

S1-G-2. Isomerism

5 h

Isomerism: Definition of isomers. Classification of isomers: Constitutional and Stereoisomers - definition and examples. Constitutional isomers: chain, functional and positional isomers. Stereoisomers: enantiomers and diastereomers – definitions and examples. Representation of stereoisomers – Wedge, Fischer projection, Sawhorse, Newmann formulae.

Conformational analysis : Classification of stereoisomers based on energy. Definition and examples Conformational and configurational isomers. Conformational analysis of ethane, n-butane, 1,2- dichloroethane, 2-chloroethanol .Cyclic compounds: Baeyer's strain theory, Conformational analysis of cyclohexane

Cis-trans isomerism: E-Z-Nomenclature

S1-G-3: Solid state Chemistry

4 h

Laws of Crystallography: (i) Law of Constancy of interfacial angles (ii) Law of Symmetry- Symmetry elements in crystals (iii) Law of rationality of indices. Definition of space lattice, unit cell. Bravais Lattices and Seven Crystal systems (a brief review). X-ray diffraction by crystals; Derivation of Bragg's equation. Determination of structure of NaCl, KCl and CsCl (Bragg's method and Powder method).

References

General reference: B.Sc I Year Chemistry : Semester I, Telugu Academy publication, Hyd
Unit- I

1. Principles of Inorganic Chemistry by Puri, Sharma and Kalia Vishal Publications 1996.
2. Concise Inorganic Chemistry by J.D. Lee 3rd edn.
3. Basic Inorganic Chemistry by F.A.Cotton, G.Wilkinson and Paul.L. Gaus 3rd edn
Wiley Publishers 2001. Chem.

- Inorganic Chemistry Principles of structure and reactivity by James E. Huhey, E.A. Keiter and R.L. Keiter 4th edn.
- Chemistry of the elements by N.N. Greenwood and A. Earnshaw Pergamon Press 1989.
- Inorganic Chemistry by Shriver and Atkins 3rd edn Oxford Press 1999.
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- Physical Chemistry through problems by S.K. Dogra.
- Text Book of Physical Chemistry by R.P. Verma.
- Elements of Physical Chemistry by Lewis Glasstone.

Unit IV

- Qualitative analysis by Welcher and Hahn.
- Vogel's Qualitative Inorganic Analysis by Svehla.
- Text Book of Organic Chemistry by Morrison And Boyd.
- Text Book of Organic Chemistry by Graham Solomons.
- Text Book of Organic Chemistry by Bruce Yuranis Powla.
- Text Book of Organic Chemistry by Soni.
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- Text Book of Physical Chemistry by Puri And Sharma.
- Text Book of Physical Chemistry by K. L. Kapoor.

Laboratory Course

45h (3 h / week)

Paper I - Qualitative Analysis - Semi micro analysis of mixtures

Analysis of two anions (one simple, one interfering) and two cations in the given mixture.

Anions: CO_3^{2-} , SO_3^{2-} , S^{2-} , Cl^- , Br^- , I^- , CH_3COO^- , NO_3^- , PO_4^{3-} , BO_3^{3-} , SO_4^{2-} . .

Cations: Hg_2^{2+} , Ag^+ , Pb^{2+}

Hg^{2+} , Pb^{2+} , Bi^{3+} , Cd^{2+} , Cu^{2+} , $As^{3+/5+}$, $Sb^{3+/5+}$, $Sn^{2+/4+}$

Al^{3+} , Cr^{3+} , Fe^{3+}

Zn^{2+} , Ni^{2+} , Co^{2+} , Mn^{2+}

Ba^{2+} , Sr^{2+} , Ca^{2+}

Mg^{2+} , NH_4^+

B.Sc I Yr CHEMISTRY
SEMESTER WISE SYLLABUS
SEMESTER II
Paper – II
Chemistry – II

Unit-I (Inorganic Chemistry)

15 h (1 hr/week)

S2-I-1 P-block Elements -II

7 h

Oxides: Types of oxides (a) Normal- acidic, basic amphoteric and neutral (b) Mixed (c) sub oxide d) peroxide e) superoxide. Structure of oxides of C, N, P, S and Cl - reactivity, thermal stability, hydrolysis.

Oxy acids: Structure and acidic nature of oxyacids of B, C, N, P, S, Cl and I. Redox properties of oxyacids of Nitrogen: HNO_2 (reaction with FeSO_4 , KMnO_4 , $\text{K}_2\text{Cr}_2\text{O}_7$), HNO_3 (reaction with H_2S , Cu), HNO_4 (reaction with KBr, Aniline), $\text{H}_2\text{N}_2\text{O}_2$ (reaction with KMnO_4). Redox properties of oxyacids of Phosphorus: H_3PO_2 (reaction with HgCl_2), H_3PO_3 (reaction with AgNO_3 , CuSO_4). Redox properties of oxyacids of Sulphur: H_2SO_3 (reaction with KMnO_4 , $\text{K}_2\text{Cr}_2\text{O}_7$), H_2SO_4 (reaction with Zn, Fe, Cu), $\text{H}_2\text{S}_2\text{O}_3$ (reaction with Cu, Au), H_2SO_5 (reaction with KI, FeSO_4), $\text{H}_2\text{S}_2\text{O}_8$ (reaction with FeSO_4 , KI). Redox properties of oxy acids of Chlorine.

Interhalogens- Classification- general preparation- structures of AB , AB_3 , AB_5 and AB_7 type and reactivity.

Poly halides- Definition and structure of ICl_2^- , ICl_4^- and I_3^- .

Pseudohalogens: Comparison with halogens.

S2-I-2: Chemistry of Zero group elements

2 h

Isolation of noble gases, Structure, bonding and reactivity of Xenon compounds – Oxides, Halides and Oxy-halides. Clathrate compounds and Anomalous behavior of He (II)

S2-I-3: Chemistry of d-block elements

6 h

Characteristics of d-block elements with special reference to electronic configuration, variable valence, ability to form complexes, magnetic properties & catalytic properties. Stability of various oxidation states and standard reduction potentials. Comparative treatment of second and third transition series with their 3d analogues. Study of Ti, Cr and Cu triads. Titanium triad – electronic configuration and reactivity of +3 and +4 states – oxides and halides. Chromium triad – reactivity of +3 and +6 states. Copper triad – reactivity of +1, +2 and +3 states.

Unit - II (Organic Chemistry)

15h(1 hr/week)

S2-O-1: Halogen compounds

4 h

Classification: alkyl (primary, secondary, tertiary), aryl, aralkyl, allyl, vinyl, benzyl. Chemical reactivity - reduction, formation of RMgX , Nucleophilic substitution reactions – classification into $\text{S}_{\text{N}}1$ and $\text{S}_{\text{N}}2$. Mechanism and energy profile diagrams of $\text{S}_{\text{N}}1$ and $\text{S}_{\text{N}}2$ reactions. Stereochemistry of $\text{S}_{\text{N}}2$ (Walden Inversion) 2-bromobutane, $\text{S}_{\text{N}}1$ (Racemisation) 1-bromo-1-phenylpropane Structure and reactivity – Ease of hydrolysis - comparison of alkyl, vinyl, allyl, aryl, and benzyl halides.

S2-O-2: Hydroxy compounds and ethers

6 h

Alcohols: Preparation: 1°, 2° and 3° alcohols using Grignard reagent, Reduction of Carbonyl compounds, carboxylic acids and esters. Physical properties: H-bonding, Boiling point and Solubility. Reactions with Sodium, HX/ZnCl₂ (Lucas reagent), esterification, oxidation with PCC, alk. KMnO₄, acidic dichromates, conc. HNO₃ and Oppenauer oxidation (Mechanism).

Phenols: Preparation: (i) from diazonium salts of anilines, (ii) from benzene sulphonic acids and (iii) Cumene hydroperoxide .

Properties: Acidic nature, formation of phenoxide and reaction with R-X, electrophilic substitution; halogenations, Reimer Tiemann reaction (Mechanism), Kolbe reaction (Mechanism), Gattermann-Koch reaction, Azo-coupling reaction, Schotten-Boumann reaction, Houben-Hoesch condensation, .

Ethers: Nomenclature, preparation by (a) Williamson's synthesis (b) from alkenes by the action of conc. H₂SO₄. Physical properties – Absence of Hydrogen bonding, insoluble in water, low boiling point. Chemical properties – inert nature, action of conc. H₂SO₄ and HI.

S2-O-3 Carbonyl compounds

5 h

Preparation of aldehydes & ketones from acid chloride, 1,3-dithianes, nitriles and from carboxylic acids. Special methods of preparing aromatic aldehydes and ketones by (a) Oxidation of arenes (b) Hydrolysis of benzal halides Physical properties – absence of Hydrogen bonding. Reactivity of the carbonyl groups in aldehydes and ketones. Chemical reactivity: Addition of (a) NaHSO₃ (b) HCN (c) RMgX (d) NH₃ (e) RNH₂ (f) NH₂OH (g) PhNHNH₂ (h) 2,4-DNP (Schiff bases). Addition of H₂O to form hydrate, chloral hydrate (stable), addition of alcohols - hemiacetal and acetal formation. Cannizzaro reaction. Oxidation reactions – KMnO₄ oxidation and auto oxidation, reduction – catalytic hydrogenation, mechanism of Clemmenson's reduction, Wolff-kishner reduction, Meerwein-Ponndorf Verly reduction. Reduction with LAH, NaBH₄.

Unit - III (Physical Chemistry)

15h(1 hr/week)

S2-P-1: Electrochemistry

15 h

Electrical transport – conduction in metals and in electrolyte solutions, specific conductance and equivalent conductance, measurement of equivalent conductance, variation of specific and equivalent conductance with dilution. Migration of ions and Kohlrausch's law, Arrhenius theory of electrolyte dissociation and its limitations, weak and strong electrolytes, Ostwald's dilution law - its uses and limitations. Debye-Huckel-Onsager's equation for strong electrolytes (elementary treatment only). Transport number, definition and determination by Hittorf's method for attackable electrodes. Applications of conductivity measurements: Determination of degree of dissociation, determination of K_a of acids, determination of solubility product of a sparingly soluble salt, conductometric titrations.

Electrolytic and Galvanic cells – reversible and irreversible cells, conventional representation of electrochemical cells. Electro motive force (EMF) of a cell and its measurement. Computation of EMF. Types of reversible electrodes- the gas electrode, metal-metal ion, metal-insoluble

salt and redox electrodes. Electrode reactions, Nernst equation, cell EMF and Single electrode potential, Standard Hydrogen electrode – reference electrodes (calomel electrode) – standard electrode potential, sign conventions, electrochemical series and its significance. Applications of EMF measurements. Calculation of thermodynamic quantities of cell reactions (Gibbs free energy G, Helmholtz free energy and Equilibrium constant K). Determination of pH using hydrogen electrode, glass electrode and quinhydrone electrode. Solubility product of AgCl. Potentiometric titrations.

Unit – IV (General Chemistry)

15 h (1 hr/week)

S2-G-1: Theory of Quantitative Analysis

6 h

Volumetric Analysis: Introduction, standard solutions, indicators, end point, titration curves, Types of titrations: i) neutralization titration- principle, theory of acid base indicators, titration curves and selection of indicators- strong acid - strong base, strong acid –weak base, weak acid-strong base and weak acid –weak base. Theory of redox titrations - internal(KMnO₄) and external indicators – use of diphenylamine and ferroin indicators. Theory of complexometric titrations – use of EBT, Murexide and Fast sulphone black indicators. Role of pH in complexometric titrations. Precipitation titrations – theory of adsorption indicators.

Gravimetric analysis- Introduction, nucleation, precipitation, growth of precipitate, filtration and washing, drying and incineration of precipitate, coprecipitation and post precipitation. Determination of Ni²⁺

S2-G-2: Stereoisomerism

5 h

Optical activity: Definition, wave nature of light, plane polarised light, optical rotation and specific rotation, chiral centers. Chiral molecules: definition and criteria - absence of plane, center and S_n axis of symmetry – asymmetric and dissymmetric molecules. Examples of asymmetric molecules (Glyceraldehyde, Lactic acid, Alanine) and dissymmetric molecules (trans-1,2-dichlorocyclopropane). Molecules with constitutionally symmetrical chiral carbons (Tartaric acid) Molecules with constitutionally unsymmetrical chiral carbons (2,3dibromopentane). D, L configuration – examples. R, S – configuration: Cahn-Ingold-Prelog rules, examples for asymmetric and dissymmetric molecules.

S2-G-3: Dilute Solutions & Colligative Properties

4 h

Dilute Solutions, Colligative Properties, Raoult's law, relative lowering of vapour pressure, molecular weight determination. Osmosis - laws of osmotic pressure, its measurement, determination of molecular weight from osmotic pressure. Elevation of boiling point and depression of freezing point. Derivation of relation between molecular weight and elevation in boiling point and depression in freezing point.

References

General reference: B.Sc I Year Chemistry : Semester II, Telugu Academy publication, Hyd

Unit I

1. Principles of Inorganic Chemistry by Puri, Sharma and Kalia Vishal Publications 1996.
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5. Nanostructured Materials and Nanotechnology, edited by Hari Singh Nalwa, Academic Press
6. Practical chemistry by V K Ahluwalia, Sunitha Dhingra and AdarshGulati.

Laboratory Course

45hrs (3 h / week)

Paper II- Quantitative Analysis

Acid - Base titrations

1. Estimation of Carbonate in Washing Soda.
2. Estimation of Bicarbonate in Baking Soda.
3. Estimation of Carbonate and Bicarbonate in the Mixture.

4. Estimation of Alkali content in Antacid using HCl.

5. Estimation of NH_4^+ by back titration

Redox Titrations

1. Determination of Fe(II) using $K_2Cr_2O_7$

2. Determination of Fe(II) using $KMnO_4$ with sodium oxalate as primary standard.

3. Determination of Cu(II) using $Na_2S_2O_3$ with $K_2Cr_2O_7$ as primary standard

Complexometric Titrations

1. Estimation of Mg^{2+}

2. Estimation of Cu^{2+}

B.Sc II Yr CHEMISTRY
SEMESTER WISE SYLLABUS
SEMESTER III
Paper-III
Chemistry - III

Unit-I (Inorganic Chemistry)

15 h (1 hr/week)

S3-I-1: Chemistry of f-block elements:

5 h

Chemistry of Lanthanides: Position in periodic table, Electronic structure, oxidation state, ionic and atomic radii- lanthanide contraction- cause and consequences, anomalous behavior of post lanthanides-complexation- type of donor ligands preferred. Magnetic properties- paramagnetism. Colour and spectra, f-f transitions –occurrence and separation– ion exchange method, solvent extraction.

Chemistry of actinides- general features – electronic configuration, oxidation state, actinide contraction, colour and complex formation. Comparison with lanthanides.

S3-I-2: Coordination Compounds-I

6 h

Simple inorganic molecules and coordination complexes. Nomenclature – IUPAC rules, 1. Coordination number, coordination geometries of metal ions, types of ligands. 2. Brief review of Werner's theory, Sidgwick's electronic interpretation and EAN rule and their limitations. (Valence bond theory (VBT) – postulates and application to (a) tetrahedral complexes $[Ni(NH_3)_4]^{2+}$, $[NiCl_4]^{2-}$ and $[Ni(CO)_4]$ (b) Square planar complexes $[Ni(CN)_4]^{2-}$, $[Cu(NH_3)_4]^{2+}$, $[PtCl_4]^{2-}$ (c) Octahedral complexes $[Fe(CN)_6]^{4-}$, $[Fe(CN)_6]^{3-}$, $[FeF_6]^{4-}$, $[Co(NH_3)_6]^{3+}$, $[CoF_6]^{3-}$. Limitations of VBT. 3. Isomerism in coordination compounds, stereo isomerism – (a) geometrical isomerism in (i) square planar meta l complexes of the type $[MA_2B_2]$, $[MA_2BC]$, $[M(AB)_2]$, $[MABCD]$. (ii) Octahedral metal complexes of the type $[MA_4B_2]$, $[M(AA)_2B_2]$, $[MA_3B_3]$ using suitable examples, (b) Optical isomerism in (i). tetrahedral complexes $[MABCD]$, (ii). Octahedral complexes $[M(AA)_2B_2]$, $[M(AA)_3]$ using suitable examples. Structural isomerism: ionization, linkage, coordination ligand isomerism using suitable examples.

S3-I-3: Metal carbonyls and Organometallic Chemistry**4 h**

Metal carbonyls: Preparation and properties of $\text{Ni}(\text{CO})_4$. Structural features of $\text{Ni}(\text{CO})_4$, $\text{Fe}(\text{CO})_5$, $\text{Fe}_2(\text{CO})_9$, $\text{Fe}_3(\text{CO})_{12}$ and $\text{Cr}(\text{CO})_6$ -18 valence electron rule.

Definition, nomenclature and classification of organometallic compounds. Methods of preparation, properties and applications of alkyl and aryl compounds of Li, Mg & Al.

Unit - II (Organic Chemistry)**15h(1 hr/week)****S3-O-1: Carboxylic acids and derivatives****5 h**

Preparation: a) Hydrolysis of Nitriles, amides and esters. b) Carbonation of Grignard reagents. Special methods of preparation of Aromatic Acids - Oxidation of Arenes. Physical properties- hydrogen bonding, dimeric association,. Chemical properties – Reactions involving H, OH and COOH groups -salt formation, anhydride formation, Acid halide formation, Esterification (mechanism) & Amide formation. Reduction of acid to the corresponding primary alcohol - via ester or acid chloride. Degradation of carboxylic acids by Huns Diecker reaction, Schmidt reaction (Decarboxylation). Arndt – Eistert synthesis, Halogenation by Hell – Volhard - Zelensky reaction. Carboxylic acid Derivatives – Hydrolysis and Amonolysis of acid halides, Acid anhydrides and esters (mechanism of ester hydrolysis by base and acid). Hydrolysis and dehydration of amides.

S3-O-2: Nitrohydrocarbons**3 h**

Preparation of Nitroalkanes. Reactivity - halogenation, reaction with HNO_2 (Nitrous acid), Nef reaction, reduction. Aromatic Nitrohydrocarbons: Preparation of Nitrobenzene by Nitration. Physical properties, chemical reactivity –Reduction of Nitrobenzenes in different media.

S3-O-3: Amines, Cyanides and Isocyanides**7 h**

Amines: classification into 1^o, 2^o, 3^o Amines and Quarternary ammonium compounds. Preparative methods – Ammonolysis of alkyl halides, Gabriel synthesis, Hoffman's bromamide reaction (mechanism). Reduction of Amides and Schmidt reaction. Physical properties. Use of amine salts as phase transfer catalysts. Chemical Properties: a) Alkylation b) Acylation c) Carbylamine reaction d) Hinsberg separation. Reaction with Nitrous acid of 1^o, 2^o, 3^o (Aliphatic and aromatic amines). Electrophilic substitutions of Aromatic amines – Bromination and Nitration, oxidation of aryl and 3^o Amines, diazotisation. Diazonium salts: Preparation with mechanism. Synthetic importance – a) Replacement of diazonium group by – OH, X (Cl)- Sandmeyer and Gatterman reaction, by fluorine (Schiemann's reaction), by iodine, CN, NO₂, H and aryl groups. Coupling Reaction of diazonium salts. i) with phenols ii) with anilines. Reduction to phenyl hydrazines.

