

TELANGANA STATE
B.A. HISTORY SYLLABUS
Semester - VI

(BA 606) Discipline Specific Elective - Paper – 1F -A
History and Culture of Telangana (From earliest times to 2014 CE)
(With Effect from 2021-2022)

- Module-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 Pappanna – Society, Economy and Culture; Fairs, Festivals, Folk, Batukamma, Bonalu, Urs, Moharram, etc. Telangana Food, Festivals, Arts, Folksongs, Symbols, Musical Instruments, Composite Culture.
- Module-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 Transportation 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.
- Module-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.
- Module-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)
- Module-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 Vedika – 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.

TELANGANA STATE
B.A. HISTORY SYLLABUS
Semester - VI
(BA 606) Discipline Specific Elective - Paper – 1F -B
Islamic History
(With Effect from 2021-2022)

- Module-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.
- Module-II: The Era of Pious Khalifas - Abu-Bakr-Umar - Further Expansion Achievements - The Struggle for Power between Syria and Al-Iraq and Hij'az - Administrative System under Khalifa - Causes for the Fall of Khalifas.
- Module-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.
- Module-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 NonPolitical 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 AlMamun - Later - Khalifas of Abbasid Dynasty - Al-Mutasm - War with the Byzantine Empire - Revolt of Tabaristan - The Buwaidis - Azad-ud-Daulla - 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.
- Module-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 - VI**

**BA 603 Project Work – I Optional: Cultural Tourism in India
(With Effect from 2021-2022)**

- Module-I: Concept of Tourism-Meaning –Nature-Scope Tourism as an Industry - Relevance of Tourism in Modern Times.
- Module-II: Natural Resources - Physical Features of India – Mountains – Hills – Rivers - Valleys – Forests - Climate – Deserts – Snow - Beaches - Flora and Fauna.
- Module-III: Archaeological and Historical Resources - Archaeological Sites - Pre-historic - Proto-historic Caves - Historical Sites - Ancient, Medieval and Modern Structures - Multi-Purpose Projects.
- Module-IV: Cultural Resources - Important Religions and Religious Centers – Shrines - Pilgrimages Fairs and Festivals - Centers of Yoga and Meditation - Indian Dance Forms - Music - Classical and Folk.
- Module-V: Handicrafts and Modern Centers - Various Types of Handicrafts - Cane Work - Pottery - Terra-cotta – Carpets - Textiles - Kalankari Brass – Silver - Stone Cutting - Sculpture – Costumes – Ornaments - Art of Cookery, Varieties of Food North Indian Dishes and South Indian Dishes - Art Galleries – Museums - Wild Life Sanctuaries – Zoos - Gardens etc..

Recommended Books:

- Mc. Intosh, Robert, W., Tourism, Principles, Practices & Philosophies, (Grid.Inc.Colombus, Ohxor,K)
- A.K. Bhatia, Tourism Development its Principles and Practices,
- A.B. Bhatia, Tourism in India, Sterling Publishers.
- Ram Acharya, Tourism in India.
- Allchin, F.R. Cultural Tourism in India: its Scope and Development, Department of Tourism, Government of India, New Delhi.
- Basham, A.L. The Wonder that was India, Rupa & Company, New Delhi, 1967.
- Burkart and Medlik, S. An outline of Tourism, Heinemann, London, 1976.
- Chris Copper, Tourism: Principles and Practice, Harlow, Longman, London, 1998.
- Dharmarajan, S & 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. A Satish Babu, Tourism Development in India.
- Messenger, Rob Allen, The Economics of Tourism, Routledge, London, 1997.
- Seth, P.N. Successful Tourism-Planning and Management, Cross Sections Publications, New Delhi, 19979.
- Subrahmaniam, K. S. Buddhism in South India and Early History of Andhra, Kondal Publicatins, Madras. Williams, Stephen, Tourism Geography, Routledge, London, 1998.

KAKATIYA UNIVERSITY - WARANGAL - TELANGANA
DEPARTMENT OF ENGLISH

Under Graduate Courses (Under CBCS 2021-2022 onwards)

GENERAL ENGLISH III-YEAR, VI- SEMESTER

B.A., B.Com. B.Sc., B.B.A., B.A(L).