Cyanides and isocyanides: Structure. Preparation of cyanides from a) Alkyl halides b) from amides c) from aldoximes. Preparation of isocyanides from Alkyl halides and Amines. Properties of cyanides and isocyanides, a) hydrolysis b) addition of Grignard reagent iii)

reduction iv) oxidation.

Unit III (Physical Chemistry)

15 h (1 hr/week)

S3-P-1: Thermodynamics –I

10 h

A brief review of - Energy, work and heat units, mechanical equivalent of heat, definition of system, surroundings. First law of thermodynamics statement- various forms mathematical expression. Thermodynamic quantities- extensive properties and intensive properties, state function and path functions. Energy as a state function and exact differential. Work of expansion and heat absorbed as path function.

Expression for work of expansion, sign convention problems on first law. Heat changes at constant pressure and heat changes at constant volume. Enthalpy. Heat capacities at constant pressure and constant volume. Derivation of $C_p - C_v = R$. Isothermal adiabatic processes. Reversible and irreversible processes. Reversible change and maximum work. Derivation of expression for maximum work for isothermal reversible process. Problems. Internal energy of an ideal gas. Joules experiment. Joule-Thompson coefficient. Adiabatic changes in ideal gas, derivation of equation, $PV^\gamma = \text{constant}$. P-V curves for isothermal and adiabatic processes. Heat of a reaction at constant volume and at constant pressure, relation between ΔH and ΔV .

Variation of heat of reaction with temperature. Kirchhoff's equation and problems. Limitations of first law and need for second law. Statement of second law of thermodynamics. Cyclic process. Heat engine, Carnot's theorem, Carnot's cycle. Derivation of efficiency of heat engine. Problems. Thermodynamic scale of temperature.

S3-P-2: Thermodynamics-II

5 h

Entropy: Definition from Carnot's cycle. Entropy as a state function. Entropy as a measure of disorder. Sign of entropy change for spontaneous and non-spontaneous processes & equilibrium processes. Entropy changes in i). Reversible isothermal process, ii). Reversible adiabatic process, iii). Phase change, iv). Reversible change of state of an ideal gas. Problems. Entropy of mixing of ideal gases. Free energy Gibb's function (G) and Helmholtz's function (A) as thermodynamic quantities. Concept of maximum work and network ΔG as Criteria for spontaneity. Derivation of equation $\Delta G = \Delta H - T\Delta S$. Significance of the equation. Gibbs equations and Maxwell relations. Variation of G with P, V and T.

Unit – IV (General Chemistry)

15 h (1 hr/week)

S3-G-1 Evaluation of analytical data

4 h

Significant figures, accuracy and precision. Errors-classification of errors- determinate and indeterminate errors, absolute and relative errors. Problems based on mean, median, range, standard deviation

S3-G-2: Carbanions-I

5 h

Introduction, acidic nature of α -hydrogens and tautomerism in carbonyl compounds, nitro hydrocarbons, ethyl acetoacetate, diethyl malonate. Terminal alkynes. Stability of carbanions
Reactions : Aldol reaction, Perkin reaction, Benzoin condensation, haloform reaction, conversion of smaller alkynes to higher alkynes.

S3-G-3: Phase Rule

6 h

Statement and meaning of the terms – Phase, Component and Degrees of freedom, Gibb's Phase rule, phase equilibria of one component system – water system. Phase equilibria of two-component system – Solid-Liquid equilibria, simple eutectic –Pb-Ag system, desilverisation of lead. Solid solutions – compound with congruent melting point – Mg-Zn system and incongruent melting point – NaCl-H₂O system.

References

General reference: B.Sc II Year Chemistry : Semester III, Telugu Academy publication, Hyd
Unit- I

1. Analytical chemistry by G. L. David Krupadanam, D. Vijaya Prasad, K. Varaprasada Rao, K.L.N. Reddy and C. Sudhakar
2. Principles of Inorganic Chemistry by Puri, Sharma and Kalia Vishal Publications(1996).
3. Concise Inorganic Chemistry by J.D. Lee 3rd edn Van Nostrand Reinhold Company(1977)
4. Basic Inorganic Chemistry by F.A.Cotton, G.Wilkinson and Paul.L. Gaus 3rd edn Wiley Publishers (2001).
5. Inorganic Chemistry Principles of structure and reactivity by James E.Huhey, E.A. Keiter and R.L. Keiter 4th edn. (2006)
6. Chemistry of the elements by N.N.Greenwood and A. Earnshaw Pergamon Press(1989).
7. Inorganic Chemistry by Shriver and Atkins 3rd edn Oxford Press (1999).
8. Textbook of Inorganic Chemistry by R Gopalan(Universities Press(2012)
9. College Practical chemistry by V K Ahluwalia, Sunitha Dhingra and Adarsh Gulati Universities Press (India) Limited(2012)

Unit- II

1. Text book of organic chemistry by Soni. Sultan Chand & Sons; Twenty Ninth edition (2012)
2. General Organic chemistry by Sachin Kumar Ghosh. New Age Publishers Pvt Ltd (2008).
3. Text book of organic chemistry by Morrison and Boyd. Person(2009)
4. Text book of organic chemistry by Graham Solomons. Wiley(2015)
5. Text book of organic chemistry by Bruice Yuranis Powla. (2012)
6. Text book of organic chemistry by C N pillai CRC Press (2012)
7. Organic Chemistry by L. G. Wade Jr.
8. Organic Chemistry by M. Jones, Jr
9. Organic Chemistry by John McMurry.

Unit III

1. Principles of physical chemistry by Prutton and Marron. The MacmillanCompany; 4th Edn.(1970)
2. Text Book of Physical Chemistry by Soni and Dharmahara. Sulthan Chand and Sons.(2011)
3. Text Book of Physical Chemistry by Puri and Sharma. S. Nagin chand and Co.(2017)
4. Text Book of Physical Chemistry by K. L. Kapoor. (2012)
5. Colloidal and surface chemistry , M. Satake, Y. Hayashi, Y.Mido, S.A.Iqbal and
6. M.S.sethi, Discovery Publishing Pvt.Ltd (2014)
7. Material science by Kakani & Kakani, New Age International(2016)
8. Physical Chemistry by Ira Levine (Author) McGraw-Hill Education; 6 edition (May 9, 2008)

Unit IV

1. Text book of organic chemistry by Morrison and Boyd, Person(2009)

2. Text book of organic chemistry by Graham solomons, Wiley(2015)
3. Text book of organic chemistry by Sony, Sultan Chand & Sons; 29th edition (2012)
4. Text book of organic chemistry by Bruice yuranis Powla, (2012)
5. General Organic chemistry by Sachin kumar Ghosh, New Age Publishers Pvt Ltd (2008)

Laboratory Course

Paper III (Organic Synthesis)

45 h (3h/week)

1. Synthesis of Organic compounds:

Acetylation: Acetylation of salicylic acid, Benzoylation of Aniline.

Aromatic electrophilic substitution: Nitration: Preparation of nitro benzene and m-dinitro benzene.

Halogenation: Preparation of p-bromo acetanilide, Preparation of 2,4,6-tribromo phenol

Oxidation: Preparation of benzoic acid from benzyl chloride.

Esterification: Preparation of n-butyl acetate from acetic acid.

Methylation: Preparation of - naphthyl methyl ether.

Condensation: Preparation of benzilidene aniline and Benzaldehyde and aniline.

Diazotisation: Azocoupling of β -Naphthol.

2. Microwave assisted synthesis of Asprin – DEMO (demonstration only)

B.Sc. II yr CHEMISTRY
SEMESTER WISE SYLLABUS
SEMESTER IV
Paper-IV
Chemistry - IV

Unit-I (Inorganic Chemistry) 15h (1 h/week)

S4-I-1: Coordination Compounds –II 11 h

Crystal field theory (CFT)- Postulates of CFT, splitting patterns of d-orbitals in octahedral, tetrahedral, square planar with suitable examples. Crystalfield stabilization energies and its calculations for various dⁿ configurations in octahedral complexes. High Spin Low Spin complexes. Colour and Magnetic properties of transition metal complexes. Calculations of magnetic moments spin only formula. Detection of complex formation - basic principles of various methods- change in chemical properties, solubility, colour, pH, conductivity, magnetic susceptibility.

Hard and soft acids bases (HSAB) - Classification, Pearson's concept of hardness and softness, application of HSAB principles – Stability of compounds / complexes, predicting the feasibility of reaction. Thermodynamic and kinetic stability of transition of metal complexes. Stability of metal complexes –stepwise and overall stability constant and their relationship and chelate effect determination of composition of complex by Job's method and mole ratio method.

Applications of coordination compounds: Applications of coordination compounds a) in quantitative and qualitative analysis with suitable examples b) in medicine for removal of toxic metal ions and cancer therapy c) in industry as catalysts polymerization – Ziegler Natta catalyst d) water softening.

S4-I-2: Bioinorganic Chemistry 4 h

Essential elements, biological significance of Na, K, Mg, Ca, Fe, Co, Ni, Cu, Zn and chloride (Cl⁻). Toxic metal ions As, Hg & Pb Oxygen transport and storage – structure of hemoglobin, binding and transport of oxygen. Fixation of CO₂ in photosynthesis- overview of light and dark reactions in photosynthesis. Structure of chlorophyll and coordination of magnesium. Electron transport in light reactions from water to NADP⁺ (Z – scheme).

Semester-IV

Unit - II (Organic Chemistry) 15h(1 hr/week)

S4-O-1: Carbohydrates 6 h

Introduction: Classification and nomenclature. Monosaccharides: All discussion to be confined to (+) glucose as an example of aldo hexoses and (-) fructose as example of ketohexoses. Chemical properties and structural elucidation: Evidences for straight chain pentahydroxy aldehyde structure. Number of optically active, isomers possible for the structure, configuration

of glucose based on D-glyceraldehyde as primary standard (No proof for configuration is required). Evidence for cyclic structure of glucose (Pyranose structure, anomeric Carbon and anomers). Proof for the ring size (methylation, hydrolysis and oxidation reactions). (Haworth formula and chair conformational formula). Structure of fructose: Evidence of 2 – ketohexose structure. Same osazone formation from glucose and fructose, Hydrogen bonding in osazones, cyclic structure for fructose (Furanose structure, Haworth formula).

Inter Conversion of Monosaccharides: : Arabinose to D-glucose, D- mannose (kiliani – Fischer method). Epimers, Epimerisation- Lobry de bruyn van Ekenstein rearrangement. D-glucose to D-arabinose by Ruff's degradation. Aldohexose(+) (glucose) to ketohexose (-) (fructose) and Ketohexose(Fructose) to aldohexose (Glucose).

S4-O-2: Amino acids and proteins

5 h

Classification. Methods of synthesis: General methods of synthesis of alpha amino acids (specific examples – Glycine, Alanine, Valine and Leucine) by following methods: a) From halogenated Carboxylic acid b) Malonic ester synthesis c) strecker's synthesis. Physical properties: Optical activity of naturally occurring amino acids. Zwitter ion structure – salt like character, definition of isoelectric point. Chemical properties: General reactions due to amino and carboxyl groups – Lactams from gamma and delta amino acids by heating peptide bond (amide linkage). Structure and nomenclature of peptides. Primary structure of proteins, di peptide synthesis

S4-O-3: Heterocyclic Compounds

4 h

Introduction and definition: 5 membered ring compounds with one hetero atom Ex. Furan. Thiophene and pyrrole. Importance of ring systems –Numbering. Aromatic character

Resonance structures: Explanation of feebly acidic character of pyrrole, electrophilic substitution, Halogenation, Nitration and Sulphonation. Reactivity of furan as 1,3-diene, Diels Alder reactions (one example). Sulphonation of thiophene purification of Benzene obtained from coal tar). Preparation of furan, Pyrrole and thiophene Paul-Knorr synthesis. Structure of pyridine, Basicity – Aromaticity – Comparison with pyrrole – preparation by Hantsch method and properties – Reactivity towards Nucleophilic substitution reaction – chichibabin reaction.

Unit III (Physical Chemistry)

15h (1 hr/week)

S4-P-1: Chemical Kinetics

11 h

Introduction to chemical kinetics, rate of reaction, variation of concentration with time, rate laws and rate constant. Specific reaction rate. Factors influencing reaction rates: effect of concentration of reactants, effect of temperature, effect of pressure, effect of reaction medium, effect of radiation, effect of catalyst with simple examples. Order of a reaction.

First order reaction, derivation of equation for rate constant. Characteristics of first order reaction. Units for rate constant. Half- life period, graph of first order reaction, Examples- Decomposition of H_2O_2 and decomposition of oxalic acid, Problems.

Pseudo first order reaction, Hydrolysis of methyl acetate, inversion of cane sugar, problems. Second order reaction, derivation of expression for second order rate constant, examples-

Saponification of ester, $2O_3 \rightarrow 3O_2$, $C_2H_4 + H_2 \rightarrow C_2H_6$. Characteristics of second order reaction, units for rate constants, half- life period and second order plots. Problems

S4-P-2: Photochemistry

4 h

Introduction to photochemical reactions, Difference between thermal and photochemical reactions, Laws of photo chemistry- Grotthus Draper law, Stark–Einstein’s Law of photochemical equivalence. Quantum yield. Examples of photo chemical reactions with different quantum yields. Photo chemical combinations of H_2-Cl_2 and H_2-Br_2 reactions, reasons for the high and low quantum yield. Problems based on quantum efficiency. Consequences of light absorption. Singlet and triplet states. Jablonski diagram. Explanation of internal conversion, inter- system crossing, phosphorescence, fluorescence.

Unit III (General Chemistry)

15h (1 hr/week)

S4-G-1: Theories of bonding in metals

4 h

Valence bond theory, Explanation of metallic properties and its limitations, Free electron theory, thermal and electrical conductivity of metals, limitations, Band theory, formation of bands, explanation of conductors, semiconductors n-type and p-type, extrinsic & intrinsic semiconductors, and insulators.

S4-G-2: Carbanions-II

5 h

Mannich reaction , Michael addition and Knoevenagel condensation Synthetic applications of Aceto acetic ester. Acid hydrolysis and ketonic hydrolysis: Preparation of ketones, monocarboxylic acids and dicarboxylic acids Malonic ester– synthetic applications. Preparation of (i) substituted mono carboxylic acids and (ii) substituted dicarboxylic acids.

S4-G-3: Colloids & Surface Chemistry

6 h

Definition of colloids. Classification of colloids. Solids in liquids (sols): preparations and properties – Kinetic, Optical and Electrical stability of colloids. Protective action. Hardy–Schultz law, Gold number. Liquids in liquids (emulsions): Types of emulsions, preparation and emulsifier. Liquids in solids(gels): Classification, preparations and properties, General applications of colloids.

Adsorption:Types of adsorption. Factors influencing adsorption. Freundlich adsorption isotherm. Langmuir theory of unilayer adsorption isotherm. Applications.

References

General reference: B.Sc II Year Chemistry : Semester IV, Telugu Academy publication, Hyd

Unit- I

1. Principles of Inorganic Chemistry by Puri, Sharma and Kalia Vishal Publications (1996).
2. Concise Inorganic Chemistry by J.D. Lee 3rd edn. Van Nostrand Reinhold Company(1977)
3. Basic Inorganic Chemistry by F.A.Cotton, G.Wilkinson and Paul.L. Gaus 3rd edn Wiley Publishers (2001).
4. Inorganic Chemistry Principles of structure and reactivity by James E.Huhey, E.A. Keiter and R.L. Keiter 4th edn. (2006)
5. Chemistry of the elements by N.N.Greenwood and A. Earnshaw Pergamon Press(1989).
6. Inorganic Chemistry by Shriver and Atkins 3rd edn Oxford Press (1999).
7. Textbook of Inorganic Chemistry by R Gopalan, Universities Press,(2012)

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1. Text book of organic chemistry by Soni. Sultan Chand & Sons; Twenty Ninth edition (2012)
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3. Text book of organic chemistry by Morrison and Boyd. Person(2009)
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5. Text book of organic chemistry by Bruce Yuranis Powla. (2012)
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1. Principles of physical chemistry by Prutton and Marron. The Macmillan Company; 4th edn. (1970)
2. Text Book of Physical Chemistry by Soni and Dharmahara. Sulthan Chand & sons.(2011)
3. Text Book of Physical Chemistry by Puri and Sharma. S. Nagin chand and Co.(2017)
4. Text Book of Physical Chemistry by K. L. Kapoor. (2012)
5. Physical Chemistry through problems by S.K. Dogra. (2015)
6. Text Book of Physical Chemistry by R.P. Verma.
7. Elements of Physical Chemistry by Lewis Glasstone. Macmillan (1966)
8. Industrial Electrochemistry, D. Pletcher, Chapman & Hall, London, 1990

Unit IV

1. Principles of Inorganic Chemistry by Puri, Sharma and Kalia Vishal Publications(1996).
2. Concise Inorganic Chemistry by J.D. Lee 3rd edn. Van Nostrand Reinhold Company (1977)
3. Basic Inorganic Chemistry by F.A.Cotton, G.Wilkinson and Paul.L. Gaus 3rd edn Wiley Publishers (2001).
4. Inorganic Chemistry Principles of structure and reactivity by James E.Huhey, E.A. Keiter and R.L. Keiter 4th edn. (2006)
5. Text book of organic chemistry by Morrison and Boyd, Person (2009)
6. Text book of organic chemistry by Graham solomons, Wiley (2015)
7. Fundamentals of organic synthesis and retrosynthetic analysis by Ratna Kumar Kar, CBA,(2014)
8. Organic synthesis by Dr. Jagadamba Singh and Dr. L.D.S. Yadav, Pragati Prakashan, 2010
7. Stereochemistry of organic compounds by D. Nasipuri, New Academic Science Limited, 2012
8. Organic chemistry by Clayden, Greeves, Warren and Wothers, Oxford University Press, 2001
9. Fundamentals of Asymmetric Synthesis by G. L. David Krupadanam, Universities, Press 2014

Laboratory Course

Paper IV-

Qualitative Analysis of Organic Compounds: 45hrs (3 h/week)

Qualitative analysis: Identification of organic compounds through the functional group analysis - ignition test, determination of melting points/boiling points, solubility test, functional group tests and preparation of suitable derivatives of the following: Carboxylic acids, phenols, amines, urea, thiourea, carbohydrates, aldehydes, ketones, amides, nitro hydrocarbons, ester and naphthalene.

B.Sc. Chemistry II Year Semester-III
Skill Enhancement Course- I (SEC-I) (2 Credits)
Rules in Chemistry Laboratory and Lab Reagents

Unit I: Laboratory Safety Rules and Regulations **15 h (1 hr/week)**

General rules and regulations for lab safety: Minimizing Risks of Hazards, Personal Protective Equipment (PPE) - Hair, Dressing for the Laboratory, Eye Protection, Eyewash fountain, Gloves, Laboratory Protocols, Labeling Chemicals, Careful reading of labels Prevention of Inhaling Harmful Chemicals, Guide to Chemical Hazards, Chemical Spills etc.,. Accidents use of fire extinguisher and first aid kit in the laboratory, safety symbols- Preparation of the charts by the students and display of charts in chemistry labs. Calibration of fractional weights, calibration of glass ware - burette, pipette, standard flask, Normality/Molarity and specific gravity of concentrated acids – Preparation of dilute solutions (Numerical problems). Precautions to be taken in the preparation of dilute acids and bases and bases. Preparation of stock solutions of salts with specific examples. Properties of primary standard salt and preparation of standard solution. Good laboratory practices-maintenance of observation book record.

UNIT 2: Preparation of Lab Reagents **15 h (1 hr/week)**

Preparation of indicators and use of indicators in volumetric analysis- acid base titrations, redox titrations, precipitation titrations and complexometric titrations. Role of an indicator in detecting end point (Phenolphthalein, Methyl orange, Methyl-red, Potassium Chromate, Diphenylamine, EBT, Murexide, etc). Preparation of buffers – pH 10 ammonical buffer and acetate buffer solutions. Preparation of commonly used reagents : Ammonium hydroxide solution, Ammonium molybdate reagent, Ammonium hydrogen phosphate solution, Bayer's reagent, Benedict's solution, Bromine water, Dimethyl glyoxime reagent, 2,4-Dinitrophenyl hydrazine reagent, Eriochrome black-T reagent Fehling solution, Ferric chloride solution, Ferrous sulphate solution, Iodine solution, Molisch's reagent, Nessler's reagent, Neutral FeCl_3 , Schiff's reagent, Silver nitrate solution, Sodium carbonate solution, Sodium hydroxide (Caustic soda) solution, Starch solution, Tollen's reagent. (reference work and submission of assignments). Charts preparation depicting course content.

RECOMMENDED BOOKS

1. Vogel's Text Book of Quantitative Chemical Analysis, 5th edition.
2. Vogel's Text Book of macro and semimicro qualitative inorganic analysis. G. Svehla, 5th edition.
3. Chemistry Reagent Manual Prepared by Chemistry Department, SGTB Khalsa College under DBT's Star College Scheme, University of Delhi (Available: online)
4. American Chemical Society Safety in Academic Chemistry Laboratories 8th edition.

[Course objectives (CO)]: To improve the skills of students in the application of theory and practical knowledge. To fill the gap between theory and practicals. To train the students in understanding laboratory safety rules and to improve the skills in preparation of laboratory reagents]

B.Sc. Chemistry II Year
Semester III
Skill Enhancement Course- II (SEC –II) (2 Credits)
REMEDIAL METHODS FOR POLLUTION, DRINKING WATER AND SOIL
FERTILITY STANDARDS

UNIT I: Remedial Methods for Pollution Prevention and control of air pollution **15 h (1 hr/week)**

Ozone hole-causes and harm due to ozone depletion. The effect of CFC's in Ozone depletion and their replacements. Global Warming and Greenhouse Effect Precautions to control global warming. Deleterious effect of pollutants - Endangered Monuments- acid rain. Precautions to protect monuments. Sources of Radiation pollution - Chernobyl accident and its Consequences. Radiation effect by the usage of cell phones and protection tips. Deleterious effects of cell phone towers and health hazards.

Sources of water pollution-(i). Pollution due to pesticides and inorganic chemicals, (ii). Thermal pollution (iii). Ground water pollution (iv). Eutrophication.

Methods for control of water pollution and water recycling. Dumping of plastics in rivers & oceans and their effect on aquatic life. Determination of (i) Dissolved Oxygen and (ii) Chemical Oxygen Demand in polluted water - Illustration through charts (or) demonstration of experiments. Sources of soil pollution (i). Plastic bags, (ii). Industrial and (iii). Agricultural sources. Control of soil pollution. Environmental laws in India. Environmental benefits of planting trees.

UNIT II: Drinking Water and Soil Fertility Standards and Analysis **15 h (1 hr/week)**

Water Quality and Common Treatments for Private Drinking Water Systems: Drinking Water Standards-Primary Drinking Water Standards : Inorganics, Organics and Volatile Organic Chemicals. Secondary Drinking Water Standards-Inorganics and Physical Problems. Water Testing, Mineral Analysis, Microbiological Tests, Pesticide and Other Organic Chemical Tests. Principle involved in Water Treatment Techniques. (i) Reverse osmosis (ii) Disinfection methods such as chlorination, ultraviolet light, ozonation etc (iii) Chemical oxidation and (iv) Ion exchange (water softeners). Visit to nearby drinking water plants and interaction at sites.

Introduction to Soil Chemistry- Basic Concepts. Effect of pH on nutrient availability. Macronutrients and their effect on plants -Carbon, Hydrogen, Oxygen, Nitrogen and Phosphorus other macronutrients-Calcium, Magnesium and Sulfur. Micronutrients and their effect on plants. Boron ($B_4O_7^{2-}$), Copper (Cu^{2+}), Iron (Fe^{2+} , Fe^{3+}) Manganese (Mn^{2+}) Molybdenum (MoO_4^{2-}) Zinc (Zn^{2+}) Cobalt (Co^{2+}) Chlorine (Cl^-) and Others. Determination of soil nitrogen by Kjeldahl method- Illustration through charts (Or) demonstration of experiment. Visit to nearby agricultural farms and interaction with farmers. Discussion with farmers on the use of Soil Analysis Kits.

References

1. A Text book for 'Remedial methods for pollution, drinking water and soil fertility standards', First Edition, Authors: Dr Mudvath Ravi, Gopu Srinivas, Putta Venkat Reddy, Vuradi Ravi Kumar, Battini Ushaiah, ISBN No. 978-93-5311-183-0.
2. Remedial methods for pollution, drinking water and soil fertility standards, Author: Dr G. Vanjatha.
3. Remedial methods for pollution, drinking water and soil fertility standards, Telugu version, Authors: Dr N. Yogi Babu, Dr. G. Vanajatha, M. Srilatha.
4. Environmental Pollution, download.nos.org/333courseE/10.pdf
5. CFC Replacements, butane.chem.uiuc.edu/pshapley/Environmental/L21/3.html
6. Effects of Acid Rain on Buildings www.air-quality.org.uk/12.php
7. Acid Rain Effects - Buildings - Chemistry
chemistry.elmhurst.edu/vchembook/196buildings.html
8. How to protect national heritage - ways to protect monuments www.youthkiawaaz.com/2011/03/how-to-protect-national-heritage/.
9. Chernobyl nuclear power plant accident - NRC www.nrc.gov/reading-rm/doc-collections/fact-sheets/chernobyl-bg.pdf
10. Side-effects of harmful radiation from mobile phones and towers
pib.nic.in/newsite/printrelease.aspx?relid=116304
11. Cell Phone Radiation Protection - Highly Effective Tips <https://www.electricsense.com/775/how-to-protect-yourself-from-cell-phone-radiation/>
12. Chemical Waste That Impact on Aquatic Life or Water Quality
blog.idrenvironmental.com/chemical-waste-that-impact-on-aquatic-life-or-waterquality
13. Trees and Your Environment - Clean Air Gardening
www.cleanairgardening.com/plantingtrees
14. water quality and common treatments for private drinking water . extension.uga.edu/publications/detail.html?number=b939
15. Soil chemistry <https://casfs.ucsc.edu/about/publications/Teaching-Organic-Farming/PDFdownloads/2.2-soil-chemistry.pdf>
16. Soil Analysis-Determination of Available Nitrogen ... - Amrita Virtual Lab
vlab.amrita.edu/?sub=2&brch=294&sim=1551&cnt=1
17. Determination of dissolved oxygen (DO)
www.cutm.ac.in/pdf/env%20engg%20lab%20manual.pdf
18. Determination of chemical oxygen demand of wastewater www.pharmaguideline.com › quality control › test

B.Sc. Chemistry II Year
Semester - IV
Skill Enhancement Course- III (SEC - III) (2 Credits)
Materials and their Applications

Unit – I: Types of Materials

15 h (1 hr/week)

Introduction: Materials and their importance. Classification of Materials, Advanced materials and their need. Types of Materials: Metals, ceramics, polymers and composites; Nature of bonding (Type of bond present). Types and applications of metal alloys: Classification- ferrous and non-ferrous alloys. Ferrous alloys -types and their applications. Non-ferrous alloys – Cu, Al, Ti alloys, their applications and super alloys.

Field Work- Collection of Metal Alloy Samples.

Types and Applications of Ceramics: Classification of Ceramics based on their application- glasses, clay products, refractories, abrasives, cements, and advanced ceramics. Glasses: Compositions and Characteristics of Some of the Common Commercial Glasses; Properties and applications of glass ceramics - preparation of charts depicting various types of glass and their use. Clay products: Structural clay products and the white wares. Refractories: Compositions of four Common Ceramic Refractory Materials, fireclay, silica, basic refractories ex. MgO and special refractories ex. Alumina and Zirconia Cements: Classification, preparation of cement and the setting process; quick setting cements; applications.

Field Work-Visit to industries and collection of samples of materials

Unit – II: Types of Polymers and Applications

15 h (1 hr/week)

Classification of Polymeric materials based on application: Coatings, adhesives, films, foams with examples Polymer Additives: Fillers, Plasticizers, Stabilizers, Colorants, Flame Retardants with examples.

Advanced Materials: Types of advanced materials - semiconductors, bio-compatible materials, smart materials, advanced polymeric materials and nano-engineered materials. Biocompatible materials: Definition. Materials used as biomaterials and their properties. Metals and alloys used in bone and joint replacement. Filling and restoration materials – dental cements, dental amalgams, dental adhesives.

Field Work- Visit to Dental Clinics and interaction with Doctors regarding materials used in Dental treatments.

Smart materials: Shape memory alloys- definition and examples (Ni-Ti alloys, Cu based alloys), applications. Conducting polymers: - Introduction, Electrically conducting polymers and their uses (polyaniline, polypyrrole, polyacetylene and polythiophene).

References

1. William D. Callister Materials Science and Engineering An Introduction, John Wiley & Sons, Inc, 2006.
2. Material science by Kakani and Kakani.
3. Sujata V., Bhat., —Biomaterials‡, Narosa Publication House, New Delhi, 2002.
4. M. V. Gandhi and B. S. Thompson, —Smart Materials and Structures‡, Chapman and Hall, London, First Edition, 1992.
5. Duerig, T. W., Melton, K. N, Stockel, D. and Wayman, C.M., —Engineering aspects of Shapememory Alloys‡, Butterworth – Heinemann, 1990.
6. Conducting Polymers, Fundamentals and Applications A Practical Approach Authors: Chandrasekhar, Prasanna Ashwin-Ushas Corp., Inc. Kluwer Academic Publishers. Boston

B.Sc. Chemistry II Year Semester IV
Skill Enhancement Course- IV (SEC - IV) (2 Credits)
Chemistry of Cosmetics and Food Processing

Unit-I: Chemistry of Cosmetics and Perfumes

A general study including preparation and uses of the following: Hair dye, hair spray, shampoo, sunscreen lotions, lipsticks, talcum powder, nail enamel, creams (cold, vanishing and shaving creams), antiperspirants and artificial flavours. Essential oils and their importance in cosmetic industries with reference to eugenol, geraniol, sandalwood oil, eucalyptus, 2-phenyl ethyl alcohol. Demonstration experiments or illustration of experimental procedures through charts for the preparation of talcum powder, shampoo and vanishing cream. Analysis of deodorants and antiperspirant - Aluminum, Zinc, Boric acid, Chloride and Sulphide.

Unit-II: Food Processing and Food Adulteration

Food processing: Introduction, methods for food processing, additives and preservatives. Food processing- impact on nutrition, analysis of calcium in milk by complexometric titration, spectrophotometric analysis of iron in foods, Spectrophotometric identification and determination of caffeine and benzoic acid in soft drinks. Field Work -Visit to Food Industries. Food adulteration: Adulterants in some common food items and their identification: Pulses, chilli powder, turmeric powder, milk, honey, spices, food grains and wheat flour, coffee powder, tea leaves, vegetable oil, ghee, ice creams, tomato sauce. Field Work-Collection of adulterated food samples, demonstration of a minimum of five experiments for testing adulterants in food items.

References

1. E. Stocchi: Industrial Chemistry, Vol -I, Ellis Horwood Ltd. UK.
2. P.C. Jain, M. Jain: Engineering Chemistry, Dhanpat Rai & Sons, Delhi
3. Sharma, B.K. & Gaur, H. Industrial Chemistry, Goel Publishing House, Meerut (1996).
4. Rameen Devi, Food Processing and Impact on Nutrition, Sc J Agric Vet Sci., AugSep 2015; 2(4A):304-311.
5. W.A. Poucher, Perfumes, Cosmetics and Soaps (1993).
6. Srilakshmi, Food Science. Edition: 3rd (2004). 7. Lillian Hoagland Meyer, Food chemistry (2008).
8. Handbook of Analysis and Quality Control for Fruit and Vegetable Products, S. Ranganna, Tata McGraw-Hill Education, 1986 – Food.
9. Fundamental concepts of applied chemistry J.C Ghosh, S. Chand and Co, Ltd, New Delhi.
10. Applied Chemistry K .Bhagavathi Sundhar, MJP publishers.

B.Sc. CBCS CHEMISTRY
Theory Model Question Paper
For
Semester I, II, III, IV

Time : 3 Hrs.

Max.Marks : 80

Note: Answer eight questions from Part-A and all questions from Part-B. Each question carries 4 marks in Part-A and 12 marks in Part-B.

Part-A

(8 x 4 = 32 Marks)

(Short Answer Type)

I. Write any **Eight questions of the following**

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.

Part-B

(4 x 12 = 48 Marks)

(Essay Answer Type)

II. Answer all Questions

1 a)

(OR)

b)

2 a)

(OR)

b)

3 a)

(OR)

b)

4 a)

(OR)

b)

B.Sc. CBCS CHEMISTRY
Practical Model Question Paper
For
Semester I, II, III, IV

Time : 3 Hrs.

Max.Marks : 50

SEMESTER	External (Marks)	Internal (Marks)	Total (Marks)
I	40	10	50
II	40	10	50
III	40	10	50
IV	40	10	50

B.Sc., Chemistry, III Year, CBCS Syllabus
 Telangana State Council of Higher Education, Govt. of Telangana B.Sc, CBCS Common
 Core Syllabi for all Universities in Telangana
PROPOSED SCHEME FOR CHOICE BASED CREDIT SYSTEM IN
 B.Sc., Chemistry (for the batch admitted in 2019-2020)

THIRD YEAR- SEMESTER V				
CODE	COURSE TITLE	COURSE TYPE	HPW	CREDITS
BS 501	Chemistry of Cosmetics, Food Processing, Drugs and Pharmaceuticals	GE	4	4
BS 502	English	CC-1E	3	3
BS 503	Second language	CC-2E	3	3
BS 504	Optional- I A/B	DSE -1E	-----	4+1=5
BS 505	Optional- II A/B	DSE -2E	-----	4+1=5
BS 506	Optional- III A/B A. Spectroscopy and Chromatography (or) B. Metallurgy, Dyes and Catalysis	DSE -3E	4T } 3P } = 7	4 } 1 } = 5
	Laboratory Course -V Experiments in Physical Chemistry-I			
	TOTAL			25
THIRD YEAR- SEMESTER VI				
BS 601	Project in Chemistry/ Advanced Chemistry			4
BS 602	English	CC-1F	3	3
BS 603	Second language	CC-2F	3	3
BS 604	Optional- I A/B	DSE-1F	-----	4+1=5
BS 605	Optional- II A/B	DSE -2F	-----	4+1=5
BS 606	Optional- III A/B A. Medicinal Chemistry (or) B. Agricultural and Fuel Chemistry	DSE -3F	4T } 3P } = 7	4 } 1 } = 5
	Laboratory Course -VI Experiments in Physical Chemistry-II			
	TOTAL			25
	TOTAL Credits			150

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Manjaree
Suresh

Semester V
Generic Elective (GE) Course - I (4 Credits)
(for B.Sc. Non Chemistry/B.A/B.Com Students)
Chemistry of Cosmetics, Food Processing, Drugs and Pharmaceuticals 60Hrs

Unit-I: Chemistry of Cosmetics and Perfumes **15 Hrs**

A general study including preparation and uses of the following: Hair dye, hair spray, shampoo, sunscreen lotions, lipsticks, talcum powder, nail enamel, creams (cold, vanishing and shaving creams), antiperspirants and artificial flavours. Essential oils and their importance in cosmetic industries with reference to eugenol, geraniol, sandalwood oil, eucalyptus, 2-phenyl ethyl alcohol.

Demonstration experiments or illustration of experimental procedures through charts for the preparation of talcum powder, shampoo and vanishing cream. Chemistry and Applications of deodorants and antiperspirant - Aluminum, Zinc, Boric acid, Chloride and Sulphide.

Unit-II: Food Processing and Food Adulteration **15 Hrs**

Food processing: Introduction, methods for food processing, additives and preservatives. Food processing- impact on nutrition,

Food adulteration: Adulterants in some common food items and their identification: Pulses, chilli powder, turmeric powder, milk, honey, spices, food grains and wheat flour, coffee powder, tea leaves, vegetable oil, ghee, ice creams, tomato sauce.

Food Packaging: Definition and function of packaging-Classification of packaging materials-different types of packaging materials such as glass, wood, metal, paper, wood, plastic etc., - advantages and disadvantages of each packaging material. Packaging materials and systems: corrugated fibre board boxes, shrink bundles and reusable packages. Effect of packaging materials on nutritive values of food.

Food labelling: Introduction, need and importance.

Unit – III: General Characteristics of Drugs **15Hrs**

Introduction: Diseases – causes of diseases, Drug – definition and sources.

ADME of drugs (brief) – Absorption, distribution, drug metabolism (in liver), elimination (brief). Toxicity.

Examples (i) Zintac (Ranitidine, antacid) (ii) Paracetamol (antipyretic) (iii) Benadryl (Cough syrup). Characteristics of an ideal drug.

Nomenclature of Drugs: chemical name – generic name – trade name. Trade names for the given generic names – (i) Aspirin (ii) Amoxycillin (iii) Ciprofloxacin (iv) Paracetamol (v) Mebendazole

Drug formulations: Definition – need for conversion of drug into pharmaceutical (drug formulations) – Additives – diluents, binders, lubricants, antioxidants, flavourants, sweeteners, colourants, coating agents. Classification of Drug formulations: oral, parenterals and topical dosage forms – advantages and disadvantages.

(i) Oral Dosage forms: Tablets (Aspirin – analgesic; Ciprofloxacin - antibacterial). Capsules (Amoxycillin – antibiotic; Omeprazole-antacid). Syrups (B-complex syrup; Benadryl- Cough syrup).