PAPER - VI : ENGLISH

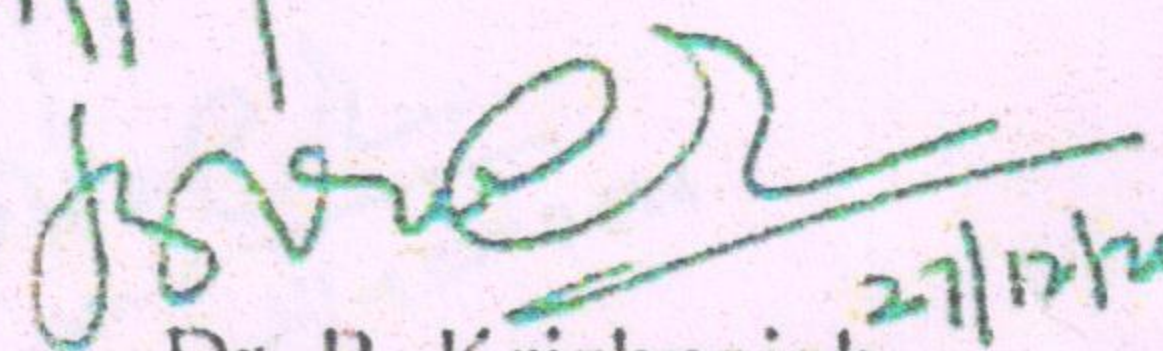
COMMUNICATION SKILLS
English for Employability skills

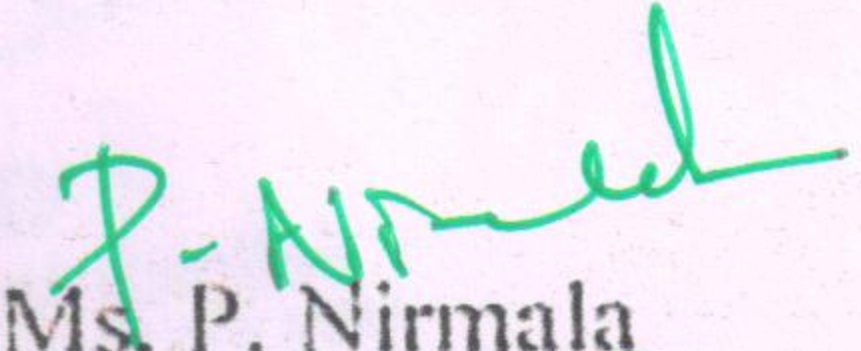
Theory: 3 Hours/Week: Credits: 3: Marks: 75 (Internal: 15; External: 60)

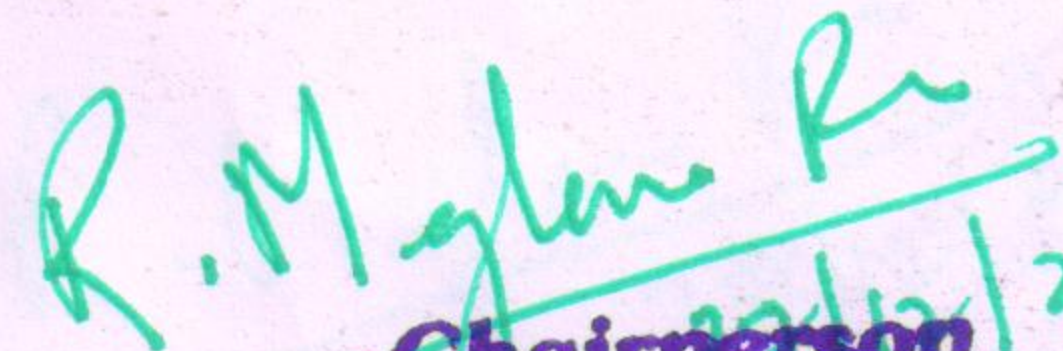
Unit 1	PROSE	Sreelakshmi Suresh
	POEM	For whom the Bell Tolls – John Donne
Unit 2	LANGUA GE	Official Letters
	PROSE	How Work can be Made Meaningful – Katie Bailey
	POEM	Teamwork – Edgar Albert Guest
Unit 3	LANGUA GE	Job Application Letters and Curriculum Vitae
	PROSE	How the Corona-virus Sparked a Wave of Innovation – Sreevas
	POEM	Sahasranamam
	POEM	See it through – Edgar Albert Guest
	LANGUA GE	Email etiquette