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 Ashavari
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 U. ...
 P. ...
 Margaret
 B. ...

- (ii) **Parenterals (Injection forms):** Propranolol (antihypertensive), Heparin (anticoagulant)
- (iii) **Topical dosage forms:** Creams and Ointments
- (iv) **Antiallergic:** Aclometasone (Aclovate), Betamethasone valerate(2%) Multiple purposes,
- (v) **Anti-itching:** Doxepin Zonalon), Antifungal: Miconazole (Dactarin, Neomicol), Ketoconazole, (Nizoral Cream), Fluconazole, Anesthetic- Lidocaine, (Lidocaine ointment) and Antiseptic: Boro Plus Cream, For burns -Iodine ointment

Unit – IV: Classification of Drugs

15Hrs

Classification of drugs based on therapeutic action-Chemotherapeutic agents, Pharmacodynamic agents and drugs acting on metabolic processes.

Brief explanation for the following:

(i) **Chemotherapeutic agents:** Antimalarials – Chloroquine; Antibiotic – Amoxicillin; Antitubercular drugs – isoniazide; Antiprotozoals – metronidazole.

(ii) Pharmacodynamic agents

- (a) Drugs acting on CNS: Diazepam (CNS depressant), General anesthetic (thiopental sodium), antipyretic and analgesic (Ibuprofen)
- (b) Drugs acting on PNS: local anaesthetics (Benzocaine)
- (c) Drugs acting on cardiovascular system: Metoprolol (antihypertensive agents), Nefidipine antianginal and antihypertensive agent)
- (d) Drugs acting on renal system: Diuretics (Acetazolamide)

(iii) Drugs acting on metabolic processes


- (a) Vitamins: Common name, source, deficiency, vitamin A, B2, B6, C, D, E and K – remedy
- (b) Hormones: Function (brief) - deficiency of hormones (Insulin, Testosterone and Oosterone)

Recommended Text Books and Reference Books

1. Industrial Chemistry, Vol -I, E. Stocchi, Ellis Horwood Ltd. UK.
2. Engineering Chemistry, P.C. Jain, M. Jain, Dhanpat Rai & Sons, Delhi.
3. Industrial Chemistry, Sharma, B.K. & Gaur, H. , Goel Publishing House, Meerut (1996).
4. Food Processing and Impact on Nutrition, Rameen Devi, Sc J Agric Vet Sci., Aug-Sep 2015; 2(4A):304-311.
5. Perfumes, Cosmetics and Soaps , W.A. Poucher, (1993).
6. A first course in food analysis by A Y Sathe
7. Food Science by N.Potter, CBS publishers
8. Food chemistry, Lillian Hoagland Meyer, (2008).
9. A Handbook of food packaging by F. A. Paine and H.Y. Paine.
10. Fundamental concepts of applied chemistry J.C Ghosh, S. Chand and Co, Ltd, New Delhi.
11. Applied Chemistry K .Bhagavathi Sundhar, MJP publishers.
12. Drugs by G.L.David Krupadanam, D.Vijaya Prasad, K.Varaprasad Rao, K.L.N.Reddy, C.Sudhakar , Universities Press (India) Limited 2007.
13. An Introduction to Medicinal Chemistry by Graham L. Patrick, Oxford University Press, New York. 1995

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- Majumdar
- W. Labhane
- P. Vas
- Al Sreedha
- Ashtar
- Bullester


B.Sc. Chemistry III Year
Semester-V, Paper-V
Discipline Specific Elective- A (4 Credits)
Spectroscopy and Chromatography

60Hrs

Unit I: Molecular spectroscopy

15Hrs

S5-E-A-I: Introduction to electromagnetic radiation, interaction of electromagnetic radiations with molecules, various types of molecular spectra.

Rotational spectroscopy (Microwave spectroscopy)

Rotational axis, moment of inertia, classification of molecules (based on moment of inertia), rotational energies, selection rules (No derivation), Determination of bond length of rigid diatomic molecules eg. HCl.

Infra red spectroscopy

Energy levels of simple harmonic oscillator, molecular vibration spectrum, selection rules. Determination of force constant (Problems). Qualitative relation of force constant to bond energies. Anharmonic motion of real molecules and energy levels. Modes of vibrations in polyatomic molecules. Characteristic absorption bands of various functional groups. Finger print nature of infrared spectrum.

Electronic spectroscopy

Bonding and antibonding molecular orbitals, electronic energy levels of molecules (σ , π , n), types of electronic transitions: σ - σ^* , n - σ^* , n - π^* , π - π^* with suitable examples. Selection rules, Terminology of chromophore, auxochrome, bathochromic and hypsochromic shifts. Absorption of characteristics of chromophones: diene, enone and aromatic chromophores. Representation of UV-visible spectra. General features of absorption – spectroscopy, transmittance, absorbance, and molar absorptivity. Beer Lambert's law and its limitations.

Unit II: NMR and Mass Spectrometry

15Hrs

S5-E-A-II: Proton Magnetic Resonance Spectroscopy

Principles of nuclear magnetic resonance, equivalent and non-equivalent protons, position of signals. Chemical shift, factors affecting chemical shifts, NMR splitting of signals – spin-spin coupling, representation of proton NMR spectrum – Integrations. ^1H NMR spectrum of – ethyl bromide, acetaldehyde, 1,1,2-tribromo ethane, ethyl acetate and acetophenone.

Mass Spectrometry

Electron Impact Mass: Basic principles, Nitrogen rule, types of ions: Molecular ion and fragment ions. Representation of mass spectrum, types of peaks (molecular ion peak, base peak and isotopic ion peaks). Determination of molecular formula. Mass spectrum of ethyl chloride, ethyl bromide and acetophenone.


Unit III: Separation techniques - I

15Hrs

S5-E-A-III: Solvent Extraction- Principle, Methods of extraction: Batch extraction, continuous extraction and counter current extraction. Application – Determination of Iron(III).

Chromatography: Classification of chromatographic methods, principles of differential migration, adsorption phenomenon, nature of adsorbents, solvent systems.

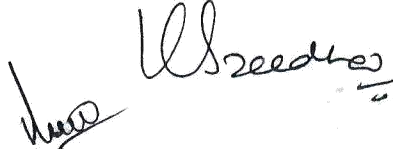
Thin layer Chromatography (TLC): Advantages, preparation of plates, Solid phase and mobile phase used in TLC, eluotropic series, development of the chromatogram, Detection of the spots, visualizing agents, factors effecting R_f values and applications of TLC.

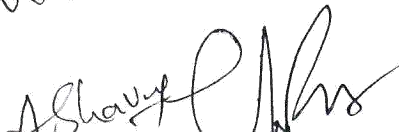


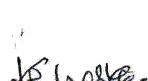














Paper Chromatography: Principle, choice of paper and solvent systems, development of chromatogram – ascending, descending, radial and two dimensional chromatography, detection of spots, and applications of paper chromatography.

Unit IV: Separation techniques - II **15Hrs**

S5-E-A-IV: Column Chromatography- Principle, Types of stationary phases, Column packing – Wet packing technique, Dry packing technique. Selection criteria of mobile phase solvents for eluting polar, non-polar compounds and its applications.

Ion exchange chromatography: Principle, cation and anion exchange resins, its application in separation of ions, de-ionized water.

Gas Chromatography: Principle, theory and instrumentation (Block Diagram), Types of stationary phases and carrier gases (mobile phase), applications of GC.

High performance liquid chromatography: Principle, theory and instrumentation, stationary phases and mobile phases. Applications of HPLC, Analysis of paracetamol.

Recommended Text Books and Reference Books

1. Fundamentals of Molecular Spectroscopy, Banwell & McCash
2. Organic spectroscopy, William Kemp, Palgrave Macmillan; 2nd Revised edition
3. Spectroscopy, B K Sharma Krishna Prakashan Media, 1981
4. Elements of Organic Spectroscopy, Y R Sharma.
5. Applications of Absorption Spectroscopy of Organic Compounds (English, Paperback, Dyer R. John)
6. Organic Chemistry, Morrison and Boyd, Pearson Publications.
7. Introduction to Spectroscopy by Donald Pavia, Gary Lampman and George Kriz. Saunders College Division, 2001
8. Chemistry text book for B.Sc., published by Telugu Academy, Govt. of Telangana.
9. Analytical Chemistry by David Krupadanam, Universities Press (India) Limited.
10. Principles of Instrumental Analysis, D.A. Skoog, F.J. Holler, T.A. Nieman, Engage earning India Ed.
11. Fundamentals of Analytical Chemistry 6 th Ed., D. A. Skoog, D.M. West, F.J. Holler, Saunders College Publishing, Fort worth (1992).
12. Instrumental Methods of Analysis. 7th Ed. Willard, H.H., Merritt, L.L., Dean, J. & Settle, F.A. Wordsworth Publishing Co. Ltd., Belmont, California, USA, 1988.
13. A Textbook of Quantitative Inorganic Analysis 7th Ed., Vogel, A. I. Prentice Hall.
14. Analytical Chemistry 7 th edition by Gary D. Christian (2004).
15. Separation Methods, M.N Sastry, Himalaya Publication (2004).

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Majumdar →
 V. Lakshmi
 P. Karan
 S. Lavani
 Sreedhar
 Suresh

**B.Sc. Chemistry III Year
Semester-V, Paper- V
Discipline Specific Elective-B (4 Credits)
Metallurgy, Dyes and Catalysis**

60 Hrs

Unit I: General Principles of Metallurgy and Production of Non Ferrous Metals 15 Hrs

S5-E-B-I: Pyrometallurgy: Drying and calcination, roasting, smelting, products of smelting.
Hydrometallurgy: Leaching methods, leaching agents, leaching of metals, oxides and sulphides.
Separation of liquid and solid phases and processing of aqueous solutions
Electrometallurgy: Electrolysis, Refining electrolysis, electrolysis from aqueous solutions, fused-salt electrolysis
Refining processes: Chemical and physical refining processes
Production of selected non-ferrous metals (Copper, Nickel, Zinc): Properties, raw materials, production (flow charts presentations and chemical reactions involved) and uses.

Unit II: Natural and Synthetic Dyes 15Hrs

S5-E-B-II: Dyes: Definition, Classification of dyes- Natural dyes, synthetic dyes; based on chemical constitution of dyes; Chemical nature of dyes; Applications of dyes.
Structures of natural dyes: Indigo, Tyrian purple, Alizarin, Indigotin.
Structures of Synthetic Dyes: Nitro dyes, Nitrosodies, Azodies (Mono azodies, bisazodies), diaryl methane dyes, triaryl methane dyes, Xanthene dyes, Phenolphthalein, Fluorocin, Acridine dyes.
Synthesis of dyes: Mono azodies, bisazodies (Congo red), Auromine O, Malachite Green, Crystal Violet, Rhodamine B, Acridine Yellow, Indigotin .
Binding of dyes to fabric. Applications of dyes.

Unit III: Catalysis I 15Hrs

S5-E-B-III: Homogeneous and heterogeneous catalysis -
Definition of a catalyst and catalysis. Comparison of homogeneous and heterogeneous catalysis with specific examples. General characteristics of catalytic reactions.
Acid-base catalysis- Examples of acid and base catalysed reactions, hydrolysis of esters.
Kinetics of acid catalysed reactions. Specific acid and general acid catalysis, Kinetics of base catalysed reactions. Specific base and general base catalysis. Examples-Aldol condensation and decomposition of nitramide, base catalysed conversion of acetone to di acetone alcohol. Mutarotation of glucose. Effect of pH on reaction rate of acid and base catalysed reactions.
Phase transfer catalysis: Principle of phase transfer catalysis, classification of phase transfer catalysis. Factors influencing the rate of PTC reactions.

Unit IV: Catalysis II 15Hrs

S5-E-B-IV: Enzyme catalysis- Characteristics of enzyme catalysis, Examples: (i) Invertase in inversion of cane sugar (ii) Maltase in conversion of maltose to glucose (iii) Urease in decomposition of urea (iv) Zymase in conversion of glucose to ethanol (v) working of carbonic anhydrase and (vi) Mechanism of oxidation of ethanol by alcohol dehydrogenase Factors affecting enzyme catalysis. Effect of temperature, pH, concentration and effect of inhibitor on enzyme catalysed reactions, Catalytic efficiency.

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Kinetics of enzyme catalysed reactions: Michaelis-Menton Equation. Mechanism of enzyme catalysed reactions. Significance of Michaelis constant (K_m) and maximum velocity (V_{max}), Lineweaver-Burk plot. Types of enzyme inhibitors

Recommended Text Books and Reference Books

1. Industrial Chemistry, B K Sharma
2. Engineering Chemistry, Jain and Jain
3. Industrial Chemistry E. Stocchi, Vol-I, Ellis Horwood Ltd. UK.
4. Handbook of Industrial Chemistry, J. A. Kent: Riegel's, CBS Publishers, New Delhi.
5. Theory of production of non-ferrous metals and alloys Study. Kateřina Skotnicová, Monika Losertová, Miroslav Kurša
6. The Chemistry of Synthetic Dyes, Volume 4, K Venkataraman Elsevier
7. Organic Chemistry Vol-I by I.L. Finar.
8. Organic Chemistry by Jennice, Gorzinski Smith
9. Natural Dyes: Sources, Chemistry, Application and Sustainability Issues by Sujata Saxena and A. S. M. Raja.
10. Physical Chemistry by Atkins and De Paula, 8 th Edn.
11. Physical Chemistry by Puri, Sharma and Pattania, 2017.
12. Kinetics and mechanism of chemical transformations by Rajarajm and Kuraiacose, Published by Macmillan India Ltd.
13. Text book of Physical Chemistry, K.L. Kapoor, Macmillan, 1999.
14. Catalysis, J.C. Kuriacose, Macmillan Macmillan Publishers India Limited, 1980.
15. Phase Transfer Catalysis, Fundamentals, Applications and Industrial perspective, C. M. Stark, C. Liotta & M. Halpern, Academic Press
16. Phase Transfer Catalysis, E. V. Dehmlow & S. S. Dehmlow, Verlag Chemie, Weinheim

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Abhavit

U. Sreedhar

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8

Semester - V
Laboratory Course
Paper V Experiments in Physical Chemistry-I

45 h (3 h / w)

1. Distribution law

- a) Determination of molecular status and partition coefficient of benzoic acid in Toluene and water.
- b) Determination of distribution coefficient of acetic acid between n-butanol and water.

2. Electrochemistry

- a) Determination of cell constant of a conductivity cell.
- b) Verification of Ostwald's dilution law- Determination of dissociation constant (K_a) of acetic acid by conductivity measurements.

3. Colorimetry

- a) Verification of Beer's law using $KMnO_4$
- b) Determination of the concentration of the given $KMnO_4$ solution.

4. Adsorption

- b) Adsorption of acetic acid on animal charcoal - Verification of Freundlich adsorption isotherm.

5. Physical constants

- a) Surface tension and b) viscosity of liquids. (Demonstration Experiment)

Reference books:

1. Senior practical physical chemistry. B. D. Khosla, V.C. Garg, Adarsh Gulati Published by R. Chand & Co.
2. Practical Physical Chemistry: B. Vishwanathan and P.S. Raghavan. Viva Books
3. Practicals in Physical Chemistry by P.S. Sindhu ISBN-10: 1-4039-2916-5 / 1403929165 ISBN-13: 978-1-4039-2916-7 / 9781403929167

Vulalokhne

Shikha
Abhishek
Abhishek
K. Neeraj
Manoj
Abhishek

**B.Sc. Chemistry III Year
Semester –VI
Optional for Chemistry Stream
Advanced Chemistry**

60Hrs

Unit-I (Inorganic Chemistry)

15 Hrs

S6-O-I-1: Inorganic reaction mechanisms

4h

Labile and inert complexes, Thermodynamic and kinetic stability based on VBT & CFT: ligand substitution reactions – S_{N1} and S_{N2} in Octahedral complexes; substitution reactions of square planar complexes – Trans effect and applications of trans effect. Reactions of tetrahedral complexes - Hydrolysis of silicon halides and phosphorous oxides.

S6-O-I-2: Boranes and Carboranes

2 h

Definition of clusters. Structures of boranes and carboranes- Wade’s rules, closo, nido, arachno boranes and carboranes

S6-O-I-3: Symmetry of molecules

5 h

Symmetry operations and symmetry elements in molecules. definition of axis of symmetry types of C_n , plane of symmetry ($\sigma_h, \sigma_v, \sigma_d$), center of symmetry and improper rotational axis of symmetry (S_n). Explanation with examples.

S6-O-I-4: Non – aqueous solvents

4 h

Classification and characteristics of a solvent. Reactions in liquid ammonia – physical properties, auto-ionisation, examples of ammono acids and ammono bases. Reactions in liquid ammonia – precipitation, neutralization, solvolysis, solvation - solutions of metals in ammonia, complex formation, redox reactions. Reactions in HF – autoionisation, reactions in HF – precipitation, acid – base reactions, protonation.

Unit-II (Organic Chemistry)

15 Hrs

S6-O-O-1: Pericyclic Reactions

5 h

Concerted reactions, Molecular orbitals of ethene, 1,3-butadiene and allyl radical. Symmetry properties, HOMO, LUMO, thermal and photochemical pericyclic reactions. Types of pericyclic reactions – electrocyclic, cycloaddition and sigmatropic reactions – one example each and their explanation by FMO theory.

S6-O-O-2: Synthetic Strategies

5 h

Terminology – Target molecule (TM), Disconnection approach – Retrosynthesis, Synthons, Synthetic equivalent (SE), Functional group interconversion (FGI), Linear, Convergent synthesis. Retrosynthetic analysis of the following molecules: 1) acetophenone 2) cyclohexene and 3) 2-phenylethanol.

S6-O-O-3: Asymmetric synthesis

5 h

Definition and classification of stereoselective reactions: substrate, product stereoselective reactions, enantio and diastereo selective reactions. Stereospecific reaction – definition –example – dehalogenation of 1,2-dibromides induced by iodide ion. Enantioselective reactions – definition – example –Reduction of Ethylacetoacetate by Yeast. Diastereoselective reaction- definition-

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P. Neeraj
Mayank
W. Lalitha
Arunesh

example: Acid catalysed dehydration of 1-phenylpropanal and Grignard addition to 2-phenylpropanal. Definition and explanation of enantiomeric excess and diastereomeric excess.

Unit III (Physical Chemistry)

15 Hrs

S6-O-P--1: Polymers

Definition of polymers – natural polymers and synthetic polymers examples classification as plastics, fibers, elastomers.

Thermosetting, thermoplastic polymers. Branched, cross-linked and co-polymers.

Definition of polymerization-addition and condensation polymerization with examples.

Explanation : chain polymerization, step polymerization, co-polymerization and co-ordination polymerization. Kinetics of free radical polymerization. Tacticity, atacticity, stereo specific synthesis- Zeigler- Natta catalyst.

Molecular weight definitions- number average, weight average molecular weight. Determination of molecular weight of polymers using viscosity method, Osmometric method. Problems.

Preparation and industrial applications of polyethylene, poly vinyl chloride (PVC), nylon –66, teflon, polyacrylonitrile and terelene.

Introduction to biodegradability and examples of biodegradable polymers.

Unit IV: (General Chemistry)

15 Hrs

S6-O-G--1: Electroanalytical methods

Types of Electroanalytical Methods.

I) Interfacial methods – a) Potentiometry: Principle, Electrochemical cell, Electrodes- (i) Indicator and (ii) Reference electrodes – Normal Hydrogen Electrode, Quinhydrone Electrode, Saturated Calomel Electrode. Numerical Problems. Application of Potentiometry – Assay of Sulphanilamide

b) Voltametry – three electrode assembly; Introduction to types of voltametric techniques, micro electrodes, Over potential and Polarization.

II) Bulk methods – Conductometry, Conductivity Cell, Specific Conductivity, Equivalent Conductivity. Numerical Problems. Applications of conductometry. Estimation of Cl – using AgNO₃. Determination of Aspirin with KOH.

Recommended Text Books and Reference books

1. Basic Inorganic Chemistry by F.A.Cotton, G.Wilkinson and Paul.L. Gaus 3 rd edn Wiley Publishers (2001).
2. Inorganic Chemistry Principles of structure and reactivity by James E.Huhey, E.A. Keiter and R.L. Keiter 4 th edn. (2006)
3. Inorganic Chemistry by Shriver and Atkins 3 rd edn Oxford Press (1999).
4. Principles of Inorganic Chemistry by Puri, Sharma and Kalia Vishal Publications (1996).
5. Symmetry and Spectroscopy of Molecules, K. Veera Reddy, Second Edition, New Age International (P) Limited Publishers
6. Textbook of Inorganic Chemistry by R Gopalan, Universities Press,(2012)
7. Text book of organic chemistry by Morrison and Boyd, Pearson Publishers (2009)
8. Text book of organic chemistry by Graham Solomons, Wiley(2015)

M. V. Lalitha
M. S. Suresh
S. J. Suresh

U. Suresh
P. K. Suresh
A. Suresh

P. Suresh
S. Suresh

9. Fundamentals of organic synthesis and retrosynthetic analysis by Ratna Kumar Kar, NCBA,(2014)
10. Organic synthesis by Dr. Jagadamba Singh and Dr. L.D.S. Yadav, Pragati Prakashan, 2010
11. Stereochemistry of organic compounds by D. Nasipuri, New Academic Science Limited, 2012
12. Organic chemistry by Clayden, Greeves, Warren and Wothers, Oxford University Press, 2001
13. Fundamentals of Asymmetric Synthesis by G. L. David Krupadanam, Universities Press(2014)
14. Polymer Chemistry, M G Arora and M Singh
15. Introductory Polymer Chemistry by G S Misra
16. Textbook of Polymer Science, F. W. Billmeyer Jr, John Wiley & sons
17. Polymer Science, V. R. Gowarikar, N. V. Viswanathan & J. Sreedhar, Wiley Eastern
18. Contemporary Polymer Chemistry, H. R. Alcock & F. W. Lambe, Prentice Hall
19. Materials Science and Engineering An Introduction by William D. Callister, Jr. John Wiley & Sons, Inc.
20. Principles of Instrumental Analysis, D.A. Skoog, F.J. Holler, T.A. Nieman, Engage earning India Ed.
21. Fundamentals of Analytical Chemistry 6 th Ed., D. A. Skoog, D.M. West, F.J. Holler, Saunders College Publishing, Fort worth (1992).
22. Physical Chemistry by Atkins and De Paula, 8 th Edn.
23. Physical Chemistry by Puri, Sharma and Pattania, 2017

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B.Sc. Chemistry III Year
Semester-VI, Paper-VI
Discipline Specific Elective-A (4 Credits)
Medicinal Chemistry

60Hrs

Unit- I: Introduction and Terminology

15Hrs

S6-E-A-I: Diseases: Common diseases, infective diseases-insect borne, air-borne, water-borne and hereditary diseases.

Terminology in Medicinal Chemistry: Drug, Active Pharmaceutical Ingredient (API), Pharmaceuticals, Pharmacology, Pharmacophore, Pharmacodynamics, Pharmacokinetics, metabolites, anti metabolites and therapeutic index.

Drugs: Nomenclature: Chemical name, Generic name and Trade names with examples; Classification: Classification based on structures and therapeutic activity with examples.

ADMET: a) Absorption: Definition, absorption of drugs across the membrane - active and passive absorption, routes of administration of drugs. b) Distribution: definition and effect of plasma protein binding. c) Metabolism: definition, phase I and phase II reactions. d) Elimination: definition and renal elimination, Toxicity.

Unit-II: Enzymes and Receptors

15Hrs

S6-E-A-II: Enzymes: Introduction. Mechanism and factors affecting enzyme action, Specificity of enzyme action (including stereo specificity), Enzyme inhibitors and their importance. Types of inhibition - reversible, irreversible and their subtypes with examples.

Receptors: Introduction, Drug action-receptor theory, Mechanism of drug action, concept of agonists and antagonists with examples. Drug receptor interactions involved in drug receptor complex. binding role of -OH group, -NH₂ group, quaternary ammonium salts and double bond. Structure - activity relationships of drug molecules, explanation with sulfonamides.

Unit- III: Synthesis and Therapeutic Activity of Drugs

15Hrs

S6-E-A-III: Introduction, synthesis and therapeutic activity of

Chemotherapeutics: Sulphanilamide, dapsone, Penicillin-G (semi synthesis), Chloroquin, Isoniazid, Cisplatin and AZT.

Drugs to treat metabolic disorders: Anti diabetic - Tolbutamide; Antiinflammatory - Ibuprofen; Cardiovascular- Glyceryl trinitrate; Antipyretic (paracetamol, aspirin) and Antacid- Omeprazole.

Drugs acting on nervous system: Anesthetics-definition, Classification-local and general. Volatile- Nitrous oxide, chloroform uses and disadvantages. Local anaesthetics - benzocaine.

Unit- IV: Molecular Messengers, Vitamins and Micronutrients

15Hrs

S6-E-A-IV: Molecular Messengers: Introduction to hormones and neurotransmitters, Thyroid hormones, Antithyroid drug-Carbimazol, Adrenaline; Adrenergic drugs- salbutamol, atenolol. Serotonin: SSRIs- fluoxetine. Dopamine: Antiparkinson drug- Levodopa .

Magore
W. Lalubhai
Shilpa
R. S.
U. S.
Shruti
As Lavant Phad
Shreshth

**B.Sc. Chemistry III Year
Semester –VI, Paper-VI
Discipline Specific Elective-B (4 Credits)
Agricultural and Fuel Chemistry**

60 Hrs

Unit I: – Pesticides

15Hrs

S6-E-B-I: Introduction, Definition, classification of pesticides based on use (target). Toxicity and chemical structure with examples. Adverse effects of pesticides and its impact on environmental pollution.

Synthesis, manufacture and uses of representative pesticides: Organochlorines (Cypermethrin); Organophosphates (Parathion); Carbamates (Carbaryl); Quinones(Chloranil), Anilides(Alachlor).

Pesticide formulations: Dusts, Granules, Wettable powders, Emulsions and Aerosols.

Biopesticides : Introduction: Potential pesticidal plants of India, Role of Neem in plant protection-constituents, Azadirachtin and its role in pest control, Structure and mode of action of Pyrethrins(pyrethrin-1) and Pyrethroids (permethrin) and nicotinoids (Imidacloprid).

Unit II: – Fertilizers

15Hrs

S6-E-B-II: Introduction: (need of fertilizers), functions of essential plant nutrients (N, P, K), Classification formula and uses of fertilizers:

Nitrogenous fertilizers: Ammonium nitrate, Urea, Calcium Cyanamide, Calcium Ammonium Nitrate, Sodium Nitrate, Ammonium Chloride and their uses.

Phosphate fertilizers: Normal super phosphate, Triple Super Phosphate, Ammonium Phosphate and their uses.

Potassium fertilizers: Potassium chloride, potassium nitrate, potassium sulphate and uses. Complex fertilizers: Diammonium Phosphate and mixed fertilizers their uses. Manufacture of urea and Super phosphate of lime and their reactions in the soil.

Biofertilizers – Introduction, definition, classification, Rhizobium, Azatobactor, Azospirillum, Azolla, Blue Green Algae, Vermicomposting and uses.

Organic farming: The principal methods, crop rotation, green manures and compost, biological pest control, and mechanical cultivation and uses.

Unit III: Energy Sources and Coal

15Hrs.

S6-E-B-III: Review of energy sources (renewable and non-renewable). Classification of fuels and their calorific value.

Coal: Uses of coal (fuel and nonfuel) in various industries, its composition, carbonization of coal. Coal gas, producer gas and water gas—composition and uses. Fractionation of coal tar, uses of coal tar based chemicals, requisites of a good metallurgical coke, Coal gasification (Hydro gasification and Catalytic gasification), Coal liquefaction and Solvent Refining.

Unit IV: Petroleum and its products, petrochemicals and non petroleum fuels

15Hrs.

S6-E-B-IV:

Petroleum and its products

Petroleum: Origin, Composition of crude petroleum and classification. Properties- flash point and its determination, Knocking and antiknocking compounds; Octane number. and Cetane number. Distillation of crude petroleum, Fractional Distillation - Principle and process, refining, Fractions and uses. Cracking -Thermal and catalytic cracking, Reforming

Margaret Arulakumar
P. K. Mani
D. N. Srinivasan
U. Sreedhar
P. K. Mani
K. S. Srinivasan

Vitamins and Micronutrients: Introduction, vitamin sources, Deficiency disorders and remedy of Vitamins A,B, C, D, E K and micronutrients – Na, K, Ca, Cu, Zn and I .

Recommended Text Books and Reference books

1. Introduction to Medicinal Chemistry, G.L. Patrick, Oxford University Press, New York. 2013.
2. Medicinal Chemistry, Thomas Nogrady, Oxford Univ. Press, New York.2005.
3. Foye's Principles of Medicinal Chemistry, David William and Thomas Lemke, Lippincott Williams & Wilkins, 2008.
4. Medicinal Chemistry, Ashutosh Kar , New Age International, 2005.
5. Synthetic Drugs, O.D.Tyagi & M.Yadav, Anmol Publications,1998.
6. Medicinal Chemistry, Alka L. Gupta, Pragati Prakashan.
7. Drugs, G. L. David Krupadanam, D.Vijaya Prasad, K.Varaprasad Rao, K. L. N. Reddy, C. Sudhakar, Universities Press (India) Ltd. 2012.

Jyoti
 U. Sreedhar
 P. Neehar
 Ashwini
 Ashwini
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Petroleum products – Petrol, Diesel, LPG, Kerosene, Tar and their applications.

Petrochemicals: Vinyl acetate, Propylene oxide, Isoprene and their uses.

Lubricants: Classification of lubricants- Solid, semisolid and liquids; Properties (viscosity, flash point, fire point, cloud point, pour point) and their determination. Functions of lubricants. Mechanism of lubrication.

Non-petroleum fuels: Natural Gas-CNG, LNG, Clean Fuels-H₂ gas, ethanol, Fuel from waste - bio-gas, Fuel from biomass –bio-ethanol, biodiesel, Synthetic fuels- syngas based.

Recommended Text Books and Reference books

1. Chemistry of pesticides, N. N. Melnikov, Springer-Verlag- Technology & Engineering (2012).
2. Pesticide Synthesis Handbook, Thomas A. Unger, Elsevier, (2000).
3. Pesticides, R. Cremlyn, John Wiley, 1980.
4. Manures and Fertilisers, K. Kolay, Published by Atlantic (2007).
5. Sharma, B.K. & Gaur, H. Industrial Chemistry, Goel Publishing House, Meerut (1996).
6. A Text Book of Engineering Chemistry Paperback – 2017 by Shashi Chawla
7. Industrial Chemistry, Vol-I, Stocchi, E, Ellis Horwood Ltd. UK (1990).
8. Jain, P.C. and Jain, M. Engineering Chemistry Dhanpat Rai & Sons, Delhi.
9. Engineering Chemistry by Shashi Chawla, Dhanpat Rai & Sons, Delhi.

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U. Sreedhar

P. Venkatesh

Ashwini

Suresh

Maya

Semester - VI
Laboratory course
Paper VI Experiments in Physical Chemistry-II

45h (3 h/w)

1. Kinetics

- a) Determination of specific reaction rate of the hydrolysis of methyl acetate catalyzed by hydrogen ion at room temperature.
- b) Determination of rate of decomposition of hydrogen peroxide catalyzed by FeCl_3 .

2. Electrochemistry**A. Potentiometry:**

- a) Determination of redox potential of $\text{Fe}^{2+}/\text{Fe}^{3+}$ by potentiometric titration of ferrous ammonium sulphate vs. potassium dichromate.
- b) Precipitation titration of KCl vs. AgNO_3 -Determination of given concentration of silver nitrate.

B. pH metry:

- a) pH metric titration of strong acid (HCl) vs. strong base- Determination of the concentration of the given acid.
- b) pH metric titration of weak acid(acetic acid) with strong base(NaOH).- Determination of acid dissociation constant (K_a) of weak acid.

3. Conductometry:

- a) Determination of overall order: Saponification of ethyl acetate with NaOH by conductance measurements.

Reference books:

1. Senior practical physical chemistry. B. D. Khosla, V.C. Garg, Adarsh Gulati
2. Advanced Practical Physical chemistry: J.B. Yadav
3. Practical Physical Chemistry: B. Vishwanathan and P.S. Raghavan.
4. Practical in Physical Chemistry: P.S. Sindhu

Wolabuhur
 Sreedhar
 Sreedhar

P. Venkatesh
 P. Alkavand
 P. Alkavand

Asuresh
 Asuresh
 Maganesh

B.A. (ECONOMICS) SYLLABUS
Semester - I
MICRO ECONOMICS - I
Discipline Specific Course - Paper - I

Module I: Introduction:

Importance of Economics. Definition: Wealth, Welfare, Scarcity and Growth. Scope and Limitations. Micro and Macro Analysis. Approaches to Economic Analysis. Partial Equilibrium vs. General Equilibrium, Comparative Static and Dynamic analysis, Positive and Normative Approaches.

Module II: Theory of Consumer Behavior:

Utility Analysis: Cardinal Utility Theory, Law of Diminishing Marginal Utility, Law of Equi-Marginal Utility, Consumer Equilibrium. Ordinal Utility Theory: Indifference Curve Analysis, Consumer's Equilibrium. Price, Income and Substitution Effects. Types of Goods: Normal, Inferior and Giffen Goods. Derivation of Individual Demand Curve and Market Demand Curve with the help of Indifference Curve. Consumer Surplus

Module III: Supply and Demand Analysis:

Law of Demand, Movements and Shifts in Demand Curve. Elasticity of Demand, Price, Income and Cross Elasticity. Degree of Elasticity. Methods of Measuring Elasticity are of Demand: Point, Arc and Outlay Methods. Law of Supply, Movement and Shifts in Supply Curves. Elasticity of Supply, Determinants of Supply. Derivation of Supply curve.

Module IV: Theory of Production:

Concept of Production. Production Functions: Linear and Non – Linear Homogeneous Production Functions. Isoquants. Scale of Production. Returns to Scale. Law of Variable Proportions and Variable Returns to Scale. Economies of Scale and Scope. Limitations of Production Function Analysis. Production Surplus.

Module V: Production Costs: Concepts and Types:

Money, Accounting, Real, Opportunity, Economic, Implicit and Explicit, Short Run, Long Run, Fixed and Variable Costs. Concepts of Total, Average and Marginal costs. Derivation of Long run Average and Marginal Cost Curves. Relationship between Average and Marginal Costs Curves in Short run and Long run.

References:

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|----------------------|---|-------------------------------|
| 1. M L Seth | : | Micro Economics |
| 2. M L Jhinguan | : | Micro Economics |
| 3. H L Ahuja: | : | Modern Micro Economics |
| 4. Koutsainies; | : | Modern Micro Economics |
| 5. Stonier and Hague | : | Micro Economics |
| 6. Salvatore | : | Micro economics |
| 7. Schaum Series | : | Micro economics |
| 8. Pyndick | : | Micro economics |
| 9. Gregory Mankiw | : | Principles of Micro Economics |

B.A. (ECONOMICS) SYLLABUS
Semester - II
MACRO ECONOMICS
Discipline Specific Course - Paper - II

Module-I: Introduction

Meaning, Scope and Limitations of Macro Economics. National Income: Concepts, Methods of Measurement and Difficulties in Estimation of National Income and Limitations National Income as a Measure of Welfare. Social Accounting

Module-II: Theories of Output and Employment

The Classical Theory of Employment (Say's Law and Pigou's Wage cut Policy) and Criticism, Keynesian Theory: Effective Demand, Aggregate Demand and Aggregate Supply Function, Consumption Function: Factors influencing consumption function, Investment Multiplier its relevance in emerging economies. Concept of Accelerator

Module- III: Investment & Theories of Interest Rate

Capital and Investment: Types of Investment, Determinants of level of Investment, MEC Ex-Post and Ex- Ante Investment and Savings- Classical, Neo-classical. And Keynesian Theories of Interest. Liquidity Trap, Simultaneous Determination of Interest and Real Income through IS-LM Framework in a closed Economy

Module- IV: Supply of Money & Demand for Money

Definition of Money - Money Supply: Measures of Money Supply (M1, M2, M3 & M4) - RBI approach to money supply; High powered money and money multiplier; Control of money supply. Variations in money supply in India. Theories of demand for money - Classical and Neo Classical approaches, Keynes liquidity preference approach. Derivation of LM curve.

Module -V: Inflation & Business Cycles

Definition of Inflation: Causes, consequences and control of inflation -Deflation and stagflation. Nature, Characteristics and Phases of Business Cycles. Samuelson's Business Cycle Theory. Stock market-meaning, functions; Insurance-Life insurance and General Insurance

References:

1. Ackley, G (1976) : Macro Economic theory and policy, Macmillan Publishing Co, New York.
2. Shapiro, E (1996) : Macro economic Analysis, Galgotia Publication, New Delhi
3. Keynes JM (1936) : The General Theory of Employment, Interest and money, Macmillan London
4. MC Vaish : Macro economic theory
5. HL Ahuja : Macro economic theory policy

B.A. (ECONOMICS) SYLLABUS
Semester - III
MICRO ECONOMICS - II
Discipline Specific Course - Paper - III

Module I: Types of Revenue and Objectives of Firm

Behavior of the Firm. Concept of Revenue: Total Revenue (TR), Average Revenue (AR) and Marginal Revenue (MR). Relationship between AR and MR and the Elasticity of Market Demand. Traditional Objectives of the Firm: Profit Maximization. Modern Objectives of the Firm: Output/Sales/Market Share Maximization.

Module II: Perfect Competition and Monopoly

Classification of Market. Perfect Competition, Short Run and Long Run Analysis. Equilibrium of the Firm and Industry. Monopoly Features, Equilibrium. Discriminatory Pricing. Differences between Perfect Competition and Monopoly.