PRESCRIBED TEXTBOOK: *English for Careers: A Course book for Undergraduate Learners*

Eds. K. Purushotham, M. Rajeshwar and R. Meghana Rao. Published by Orient Blackswan, 2021.

Approved

27/12/2021
Dr. B. Krishnaiah
Dr. B. KRISHNAIAH
Assistant Professor
Department of English
Faculty of Humanities
University of Hyderabad
Hyderabad-500 046.


Ms. P. Nirmala
HEAD
Department of English
KAKATIYA UNIVERSITY
Warangal-506 009.
27/12/2021


R. Meghana Rao
Chairperson
Board of Studies in English
Kakatiya University
WARANGAL-506 009.
27/12/2021
25/12/2021

KAKATIYA UNIVERSITY
FACULTY OF SCIENCE
B.A./B.Sc. Life Science (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.



Dr. B. RAMA
Chairperson BOS
Department of Computer Science
KAKATIYA UNIVERSITY

KAKATIYA UNIVERSITY
FACULTY OF SCIENCE
B.A./B.Sc. Life Science (Computer Applications)
SEMESTER – VI
Web Technologies 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.
- 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.

Department of Computer Science, KU


Dr. B. RAMA
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Department of Computer Science
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With Effect from the Academic Year 2019-2020

Kakatiya University, Warangal.
Faculty of Commerce & Business Management,

B.Com. VI Semester - 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).
Contents of a Research Report. (Concepts only)

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. Reading in Research Methodology in Commerce & Business Management: Achalapathi KV,
6. Research Methodology: Sashi.K Gupta, Praneeth Rangi, 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.

 Prof. K. Raji Reddy	 Prof. P. Varalaxmi	 Dr. K. Rajender
 Dr. S. Narasimha Chary	 Mr. M. Somaiah	 Dr. S. Narayana Swamy
 Dr. Ramavath Ravi	 Dr. D. Thiruvengala Chary	 Dr. G. Shashidhar Rao

Kakatiya University, Warangal.
Faculty of Commerce & Business Management,

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: Conclusion and Suggestions: 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.


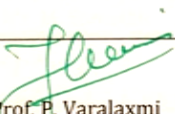
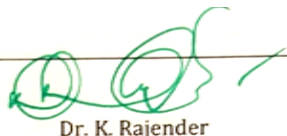






4) **3 bound copies & a soft-copy** should be handed in to the **principal/director of your college/institute** at the time of submission.

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.

 Prof. K. Raji Reddy	 Prof. P. Varalaxmi	 Dr. K. Rajender
 Dr. S. Narasimha Chary	 Mr. M. Somaiah	 Dr. S. Narayana Swamy
 Dr. Ramavath Ravi	 Dr. D. Thiruvengala Chary	 Dr. G. Shashidhar Rao

Kakatiya University, Warangal.
Faculty of Commerce & Business Management,
B.Com. VI Semester - 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. (Including Problems)

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. (Including Problems)

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. (Including Problems)

UNIT-IV: FUNDS FLOW ANALYSIS:

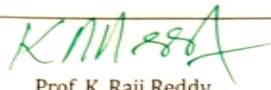
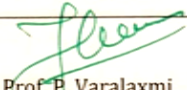







Concept of Funds – Meaning and Importance – Limitations – Statement of Changes in Working Capital – Statement of Sources and Application of Funds. (Including Problems)

UNIT-V: CASH FLOW ANALYSIS (AS-3):

Meaning – Importance – Differences between Funds Flow and Cash Flow Statements – Procedure for preparation of Cash Flow Statement. (Including Problems)

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

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Kakatiya University, Warangal.
Faculty of Commerce & Business Management,
B.Com. VI Semester - 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 - Determination of allocation base - Allocation of service department costs