Module III: Monopolistic Competition and Oligopoly Markets

Monopolistic Competition. Product Differentiation, Selling Costs. Oligopoly: Homogeneous and Heterogeneous Oligopoly, Price Rigidity in Oligopoly. Kinky Demand Curve.

Module IV: Pricing Strategies

Pricing Practices: Cost Plus Pricing, Marginal Cost Pricing, Rate of Return Pricing, Product Life Pricing, Price Skimming, Penetration Pricing, Markup Pricing. State Intervention and Administered Prices.

Module V: Distribution and Factor Pricing

Functional and Personal Distribution. Marginal Productivity Theory of Distribution. Ricardo Theory of Rent and Quasi Rent. Theories of Wages. Theories of Profit. Risk and Uncertainty. Concept of Interest.

References:

1. M L Seth : Micro Economics
2. M L Jhingan: : Micro Economics
3. H L Ahuja: : Modern Micro Economics
4. Koutsainies; : Modern Micro Economics
5. Stonier and Hague : Micro Economics
6. Salvatore : Micro economics
7. Schaum Series : Micro economics
8. Pyndick : Micro economics
9. Gregory Mankiw : Principles of Micro Economics

B.A. (ECONOMICS) SYLLABUS
Semester - IV
PUBLIC ECONOMICS
Discipline Specific Course - Paper - IV

Module - I: Introduction

Meaning and importance of Public finance - Evolution of public finance. Multiple theory of public household-Public and Private goods-Markets mechanism in public and private goods. State as an agent of planning and development

Module- II: Public Expenditure

Theories of public expenditure- Wagner' s law of increasing state activities – Peacock Wisemans hypothesis- Principle of Maximum Social advantage –Growth and pattern of public expenditure, Effects of public expenditure-Cost benefit analysis.

Module- III: Taxation & Public Debt

Approaches to taxation- Benefit approach, Ability to pay approach and Neutrality approach- Elasticity and buoyancy of taxation-incidence and shifting of taxation-Types and classification of taxes and VAT, Approaches to public debt.

Module- IV: Fiscal Policy & Federal Finance

Definition of fiscal policy and its objectives; Fiscal Policies for redistribution of income and wealth and stabilization – fiscal policies in a developing country, federal financial structure and its main features – Direct taxes-Income tax-Corporate tax. Indirect tax structure- Union excise duties, customs duties, sales tax –VAT, Centre-State financial Relations.

Module- V: Budget

Budget – Classification of budgets –Economic, Functional, organizational, classification of budgets- performance programming and zero based budgets- surplus, balanced and deficit budgets- Concepts of budget deficit and their implications – State and Central budgets. Fiscal crisis and Fiscal sector reforms in India; Reports on Finance Commissions in India.

References

1. Atkinson, A Band J.E Siglitz (1980) :Lecturers on Public Economics, Tata McGraw Hill, New York.
2. Auerbach, A J and M. Feldson (Eds.) (1985) :Handbook of Public Economics, Vol. 1, North Holland, Amsterdam.
3. Buchanan, J M (1970) :The Public Finances, Richard D Irwin, Homewood.
4. Goode, R (1986) : Government Finance in Developing Countries, Tata McGraw Hill, New Delhi.

5. Houghton, J M (1970) : The Public Finance: Selected Readings, Penguin, Harmondsworth.
6. Jha, R (1998): Modern Public Economics, Routledge, London.
7. Menutt, P (1996) :The Economics of Public Choice, Edward Elgar, U.K.
8. Musgrave, R A and P.B. Musgrave (1976) : Public Finance in Theory and Practice, McGraw Hill, Kogakusha, Tokyo.
9. S K Singh Public Economics
10. Om prakash Public Economics
11. M L Jhingan Public Economics
12. H L Bhatia Public Economics

B.A. (ECONOMICS) SYLLABUS
Semester - V
TELANGANA ECONOMY
Generic Elective (or) Inter-Disciplinary Course - Paper – I

Module- I: State and District Domestic Product

Growth and Sectoral Composition-Per capita Income of Telangana States and its Districts

Module- II: Trends in Population Growth:

Occupational structure work participation – Population policies, Unemployment and its magnitude and direction

Module- III: The Structure of Agriculture and Allied Sectors

Trends in productivity of food and non-food crops. Profile of Irrigation policies and institutional support to Agricultural Marketing, Sources of Agricultural finance

Module- IV: The Structure of Industrial Development

Commodity specific growth rates in industrial sector- Infrastructure development –Industrial policies and programs in support of industrial growth

Module- V: The structure of Tertiary Sector

Service specific growth rates, Policies and Programs initiated to promote growth of services in Telangana State

Basic Reading List:

1. Rao S Kishan and Rahul A Shastry (2009): Andhra Pradesh Economy – Dynamics of Transformation with a focus on Regional Disparities, National Academy of Development,
2. Hanumantha Rao and S.Mahender Dev (2003); Andhra Pradesh Development – Economic Reform and Challenges Ahead, Centre for Economic and Social Studies, Hyderabad.
3. Kankalatha Mukund (1990); “Andhra Pradesh Economy in Transition; Centre for Economic and Social Studies, Hyderabad and Book Links Corporation, Hyderabad.
4. Mahendra Dev, S.C.Ravi and M.Venkatanarayana (2009); Human Development in Andhra Pradesh: Experiences, Issues and Challenges; Centre for Economic and Social Studies (CESS), Hyderabad.
5. Rao, R.S., V. Hanumantha Rao and N. Venugopal (2006); Fifty years of Andhra Pradesh 1956-2006; Centre for Documentation, Research and Communication [CDRC], Hyderabad.
6. P.Sundaraya, Telangana People’s Struggle and Its Lessons, Calcutta, CPI-M, 1972
7. Ravi Narayan Reddy, Heroic Telangana: Reminiscences and Experiences, New Delhi, CPI, 1973
8. Gautam Pingle 2014: The Fall and Rise of Telangana, Orient Black Swam

B.A. (ECONOMICS) SYLLABUS
Semester - V
DEVELOPMENT ECONOMICS
Discipline Specific Course - Paper - V

Module- I: Economic Development and Growth

Concepts of Economic Growth and Development. Measurement of Economic Development: Per Capita Income, Basic Needs, Physical Quality of Life Index, Human Development Index and Gender Empowerment Measure. Role of State and Market in Economic Development

Module- II: Factors in Economic Development

Factors effecting Economic Development-Characteristics of developing Countries- Population and Economic Development- Theories of Demographic Transition. Human Resource Development and Economic Development

Module- III: Theories of Economic Development

Theories of Adam Smith, David Ricardo, Karl Marx and Schumpeter

Module- IV: Theories of Under Development

Lewis, Rodan, Libenstien, Nurkse's Balanced Growth Strategy, Hirsch man's Un-balanced Growth Strategy, Myrdal model.

References:

1. Mier, Gerald, M : Leading issues in Economic Development, OUP, Delhi
2. Todaro, Micheal P : Economic Development in the third world, Orient Longman, Hyderabad
3. Ghatak Subrata : Introduction to Development Economics
4. Sukumoy chakravarthy : Development Planning- Indian Experience, OUP, Delhi
5. Misra & Puri : Economic Development and Planning, theory and practice

B.A. (ECONOMICS) SYLLABUS
Semester - V
ECONOMICS OF EDUCATION
Discipline Specific Elective - Paper – I A

Module 1 Introduction to Economics of Education:

Definition and scope of Economics of Education. Education as Consumption and Investment goods; Human capital: the concept; Components of Human capital-Human Capital vs. Physical Capital.

Module 2 Costs of Education:

Cost of Education – Expenditure on Education, Private Costs and Social Costs; Direct and Indirect / opportunity costs.

Module 3: Benefits of Education:

Direct and Indirect Benefits; Private and Social Benefits; Problems in the Measurement of Costs and Benefits. Cost-Benefit Analysis in Education

Module 4: Educational Planning:

Contribution of Education to economic growth; Approaches to educational planning. Economics of Educational Planning in Developing Countries with special reference to India.

Basic Reading List:

1. Blaug, Mark (1972) : Introduction to Economics of Education. Penguin, London.
2. Becker, G.S. (1974) : Human Capital. 2nd Edn., NBER, New York
3. Berman, P and M.E.Khan (1989) : Paying for India's Health Care. Sage Publications New Delhi.
4. Cohn, E and T.Gaske (1989): Economics of Education, Pergamon Press, London.
5. Klarman, H.E. (1965) : Economics of Health, Columbia University Press, New York.
6. Panchamukhi, P.R. (1980): Economics of Health: A Trend Report, ICSSR Survey, Allied, New Delhi.
7. Tilak. J.E.G. (1989) : Economics of Inequality in Education, Sage, New Delhi.
8. World Bank (1983): The World Development Report: Investing in Health. Oxford University Press, New York.
9. Education for Development
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B.A. (ECONOMICS) SYLLABUS
Semester - V
INDIAN ECONOMY
Discipline Specific Elective - Paper – I B

Module I: Structure of the Indian economy:

Indian Economy at the time of Independence. Changes in the Composition of National Income and Employment. Natural Resource base: Land, Water, Forest, Mineral and Metal Resources. Population: Size, Growth and Composition and their implications for Indian economy.

Module II: Indian Agriculture:

Importance and Role of Agriculture. Trends in Agricultural Production and Productivity. Land Reforms. Green Revolution. Agricultural Finance. Agricultural Marketing. Agricultural Price Policy. Food Security in India.

Module III: Indian Industry and Services:

Role and Importance of Industrialization. Trends in Industrial Production and Services. Industrial Policy Resolutions: 1948, 1956, 1977, 1991 The Role of Public and Private Sectors. Formal and Informal Sectors in Industry and Services

Module IV: Planning in India:

Five-Year Plans: Objectives, Strategies, Resource Allocation, Targets and Achievements. Evaluation of Performance of The Indian Economy under Planning. New Economic Reforms and their Implications. Globalization in India.

References:

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|----------------------|---|
| 1. SK Misra and Puri | : Indian Economy, Himalaya Publishing House. |
| 2. Ishwar C Dhigra | : The Indian Economy: Environment and Policy,
SC Chand & Sons, New Delhi RC Dutt and |
| 3. KPM Sundaram | : Indian Economy |

B.A. (ECONOMICS) SYLLABUS
Semester - V
FINANCIAL ECONOMICS
Discipline Specific Elective - Paper – I C

Module -I: The Financial System and its significance for Economic Development – The Structure of the Financial System in India- Organized and Un-organized Financial System. All India development financial institutions, Investment Institutions, Specialized financial institutions and State level financial institutions.

Module–II: Commercial Banking. Banking structure in India-Context, Need and Objectives – financial sector reforms -Narasimham Committee Report – Financial Sector Reforms with reference to Stock Markets.

Module – III: Money Market: Organized sector of the Money Market and their sub-markets- Call money market, Treasury bill market, The Repo Market, Commercial Paper market and Money market mutual funds and their instruments. - Money market reforms in India.

Module – IV: Capital Market: Structure of Capital market- Primary and Secondary markets- New issues and Secondary Issues Markets, Securities-Private and Public Edged Securities.

Basic Reading List:

1. Bhole, L.M. (1999), Financial Institutions and Markets, Tata McGraw Hill Company Ltd., New Delhi.
2. Bhole, L.M. (2000), Indian Financial System, Chugh Publications, Allahabad.
3. Edminster, R.O. (1986), Financial Institutions, Markets and Management, McGraw Hill, New York.
4. Goldsmith, R.W. (1969), Financial Structure and Development, Yale, London.
5. Hanson, J.A. and S.Kathuria (Eds.) (1999), India: A Financial Sector for the Twenty-first Century, Oxford University Press, New Delhi.
6. Harker, P.T.and S.A.Zenios (2000) (Ed.), Performance of Financial Institutions, Cambridge University Press, Cambridge.
7. Johnson, H.J. (1996) Financial Institutions and Markets, Tata McGraw Hill, New Delhi.
8. Khan, M.Y. (1996) Indian Financial System, Tata Mc Graw Hill, New Delhi.
9. Machiraju, M.R. (1999) Indian Financial Systems, Vikas Publishing House, New Delhi.
10. Ohlson, J.A. (1987), The Theory of Financial Markets and Institutions, North Holland, Amsterdam.
11. Prasad, K.N. (2001) Development of India's Financial System, Sarup & Sons, New Delhi.
12. Robinson, R.I. and Wightman (1981), Financial Markets, McGraw Hill, London.

B.A. (ECONOMICS) SYLLABUS
Semester - VI
ECONOMICS OF ENVIRONMENT
Generic Elective (or) Inter-Disciplinary Course - Paper – II

Module-I: Meaning & definition of Environment Economics

Meaning and definition of Environmental Economics. Theory of Market Failure. Theories of Environmental Economics: Boulding's Spaceship Earth. Hardin's Tragedy of the Commons, Club of Rome Model.

Module-II: Theories of Natural Resource Management

Material Balance and Entropy Law. Hotelling's Theory of Exhaustible Resources. Dasgupta and Heal, Optimal Depletion of Renewable Resources. Carrying Capacity of the Environment. Definition and Concept of Sustainable Development. Weak vs. Strong Sustainability Criteria.

Module-III: Theory and Policy of Pollution Control

Optimal Level of Pollution. Polluter Pays Principle – Pigovian Taxes and Subsidies. Pollution Permits. Charge and Standards approach. Coase Theorem. Role of Govt. in Environmental Regulation – Command and Control regime. WTO and Environmental impacts.

Module-IV: Measurement of Environmental Degradation

Environmental Costs and Benefits: User and Non-user Benefits. Direct and Indirect Valuation Methods: Contingent Valuation Method and Willingness to pay. Green National Income and Genuine Savings. Environmental Impact Assessment and Report. Environmental Audit.

Module-V: Environment Problems of India

State of India's Environment – Air, Water and Soil Pollution, Natural Resource Depletion, Deforestation, Industrial and Agricultural Pollution, Urbanization, Vehicular Pollution. Functions of Ministry of Environment and Forest and Pollution Control Boards.

Basic Reading List

1. Baumol, W.J. and W.E.Oates(1988), *The Theory of Environmental Policy* (2nd Edition) CUP, Cambridge.
2. Bhattacharya, R.N. ed. (2001): *Environmental Economics, An Indian Perspective*, Oxford University Press, New Delhi.
3. Hanley, N.J.F.Shogren and White (1997) *Environmental Economics in Theory and Practice*. Macmillan.

4. Jarret H. ed. *Environmental Quality in a Growing Economy*, John Hopkins Press, Baltimore.
5. Kalpagam, (1998): *Environmental Economics*, Sterling Press.
6. Kolstrad, C.D. (1999): *Environmental Economics*, Oxford University Press, New Delhi.
7. Mehta, S, S. Mundle, and U.Sankar (1995): *Controlling Pollution: Incentives and Regulation*, Sage, New Delhi.
8. Murthy, M.N., A. James and S.Misra (1999): *The Economics of Water Pollution in India*. Oxford University Press, New Delhi.
9. Pearce, D.W and R. Turner (1991): *Economics of Natural Resource Use and Environment*. John Hopkins Press, Baltimore.
10. Rao, O.K. (2000): *Sustainable Development, Economics and Policy*, Blackwell Publishers, UK.
11. Sankar, U Ed (2001): *Environmental Economics*, Oxford University Press, New Delhi.
12. Saxena, H.M. (2000): *Environmental Management*. Rawat Publishers, New Delhi.
13. Sengupta, R.P. (2000): *Ecology and Economics: An Approach to Sustainable Development* Oxford University Press, New Delhi.
14. *State of India's Environment*. The Hindu Annual Publications.
15. Tietenberg, T, ed. (1997): *Economics of Global Warming*, Edward Elgar, UK.

B.A. (ECONOMICS) SYLLABUS
Semester - VI
INTERNATIONAL ECONOMICS
Discipline Specific Course - Paper – VI

Module - I: Theories of International Trade:

Theories of absolute advantage, comparative advantage and opportunity costs; Theorem of factor price equalization; - Heckscher - Ohlin theory of trade.

Module - II: Trade and Growth

Gains from Trade.-Trade as an Engine of Economic Growth. Concepts of Terms of Trade- Factors affecting Terms of Trade- Singer-Prebisch secular deterioration of Terms of Trade

Module- III: Barriers to Trade

Tariffs, Quotas and Subsidies and their effects. The optimum tariff.

Module- IV: Balance of Payments

Concepts and Components of BOP, Equilibrium and disequilibria in Balance of payments, Types of Disequilibria. Remedial measures to control disequilibrium. Devaluation. Direction and Composition of Foreign trade, Export and Import Policies of India.

References

1. Soderston B (1990) : International Economics, Macmillan Press Ltd. London
2. Kindle Berger C P (1973) : International economics RD Irwin Concepts wood
3. Vaish MC and Sudhama Singh (2000): International Economics, Himalaya Publishing House, New Delhi
4. Salvatore, D L (1997) : International Economics, Prentice Hall NJ
5. Mithani DM (2000) : International Economics, Himalaya, Mumbai
6. Desai : International Economics, Himalaya, New Delhi.

B.A. (ECONOMICS) SYLLABUS
Semester - VI
DEMOGRAPHY
Discipline Specific Elective - Paper – II A

Module –I: Meaning and Scope of Demography

Components of population-growth and their interdependence- Theories of population– Malthus and Optimum theory of Population - Theory of demographic transition – Population and Development.

Module-II: Population trends in the twentieth century

Population Explosion – International aspects of population growth and spatial distribution- Determinants of age and sex -structure- Aging of population – social economic implications.

Module-III: Fertility

Trends in fertility rates in developed and less developed countries- Factors affecting fertility – Nuptiality – concept and analysis of marital status- single mean age at marriage – synthetic cohort methods - Mortality rates in more and less developed countries- Life table – construction and uses- concepts of stable population- Methods of population projection.

Module-IV: Migration

Streams of migration - Factors affecting migration – Urbanization – trends in developed and developing countries – study of census in India- Trends in the rate of growth of Indian Population – Evolution of population policy – Population control to Family Welfare- Family Planning strategies in India- New Population policy in India.

Reading List:

1. S.N.Agarwal : India's population problem – Tata Mc Graw –Hill Co. Bombay.
2. Ahisha Bose : India's Basic Demographic statistics-B.R Publishing corporation, New-Delhi.
3. P.K. Chowbey : Population policy in India – Kanishka Publications, New Delhi.
4. S.C Gulati : Fertility in India an Econometric study of a metropolis-Sage, New Delhi.
5. K.Srinivsan : Basic Demographic techniques and applications.-Sage, New Delhi
6. D.J. Bogue : Principles of Demography-John Wiley, New York.
- 8.C.M. Chiang : Life tables and Mortality Analysis.-WHO, Geneva.
8. CEHI, : Dharma Kumar (ed) Vol.2
9. Praveen Visaria, Population studies.
10. Dharma Kumar, Land and caste in south India.

B.A. (ECONOMICS) SYLLABUS
Semester - VI
ECONOMICS OF INSURANCE
Discipline Specific Elective - Paper – II B

Module-I: Introduction:

Meaning and Types of Insurance: Life Insurance and importance of its policies. General Insurance- Types of Non-Life Insurance and Marketing of general insurance. – Features of Health insurance, fire insurance. Investments in Insurance - tax advantaged and non-tax advantaged Insurance.

Module-II: Essentials of Individual Retirement Planning

Analysis of retirement; Income needs; Retirement planning strategies; Investing for retirement, pension plans; Basic principles of pension plans; Pension plans in India. Life insurance for estate liquidity.

Module-III: Role of Risk-Management and Insurance

Insurance Institutions as Financial Intermediaries; Insurance institutions as investment institutions; Insurance institutions in Indian capital market.

Module-IV: Regulation of Insurance

Purpose of Government Intervention in Markets; Insurance regulation in India; Insurance regulation & Development Authority; Set up and management of insurance companies.

Basic Reading List

1. Black. K. Jr. and H.D. Skipper Jr.(2000), Life & Health Insurance, Prentice Hall, Upper Saddle River, New Jersey.
2. Dionne, G. and S.E. Harrington (eds.) (1997), Foundations of Insurance Economics, Kluwer academic Publishers, Boston.
3. Pfeiffer, I. And D.R. Klock (1974), Perspectives on Insurance, Prentice Hall Inc., Engle word Cliffs.
4. Williams Jr., C.A. M.L. Smith and P.C.Young (1995), Risk Management and Insurance, McGraw Hill, New York.
5. Skipper Jr., H.D. (ed.) (1998), International Risk & Insurance: An Environmental Managerial Approach, Irwin McGraw Hill, Boston.
6. Government of India (1998), Old Age and Income Security (OASIS) Report (Dave Committee Report), New Delhi.
7. Insurance Regulation and Development Authority (2001), IRDA Regulations, New Delhi.
8. Meier. K.J. (1998), The Political Economy of Regulation: The Case of Insurance, The State University of New York Press, Albany, N.Y.

B.A. (ECONOMICS) SYLLABUS
Semester - VI
INDUSTRIAL ECONOMICS
Discipline Specific Elective - Paper – II C

Module –I: Meaning and classification of Industries.

Use-based, Resource Based and ASI Two and Three Digit classification. Industrial Location theories: Weber, Sargent Florence, and Losch - factors affecting industrial location.

Module II: Market Structure and Market Performance:

Types of Markets based on Place, Time and Competition. Concepts & Organization of a firm. Market Structure; Sellers Concentration; Product Differentiation; Entry Conditions; Economics of Scale.

Module III: Industrial Pattern under Five Year Plan;

Industrial economic concentration and remedial measures. Industrial Policy 1991: Role of Public and Private Sector, LPG Program. Recent Trends in Industrial growth.

Module –IV: Industrial Finance:

Industrial Finance: Owned, External and other Components of Funds; Role, Nature, Volume and types of Institutional Finance – State Level Financial Institutions and Commercial Banks.

Basic Reading List:

1. Ahuliwalia, I.J. (1985) Industrial Growth in India, Oxford University Press, New Delhi.
2. Barthwal, R.R. (1985), Industrial Economics, Wiley Eastern Ltd., New Delhi.
3. Chernuliam, F. (1994), Industrial Economics: Indian Perspective (3RD Edition), Himalaya Publishing House, Mumbai.
4. Desai, B. (1999), Industrial Economy in India (3rd Edition,) Himalaya Publishing House, Mumbai.
5. Divine, P.J. and R.M. Jones Et. Al (1976), An Introduction to Industrial Economics, George Allen and Unwin Ltd., London.
6. Hay, D. and D.J.Morris (1979), Industrial Economics: theory and evidence, Oxford University Press, New Delhi.
7. Kuchhal, S.C. (1980), Industrial Economy of India (5th Edition), Chaitanya Publishing House, Allahabad.
8. Sing, A and A.N.Sadhu (1988), Industrial Economics, Himalaya Publishing House, Mumbai.

OSMANIA UNIVERSITY
Model
Scheme of Instruction and Examination
B.A. Economics (Regular)
Choice Based Credit System (CBCS) Syllabus - w.e.f. 2016-2017

Year	Semester	DSC/GE/ DSE/SEC	Paper	Title	Credits	Hours
I	I	DSC*	Paper - I	Micro Economics – I	5	5
	II	DSC*	Paper - II	Macro Economics	5	5
II	III	SEC*	Paper - I	Basics of Computers-I	2	2
		DSC*	Paper - III	Micro Economics – II	5	5
	IV	SEC*	Paper - II	Basics of Computers – II	2	2
		DSC*	Paper - IV	Public Economics	5	5
III	V	SEC*	Paper - III	Basics of Quantitative Methods for Economists – I	2	2
		GE**	Paper - I	Telangana Economy	6	6
		DSC*	Paper - V	Development Economics	4	4
		DSE*	Paper - I A	Economics of Education	4	4
		DSE*	Paper - I B	Indian Economy		
		DSE*	Paper - I C	Financial Economics		
	VI	SEC*	Paper - IV	Basics of Quantitative Methods for Economists – II	2	2
		GE**	Paper - II	Economics of Environment	6	6
		DSC*	Paper - VI	International Economics	4	4
		DSE*	Paper - II A	Demography	4	4
		DSE*	Paper - II B	Economics of Insurance		
		DSE*	Paper - II C	Industrial Economics		

* DSC (Discipline Specific Course), SEC (Skill Enhancement Course) & DSE (Discipline Specific Elective) for Students of Economics.

** GE (Generic Elective) or Inter-Disciplinary Course for Students of Social Sciences other than Economics.

(Prof.A.K.Vasudeva Chary)

B.A. (ECONOMICS) SYLLABUS
Semester - I
MICRO ECONOMICS - I
Discipline Specific Course - Paper - I

Module I: Introduction:

Importance of Economics. Definition: Wealth, Welfare, Scarcity and Growth. Scope and Limitations. Micro and Macro Analysis. Approaches to Economic Analysis. Partial Equilibrium vs. General Equilibrium, Comparative Static and Dynamic analysis, Positive and Normative Approaches.

Module II: Theory of Consumer Behavior:

Utility Analysis: Cardinal Utility Theory, Law of Diminishing Marginal Utility, Law of Equi-Marginal Utility, Consumer Equilibrium. Ordinal Utility Theory: Indifference Curve Analysis, Consumer's Equilibrium. Price, Income and Substitution Effects. Types of Goods: Normal, Inferior and Giffen Goods. Derivation of Individual Demand Curve and Market Demand Curve with the help of Indifference Curve. Consumer Surplus

Module III: Supply and Demand Analysis:

Law of Demand, Movements and Shifts in Demand Curve. Elasticity of Demand, Price, Income and Cross Elasticity. Degree of Elasticity. Methods of Measuring Elasticity are of Demand: Point, Arc and Outlay Methods. Law of Supply, Movement and Shifts in Supply Curves. Elasticity of Supply, Determinants of Supply. Derivation of Supply curve.

Module IV: Theory of Production:

Concept of Production. Production Functions: Linear and Non – Linear Homogeneous Production Functions. Isoquants. Scale of Production. Returns to Scale. Law of Variable Proportions and Variable Returns to Scale. Economies of Scale and Scope. Limitations of Production Function Analysis. Production Surplus.

Module V: Production Costs: Concepts and Types:

Money, Accounting, Real, Opportunity, Economic, Implicit and Explicit, Short Run, Long Run, Fixed and Variable Costs. Concepts of Total, Average and Marginal costs. Derivation of Long run Average and Marginal Cost Curves. Relationship between Average and Marginal Costs Curves in Short run and Long run.

References:

- | | | |
|----------------------|---|-------------------------------|
| 1. M L Seth | : | Micro Economics |
| 2. M L Jhinguan | : | Micro Economics |
| 3. H L Ahuja: | : | Modern Micro Economics |
| 4. Koutsainies; | : | Modern Micro Economics |
| 5. Stonier and Hague | : | Micro Economics |
| 6. Salvatore | : | Micro economics |
| 7. Schaum Series | : | Micro economics |
| 8. Pyndick | : | Micro economics |
| 9. Gregory Mankiw | : | Principles of Micro Economics |

B.A. (ECONOMICS) SYLLABUS
Semester - II
MACRO ECONOMICS
Discipline Specific Course - Paper - II

Module-I: Introduction

Meaning, Scope and Limitations of Macro Economics. National Income: Concepts, Methods of Measurement and Difficulties in Estimation of National Income and Limitations National Income as a Measure of Welfare. Social Accounting

Module-II: Theories of Output and Employment

The Classical Theory of Employment (Say's Law and Pigou's Wage cut Policy) and Criticism, Keynesian Theory: Effective Demand, Aggregate Demand and Aggregate Supply Function, Consumption Function: Factors influencing consumption function, Investment Multiplier its relevance in emerging economies. Concept of Accelerator

Module- III: Investment & Theories of Interest Rate

Capital and Investment: Types of Investment, Determinants of level of Investment, MEC Ex-Post and Ex- Ante Investment and Savings- Classical, Neo-classical. And Keynesian Theories of Interest. Liquidity Trap, Simultaneous Determination of Interest and Real Income through IS-LM Framework in a closed Economy

Module- IV: Supply of Money & Demand for Money

Definition of Money - Money Supply: Measures of Money Supply (M1, M2, M3 & M4) - RBI approach to money supply; High powered money and money multiplier; Control of money supply. Variations in money supply in India. Theories of demand for money - Classical and Neo Classical approaches, Keynes liquidity preference approach. Derivation of LM curve.

Module -V: Inflation & Business Cycles

Definition of Inflation: Causes, consequences and control of inflation -Deflation and stagflation. Nature, Characteristics and Phases of Business Cycles. Samuelson's Business Cycle Theory. Stock market-meaning, functions; Insurance-Life insurance and General Insurance

References:

1. Ackley, G (1976) : Macro Economic theory and policy, Macmillan Publishing Co, New York.
2. Shapiro, E (1996) : Macro economic Analysis, Galgotia Publication, New Delhi
3. Keynes JM (1936) : The General Theory of Employment, Interest and money, Macmillan London
4. MC Vaish : Macro economic theory
5. HL Ahuja : Macro economic theory policy

Model Question Paper for UG Arts, Commerce, Social Sciences
Courses / Papers with 4 Credits

Section – A (5 x 4 = 20 Marks)
(Short Answer Type)

Answer any FIVE of the following questions:

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

Section – B (4 x 15 = 60 Marks)
(Essay Answer Type)

Answer ALL questions from the following:

9 (a)

OR

(b)

10 (a)

OR

(b)

11 (a)

OR

(b)

12 (a)

OR

(b)

**Model Question Paper for UG Arts, Commerce, Social Sciences
Courses / Papers with 5 Credits**

**Section – A (5 x 4 = 20 Marks)
(Short Answer Type)**

Answer any FIVE of the following questions.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

**Section – B (5 x 12 = 60 Marks)
(Essay Answer Type)**

Answer ALL from the following questions.

9 (a)

OR

(b)

10 (a)

OR

(b)

11 (a)

OR

(b)

12 (a)

OR

(b)

13 (a)

OR

(b)



Department of English
Osmania University

CBCS General English Syllabus (with effect from 2016-17)

Total Credits = 20

(5 credits per semester for first four semesters)

Total hours of instruction = 5 per week

Prescribed General English Text Book for I Year (Sem-I & Sem-II) for B.A/B.Sc/B.Com

Title: *English Made Easy* published by Orient Blackswan

Editors: Prof. E. Suresh Kumar, Prof. Sumita Roy and Prof. A. Karunaker

Semester I

5 Credits

- Unit I** **SHORT FICTION:** "The Curb in the Sky" by James Thurber—**PRONUNCIATION:** consonant sounds— **GRAMMAR:** noun—**VOCABULARY:** roots, prefix and suffix—**SPELLING:** wrong spellings—**PUNCTUATION:** capitalization— **CONVERSATION:** introducing oneself in formal /social contexts—**READING:** biography of Chindula Yelamma, a Telangana Artisan— **WRITING:** guided writing & expansion —**SOFT SKILLS:** motivation and goal setting— **VALUES:** "Well begun is half done"
- Unit II** **PROSE:** "Happy People" by W.R. Inge— **PRONUNCIATION:** vowels-monophthongs—**GRAMMAR:** pronoun—**VOCABULARY:** roots, prefix & suffix— **SPELLING:** 'un' and 'dis' for antonyms— **PUNCTUATION:** capitalization— **CONVERSATION:** starting & controlling a conversation—**READING:** Million March—An Initiative for Statehood— **WRITING:** sequencing— **SOFT SKILLS:** self confidence— **VALUES:** "Doubt is the beginning of wisdom"
- Unit III** **POETRY:** "A Psalm of Life" by Henry Wadsworth Longfellow— **PRONUNCIATION:** vowels-diphthongs—**GRAMMAR:** auxiliary verbs— **VOCABULARY:** homonyms, homographs, homophones— **SPELLING:** words ending 'tion' or 'sion'— **PUNCTUATION:** full stop and comma— **CONVERSATION:** describing your college and course of study— **READING:** Batukamma: Telangana's Cultural Identity— **WRITING:** paragraph, descriptive writing— **SOFT SKILLS:** non-verbal communication/body language— **VALUES:** "Actions speak louder than words"
- Unit IV** **DRAMA:** "The Dear Departed" (an extract) by Stanley Houghton— **PRONUNCIATION:** varied pronunciations of the same letter— **GRAMMAR:** main verbs and tenses— **VOCABULARY:** collocation— **SPELLING:** words ending 'tion' or 'ment'— **PUNCTUATION:** question and exclamation marks— **CONVERSATION:** leaving a message on the answering machine, making an appointment on telephone— **READING:** Husain Sagar Lake: A Well known Tourist Attraction— **WRITING:** dialogue writing— **SOFT SKILLS:** interpersonal skills— **VALUES:** "Faith will move mountains"
- Unit V** **Language & Soft Skills Lab:** Pronunciation, Conversation, Reading, Soft Skills and Values

- Unit I** **SHORT FICTION:** "A Visit of Charity" by Eudora Welty— **PRONUNCIATION:** plosives— **GRAMMAR:** non-finite verbs— **VOCABULARY:** simile and metaphor— **SPELLING:** use of 'ie' and 'ei'— **PUNCTUATION:** semicolon— **CONVERSATION:** asking for advice/information— **READING:** Hyderabad city: the heart of Telangana— **WRITING:** note taking and note making— **SOFT SKILLS:** time management— **VALUES:** "Time and tide wait for no one"
- Unit II** **PROSE:** "Benaras" by Aldous Huxley— **PRONUNCIATION** n: fricatives— **GRAMMAR:** adjective— **VOCABULARY:** oxymoron and hyperbole— **SPELLING:** use of 'able' and 'ible'— **PUNCTUATION:** colon and long dash— **CONVERSATION:** making/accepting/refusing a request— **READING:** Burrakatha— **WRITING:** informal letter— **SOFT SKILLS:** leadership— **VALUES:** "The pen is mightier than the sword"
- Unit III** **POETRY:** "The Sun is Warm" by P.B Shelley— **PRONUNCIATION:** affricates and nasals— **GRAMMAR:** articles— **VOCABULARY:** portmanteau words, loan words— **SPELLING:** use of '-ic', '-ive', '-ity', '-al' '-ance', '-ence'— **PUNCTUATION:** hyphen and long dash— **CONVERSATION:** Conducting a meeting/seeking opinion of team members— **READING:** Cultural identity of Telangana— **WRITING:** formal letter— **SOFT SKILLS:** stress management— **VALUES:** "Practice makes one perfect"
- Unit IV** **DRAMA:** An extract of Act II, Sc 3 from *Julius Caesar* by Shakespeare— **PRONUNCIATION:** Lateral, frictionless continuants, semi vowels—**GRAMMAR:** adverb— **VOCABULARY:** palindromes— **SPELLING:** changes of spelling from noun-verb-adjective-adverb— **PUNCTUATION:** inverted commas— **CONVERSATION:** Appearing for a job interview/conducting a job interview— **READING:** Handicrafts of Telangana— **WRITING:** business letter— **SOFT SKILLS:** etiquette and grooming— **VALUES:** "Necessity is the mother of invention"
- Unit V** **Language & Soft Skills Lab:** Pronunciation, Conversation, Reading, Soft Skills and Values



Department of English
Osmania University

Course Structure under the Reorganized CBCS
(with effect from AY 2019-20)

Subject: English (First Language)

BA/BSc/BCom and other UG Courses

Course Objectives

The 20-credit, six-semester course seeks to enhance the English language skills of undergraduate students by

- Strengthening their grammar and vocabulary
- Improving their reading and writing skills
- Enhancing their listening and speaking skills
- Imparting to them important life skills and human values
- Encouraging them to think creatively and critically
- Exposing them to a variety of content-rich texts
- Expanding their emotional intelligence
- Developing gender sensitivity among them.

Course Outcomes

On successful completion of the 20-credit, six-semester course, an undergraduate student will be able to

- Read, understand, interpret a variety of written texts
- Undertake guided and extended writing using appropriate vocabulary and correct grammar
- Listen with comprehension and speak with confidence in both formal and informal contexts with reasonable fluency and acceptable pronunciation
- Become employable with requisite professional skills, ethics and values.

Credits, Syllabus, and Instructional Hours

Semester	Number of Credits	Number of Units	Instruction (Clock hours per week)
I	4	4	4
II	4	4	4
III	3	3	3
IV	3	3	3
V	3	3	3
VI	3	3	3
Total	20	20	20

Am
16/7/19
Chairperson
Board of Studies (UG & PG)
Department of English
Osmania University
HYDERABAD-500007



Department of English
Osmania University

Subject: English (First Language)

BA/BSc/BCom and other UG Courses

Prescribed Text Book for Semesters I and II: *English Made Easy*. Editors: E. Suresh Kumar, Sumita Roy and A. Karunaker. Orient Blackswan, 2016.