UNIT IV: SUPPLY CHAIN MANAGEMENT AND BUSINESS PROCESS IMPROVEMENT:

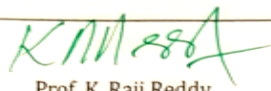
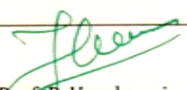







Supply chain management: Lean resource management techniques - Enterprise resource planning (ERP) - Theory of constraints - Capacity management and analysis - Business Process Improvement: Value chain analysis - Value-added concepts - Process analysis, redesign, and standardization - Activity-based management - 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. Management Accounting: An Integrative Approach; McNair-Connolly, C.J., Merchant, Kenneth A.; IMA

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Kakatiya University, Warangal.
Faculty of Commerce & Business Management,
B.Com. VI Semester - 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):


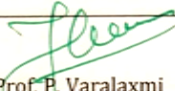





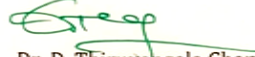
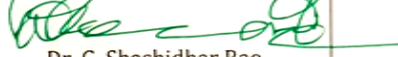
Business Combinations and Consolidations: Acquisitions - Non-controlling Interest - Intercompany Transactions - Variable Interest Entities (VIE) - Foreign currency: Remeasurement - Translation

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

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Faculty of Commerce & Business Management,

B.Com. VI Semester - 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):

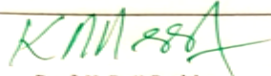
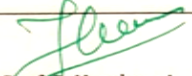







Introduction -Determination of supply of services -Determining the Place of Supply of Services - Enabling GST and Defining Tax Details-Transferring Input Tax credit to GST -Intrastate Supply of Goods - Intrastate Inward Supply-Intrastate Outward Supply -Interstate Supply -Interstate Outward Supply - 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.

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Faculty of Commerce & Business Management,

B.Com. VI Semester - 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 - Market structure considerations

UNIT III: RISK MANAGEMENT:

Enterprise Risk: Types of risk - Risk identification and assessment - Risk mitigation strategies - Managing risk

UNIT IV: INVESTMENT DECISIONS:

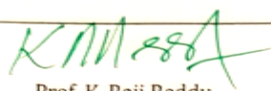
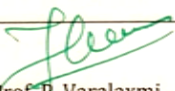





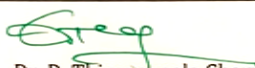

Capital budgeting process: Stages of capital budgeting - Incremental cash flows - Evaluating uncertainty - Capital investment method analysis: Net present value - Internal rate of return - Payback - Comparison of investment analysis methods

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

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Faculty of Commerce & Business Management,

B.Com. VI Semester - 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:

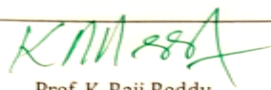
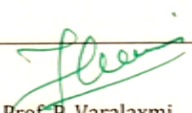
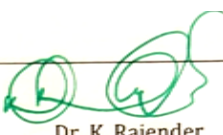





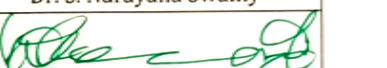
Audit Reports: Unmodified opinion - Unmodified Opinion with Emphasis-of-matter and/or Other-matter paragraph - Qualified Opinion - Adverse Opinion - Disclaimer of Opinion - Audit Reporting Considerations: Audit of Comparative financial statements - Supplementary Information - Audit of Group financial 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. Auditing: A Risk Based-Approach to Conducting a Quality Audit, Karla M Johnstone, Audrey A. Gramling and Larry E. Rittenberg, Cengage Learning

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Faculty of Commerce & Business Management,

B.Com. VI Semester - 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:

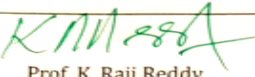
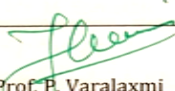





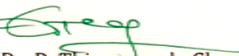

Ind AS-28: Investments in Associate and Joint Ventures - Ind AS-103: Business Combinations – Ind AS-110: Consolidated Financial Statements – Ind AS-111: Joint Arrangements – Ind AS- 112: Disclosure of interest in other entities

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

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Faculty of Commerce & Business Management,

B.Com. VI Semester - 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.