Semester I

Lesson 1

SHORT FICTION: "The Curb in the Sky" by James Thurber – PRONUNCIATION: Consonant sounds – GRAMMAR: Noun – VOCABULARY: Word roots, prefixes and suffixes – SPELLING: Commonly misspelt words – PUNCTUATION: Capitalisation – CONVERSATION: Introducing yourself in a formal situation – READING PASSAGE: Chindula Yelamma – WRITING: Expansion of a sentence into a paragraph – SOFT SKILLS: Motivation and goal setting – VALUE ORIENTATION: Well begun is half done

Lesson 2


PROSE: "Happy People" by William Ralph Inge – PRONUNCIATION: Vowels: monophthongs – GRAMMAR: Pronoun – VOCABULARY: Word roots, prefixes, suffixes – SPELLING: Forming antonyms using *un-* and *dis-* – PUNCTUATION: Capitalisation – CONVERSATION: Starting and sustaining a conversation – READING PASSAGE: The Million March – WRITING: Sequencing – SOFT SKILLS: Self-confidence – VALUE ORIENTATION: Doubt is the beginning of wisdom

Lesson 3

POETRY: "A Psalm of Life" by Henry Wadsworth Longfellow – PRONUNCIATION: Vowels: diphthongs – GRAMMAR: Auxiliary verbs – VOCABULARY: Homonyms, homographs, homophones – SPELLING: Words ending in *-tion* and *-sion* – PUNCTUATION: Full stop and comma – CONVERSATION: Describing your college and course of study – READING PASSAGE: *Bathukamma* – WRITING: Descriptive writing – SOFT SKILLS: Non-verbal communication and body language – VALUE ORIENTATION: Actions speak louder than words

Lesson 4

DRAMA: "The Dear Departed" (an extract) by Stanley Houghton – PRONUNCIATION: Letters with varied pronunciations – GRAMMAR: Main verbs and tenses – VOCABULARY: Collocations – SPELLING: Words ending in *-tion* and *-ment* – PUNCTUATION: Question mark and exclamation mark – CONVERSATION: Leaving a voicemail, making an appointment over phone – READING PASSAGE: Husain Sagar – WRITING: Dialogue writing – SOFT SKILLS: Interpersonal skills – VALUE ORIENTATION: Faith can move mountains.


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Semester II

Lesson 5

SHORT FICTION: "A Visit of Charity" by Eudora Welty – PRONUNCIATION: Plosive – GRAMMAR: Non-finite verbs – VOCABULARY: Simile and metaphor – SPELLING: Use of *ie* and *ei* – PUNCTUATION: Semicolon – CONVERSATION: Asking for information – READING PASSAGE: Hyderabad – WRITING: Note-making – SOFT SKILLS: Time management – VALUE ORIENTATION: Time and tide wait for no one

Lesson 6


PROSE: "Benares" by Aldous Huxley – PRONUNCIATION: Fricative – GRAMMAR: Adjective – VOCABULARY: Oxymoron and hyperbole – SPELLING: Words ending in *-able* or *-ible* – PUNCTUATION: Colon and em-dash – CONVERSATION: Requests – READING PASSAGE: *Burrakatha* – WRITING: Informal letters – SOFT SKILLS: Leadership – VALUE ORIENTATION: The pen is mightier than the sword

Lesson 7

POETRY: 'Stanzas Written in Dejection, Near Naples' by Percy Bysshe Shelley – PRONUNCIATION: Affricate and nasal – GRAMMAR: Article – VOCABULARY: Portmanteau words and loan words – SPELLING: Words ending in *-al*, *-ance*, *-ence*, *-ic*, *-ity*, and *-ive* – PUNCTUATION: Hyphen – CONVERSATION: Conducting a meeting – READING PASSAGE: 'Flower boat' by Sunkara Ramesh – WRITING: Formal letters – SOFT SKILLS: Stress management – VALUE ORIENTATION: Practice makes perfect

Lesson 8

DRAMA: Shakespeare Retold: *Julius Caesar* (extract) – PRONUNCIATION: Approximant – GRAMMAR: Adverb – VOCABULARY: Palindromes – SPELLING: Derived forms of words – PUNCTUATION: Inverted comma – CONVERSATION: Interview skills – READING PASSAGE: The handicrafts of Telangana – WRITING: Formal letters – SOFT SKILLS: Etiquette and grooming – VALUE ORIENTATION: Necessity is the mother of invention.


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HYDERABAD 500 007.



Department of English
Osmania University

Reorganized CBCS Curriculum with effect from AY 2019-20

Subject: English (First Language)

Question Paper Pattern

(Semesters I & II)

Time: 3 Hours

Max Marks: 80

Note: All questions in Section A and B are to be based on the lessons and exercises included in the prescribed textbook.

Section A
(4 x 5 marks = 20 marks)

6 questions to be set. Any 4 to be answered.

- Q 1-4 to be based on the following components of Units I-IV
 - Pronunciation, Grammar, Vocabulary, Spelling, Punctuation
- Q 5 to be based on the following component of Units I-IV
 - Writing
- Q 6 to be based on the following components of Units I-IV
 - Soft Skills, Value Orientation

Section B
(4 x 15 marks = 60 marks)

Qs 7-10 will have internal choice. Students can answer either A or B.

- Q 7 A & B to be based on the following component of Unit I
 - Short fiction
- Q 8 A & B to be based on the following component of Unit II
 - Prose
- Q 9 A & B to be based on the following component of Unit III
 - Poetry
- Q 10 A & B to be based on the following component of Unit IV
 - Drama


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Course Structure under the Revised CBCS
(with effect from AY 2019-20)

Subject: Optional English

Optional	I Sem	II Sem	III Sem	IV Sem	V Sem	VI Sem	Credits
English (Core)	Introduction to English Language and Literature (5 Credits)	English Poetry (5 Credits)	English Drama (5 Credits)	English Fiction (5 Credits)			20
English Discipline Specific Elective (DSE)					A) Modern Indian Literatures (5 Credits) B) Women's Writing (5 Credits)	A) American Literature (5 Credits) Contemporary World Literature (5 Credits)	10
English Generic Elective (GE)					English for Academic and Professional Purposes (4 Credits)		4
English Project/ Paper						Project / Literary Criticism and Theory (4 Credits)	4
					Total Credits		38

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Subject: Optional English

Semester I

Paper I: Introduction to English Language and Literature
(Core)

5 Credits

5 Hours of teaching per week

Unit I: History of the English Language

- a) Origin and descent of the English language
- b) Features of Old English
- c) Features of Middle English
- d) Features of Modern English

Unit II: Structure of the English Language

- a) Processes of Word Formation
- b) Processes of Change of Meaning
- c) Sentence Structure I: Simple and Compound sentences and their constituents
- d) Sentence Structure II: Complex sentence and its constituents

Unit III: Figures of Speech

- a) Euphemism
- b) Hyperbole
- c) Irony
- d) Metaphor
- e) Metonymy
- f) Oxymoron
- g) Paradox
- h) Personification
- i) Simile
- j) Synecdoche

Unit IV: Elements of Literature

- a) Atmosphere
- b) Character
- c) Imagery
- d) Narrative technique
- e) Plot
- f) Point of view
- g) Setting
- h) Story
- i) Symbolism
- j) Tone

Unit V: Literary Movements

- a) Renaissance and Reformation
- b) Neo-Classicism
- c) Romanticism
- d) Pre-Raphaelitism
- e) Modernism

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Suggested Reading

- Abrams, MH. *A Glossary of Literary Terms*. Wadsworth, 1957.
Baugh, A.C., and Thomas Cable. *A History of the English Language*. Routledge, 2002.
Boulton, Marjorie. *The Anatomy of Poetry*. Routledge and Kegan Paul, 1953.
---. *The Anatomy of Drama*. Routledge and Kegan Paul, 1960.
Bryson, Bill. *The Mother Tongue: English and how it got that way*. Avon Books, 1991.
Crystal, David. *The Stories of English*. Penguin, 2005.
Cuddon, J.A. *A Dictionary of Literary Terms*. Viva Books, 1998.
Daiches, David. *A Critical History of English Literature*. Secker & Warburg, 1968.
Gray, Martin. *A Dictionary of Literary Terms*. Pearson, 2008.
Hudson, WH. *An Introduction to the Study of Literature*. Rupa, 2015.
Jespersen, O. *Growth and Structure of the English Language*. Blackwell, 1991.
Kreutzer, James. *Elements of Poetry*. Macmillan, 1971.
Lemon, Lee T. *A Glossary for the Study of English*. OUP, 1974.
Seturaman, VS, et al. Ed. *Practical Criticism*. Macmillan, 2000.
Wood, F. T. *An Outline History of the English Language*. Macmillan, 2000.

Semester II
Paper II: English Poetry
(Core)

5 Credits

5 Hours of teaching per week

Unit I: Forms of Poetry

- a) Ballad
- b) Dramatic monologue
- c) Elegy
- d) Epic
- e) Ode
- f) Sonnet

Unit II: 16th - 17th Century Poetry

Edmund Spenser

"One day I wrote her name upon the
strand" (Sonnet 75)

John Milton

Lycidas

John Donne

"The Anniversary"

Unit III: 17th - 18th Century Poetry

Alexander Pope

"Ode on Solitude"

Thomas Gray

"Hymn to Adversity"

William Blake

"London"

Unit IV: 18th - 19th Century Poetry

William Wordsworth


"Three Years She Grew"

John Keats

"Ode to a Nightingale"

Robert Browning

"My Last Duchess"


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Unit V: 19th - 20th Century Poetry

WB Yeats

TS Eliot

Philip Larkin

"The Second Coming"

"Love Song of Alfred J Prufrock"

"Toads"

Suggested Reading

- Boulton, Marjorie. *The Anatomy of Poetry*. Routledge and Kegan Paul, 1953.
Childs, Peter. *Modernism*. New Critical Idiom Series. Routledge, 2003.
Day, Aidan. *Romanticism*. New Critical Idiom Series. Routledge, 2003.
Cox, CB and AE Dyson. *Practical Criticism of Poetry*. Hodder, 1965.
Daiches, David. *A Critical History of English Literature*. Allied Books, 1980.
Eagleton, Terry. *How to Read a Poem*. Blackwell, 2007.
Fenton, James. *An Introduction to English Poetry*. Penguin, 2003.
Ferguson, Margaret et al. Ed. *The Norton Anthology of Poetry*. WW Norton, 2005.
Gardner, Helen. Ed. *Metaphysical Poets*. Penguin, 1957.
Kreutzer, James. *Elements of Poetry*. Macmillan, 1971.
O'Neill, Michael. Ed. *The Cambridge History of English Poetry*. CUP, 2010.
Padel, Ruth. *52 Ways of Looking at a Poem*. Vintage, 2004.
Seturaman, VS, et al. Ed. *Practical Criticism*. Macmillan, 2000.

Testing Pattern in the Revised CBCS
(With effect from AY 2019-20)

Subject: Optional English

Semesters I & II

- I Internal Assessment: 20 marks**
- II End-Semester Exam: 80 marks**
- Section I: 8 short answer Qs to be set. 5 to be answered.
5 x 4 marks each = 20 marks
 - Section II: 5 long answer Qs with internal choice to be set.
5 x 12 marks each = 60 marks

Note: Questions should cover all units. In Section I, Q 1 to be based on Unit I, Q 2 on Unit II and so on. In Section II, Q 9 A & B to be based on Unit I, Q 10 A & B to be based on Unit II and so on.

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Reorganized CBCS
(with effect from AY 2019-20)

Subject: Optional English

Semester I (Core)
Question Paper Pattern

Course Title: Introduction to English Language and Literature

Time: 3 hrs

Max Marks: 80

Section A
(5 x 4 marks = 20 marks)

8 questions to be set. Any 5 to be answered.

Q 1 to be based on the components of Unit I

Q 2 to be based on the components of Unit II

Q 3 to be based on the components of Unit II

Q 4 to be based on the components of Unit IV

Q 5 to be based on the components of Unit V

Qs 6, 7, 8 to be based on the components of Units I-V

Section B
(5 x 12 marks = 60 marks)

(Qs 9-13 will have internal choice. Students can answer either A or B)

Q 9 A & B to be based on the components of Unit I

Q 10 A & B to be based on the components of Unit II


Q 11 A & B to be based on the components of Unit III

- 11 A should test two figures of speech
- 11 B should test two other figures of speech

Q 12 A & B to be based on the components of Unit IV

- 12 A should test two elements of literature
- 12 B should test two other elements of literature

Q 13 A & B to be based on the components of Unit V


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Reorganized CBCS
(with effect from AY 2019-20)

Subject: Optional English

Semester II (Core)
Question Paper Pattern

Course Title: English Poetry

Time: 3 hrs

Max Marks: 80

Section A
(5 x 4 marks = 20 marks)

- Q 1 to be based on the topics in Unit I
- Q 2 to be based on the texts in Unit II
- Q 3 to be based on the texts in Unit III
- Q 4 to be based on the texts in Unit IV
- Q 5 to be based on the texts in Unit V
- Qs 6, 7, 8 are to be based on the texts in Units II-V

Section B
(5 x 12 marks = 60 marks)

(Qs 9-13 will have internal choice. Students can answer either A or B)

- Q 9 A & B to be based on the topics in Unit I
 - 9 A should test two forms of poetry
 - 9 B should test two other forms of poetry
- Q 10 A & B to be based on the texts in Unit II
- Q 11 A & B to be based on the texts in Unit III
- Q 12 A & B to be based on the texts in Unit IV
- Q 13 A & B to be based on the texts in Unit V

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Course Code	Course Title				Core / Elective		
HS201EG	Effective Technical Communication in English				Humanities and Social Sciences		
Prerequisite	Contact Hours per Week				CIE	SEE	Credits
	L	T	D	P			
-	3	-	-	-	30	70	3
<p>Course Objectives To expose the students to:</p> <ul style="list-style-type: none"> ➤ features of technical communication ➤ types of professional correspondence ➤ techniques of report writing ➤ basics of manual writing ➤ aspects of data transfer and presentations. <p>Course Outcome On successful completion of the course, the students would be able to handle technical communication effectively, having acquired adequate skills of technical writing and technical presentations.</p>							

UNIT I

Definition and Features of Technical Communication

- Definition and features of technical communication (precision, relevance, format, style, use of visual aids)
- Differences between general writing and technical writing
- Types of technical communication (oral and written)

UNIT II

Technical Writing-I (Official Correspondence)

- Emails
- IOM
- Business letters
- Business proposals

UNIT III

Technical Writing- II (Reports)

- Types of technical reports
- Feasibility report
- Project report
- Evaluation report

UNIT IV

Technical Writing- III (Manuals)

- Types of manuals
- User manual
- Product manual
- Operations manual

UNIT V

Information Transfer and Presentations

- Non-verbal (bar diagram, flow chart, pie chart, tree diagram) to verbal (writing)
- Verbal (written) to non-verbal
- Important aspects of oral and visual presentations

Suggested reading

1. Raman, Meenakshi & Sharma, Sangeeta. (2015). *Technical communication: Principles and practice* (3rd ed.). New Delhi, OUP.
2. Rizvi, Ashraf, M. (2017). *Effective technical communication* (2nd ed.). New Delhi, Tata McGraw Hill Education.
3. Sharma, R. C., & Mohan, Krishna. (2017). *Business Correspondence and Report Writing: A practical approach to business & technical communication* (4th ed.). New Delhi, Tata McGraw Hill Education.
4. Tyagi, Kavita & Misra, Padma. (2011). *Advanced technical communication*. New Delhi, PHI Learning.
5. Jungk, Dale. (2004). *Applied writing for technicians*. New York, McGraw-Hill Higher Education

Subject: **English (First Language)**

BA/BSc/BCom and other UG courses

With effect from: **AY 2021–22**

Prescribed textbook for Semesters I and II: *The English Turf*, edited by C. Muralikrishna and Y.L. Srinivas, published by Orient Blackswan, 2021.

SEMESTER I

Unit 1

POEM: ‘In the Bazaars of Hyderabad’ by Sarojini Naidu · PROSE: ‘The Eyes are Not Here’ by Ruskin Bond · VOCABULARY: Word Roots · GRAMMAR: Nouns · SPEAKING: Getting Someone’s Attention and Interrupting · POST-READING: Creativity

Unit 2

POEM: ‘If–’ by Rudyard Kipling · PROSE: ‘On Saying Please’ by A.G. Gardiner · VOCABULARY: Prefixes and Suffixes · GRAMMAR: Pronouns · SPEAKING: Giving Instructions and Seeking Clarifications · POST-READING: Interpersonal Skills

Unit 3

POEM: ‘Ulysses’ by Alfred Tennyson · PROSE: ‘Seeing People Off’ by Max Beerbohm · VOCABULARY: Homonyms, Homographs, Homophones · GRAMMAR: Adjectives · SPEAKING: Asking for and Giving Opinions · POST-READING: Motivation

Unit 4

POEM: ‘On His Having Arrived at the Age of Twenty-three’ by John Milton · PROSE: ‘Shyness My Shield’ by M.K. Gandhi · VOCABULARY: Collocation · GRAMMAR: Articles · SPEAKING: Agreeing and Disagreeing with Opinions · POST-READING: Self-analysis

SEMESTER II

Unit 5

POEM: 'The Felling of the Banyan Tree' by Dilip Chitre · PROSE: 'The Bet' by Anton Chekhov · VOCABULARY: Oxymoron and Hyperbole · GRAMMAR: Main Verbs and Tenses · WRITING: Paragraph Writing Essentials · POST-READING: Decision-making

Unit 6

POEM: 'A Walk by Moonlight' by Henry Derozio · PROSE: 'How the Coronavirus Sparked a Wave of Innovation in India' by Sreevas Sahasranamam · VOCABULARY: Loan Words · GRAMMAR: Auxiliary Verbs · WRITING: Sequencing · POST-READING: Holistic Health

Unit 7

POEM: 'A Different History' by Sujata Bhatt · PROSE: 'Nobel Lecture, 7 December 1993' (extract) by Toni Morrison · VOCABULARY: Portmanteau Words · GRAMMAR: Non-finite Verbs · WRITING: Descriptive Writing · POST-READING: Conflict Resolution

Unit 8

POEM: Lady Macbeth's Speech from *Macbeth* Act I, Scene 5 by William Shakespeare · PROSE: 'How I Became a Public Speaker' (abridged) by G.B. Shaw · VOCABULARY: Simile and Metaphor · GRAMMAR: Adverbs · WRITING: Argumentative Writing · POST-READING: Ethical Behaviour



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**Semesters V & VI
(With effect from AY 2021-22)**

Prescribed textbook for Semesters V & VI: *English in Action: A Textbook for College Students*. Eds. T Vijay Kumar, K Durga Bhavani, YL Srinivas. Macmillan, 2021.

Semester V

3 Credits

3 hrs of instruction per week

Unit I	Poem Prose Vocabulary Grammar	AK Ramanujan "Ecology" Henry Hitchings "What's the Language of the Future?" (Excerpt) Indianisms Framing Questions (including tag questions)
Unit II	Gender Sensitization A Note to the Teachers Prose Poem Prose Vocabulary Grammar	Jamaica Kincaid "Girl" Emma Watson "Gender equality is your issue too" Analogy and Odd Word Out Verbs
Unit III	Writing Reviews Vocabulary Grammar	Film Review, Book Review Technical vocabulary (Film, Literature) Conditionals

Semester VI

3 Credits

3 hrs of instruction per week

Unit IV	Poem Prose Vocabulary Grammar	Roald Dahl "Television" JK Rowling "The Fringe Benefits of Failure, and the Importance of Imagination" (Excerpt) One-word Substitutes Relative Clauses
Unit V	Gender Sensitization Poem Prose	Elizabeth Ralph Mertz "Accomplishments" Chimamanda Ngozi Adichie "Third Suggestion"

	Vocabulary Grammar	Formal and Informal Vocabulary Sentence Types
Unit VI	CV Writing Vocabulary Grammar	Chronological CV, Functional CV Appropriacy Common Errors