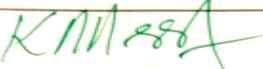
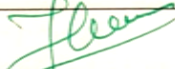






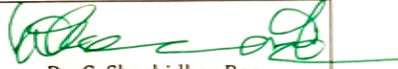
Guidance on Stakeholders and Shareholders Interest. Role of Top Management in Corporate Governance. Role of Auditors in Corporate. Role of Shareholders & Other Stakeholders in Corporate Governance.

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. Viyyanna Rao, Dr. G. Nagaraju I.K., International Publishing House Pvt. Ltd,
2. Corporate Governance,(2014), Bholanath Dutta 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

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Faculty of Commerce & Business Management,

B.Com. VI Semester - 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 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:

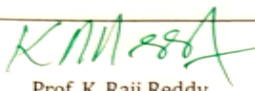
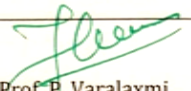






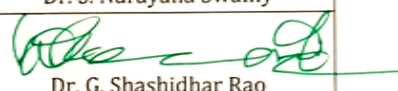
Concept - Techniques - Compounding Techniques - Doubling Period - Multiple Compounding Period - Present Value Techniques (Simple Problems).

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: Mashewari, PHI.
10. Security Analysis and Portfolio Management: Dhanesh Khatri, Trinity Press.

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Kakatiya University, Warangal.
Faculty of Commerce & Business Management,
B.Com. VI Semester - Paper DSE603a: MULTIMEDIA SYSTEMS
(Only for B.Com (Computer Applications))

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.

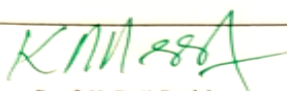
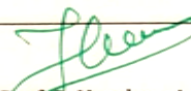





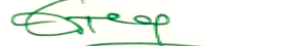

Synchronization: Issues, presentation requirements, reference to multimedia synchronization, MHEG.

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.

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Kakatiya University, Warangal.
Faculty of Commerce & Business Management,
B.Com. VI Semester - Paper DSE 603b: CYBER SECURITY
(Only for B.Com (Computer Applications))

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.

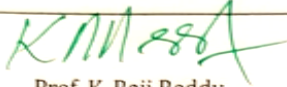
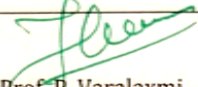





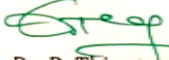

UNIT-V: CYBERSPACE AND THE LAW, CYBER FORENSICS:

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. Ramandeepkaurnagra, 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 linchtenstein, Cyber laws – Text and Cases,3e, Cengage learning

 Prof. K. Raji Reddy	 Prof. P. Varalaxmi	 Dr. K. Rajender
 Dr. S. Narasimha Chary	 Mr. M. Somaiah	 Dr. S. Narayana Swamy
 Dr. Ramavath Ravi	 Dr. D. Thiruvengala Chary	 Dr. G. Shashidhar Rao

Kakatiya University, Warangal.
Faculty of Commerce & Business Management,
B.Com. VI Semester - Paper DSE 603c: DATA ANALYTICS
(Only for B.Com (Computer Applications))

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:


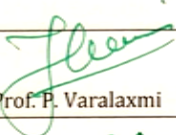







Mining Frequent itemsets – Market based model – Apriori Algorithm – Handling large data sets in Main memory – Limited Pass algorithm – Counting frequent itemsets in a stream – Clustering Techniques – Hierarchical – K- Means – Clustering high dimensional data – CLIQUE and PROCLUS – Frequent pattern based 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 analytics, John Wiley & sons, 2012.

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KAKATIYA UNIVERSITY
Under Graduate Courses (Under CBCS AY: 2021-2022 onwards)
B.Sc. STATISTICS
III Year :: Semester-VI

DSE-2(A)/Paper-6(A): Applied Statistics-II
[4 HPW :: 4 Credits :: 100 Marks (External : 80, Internal : 20)]

Unit-I

Analysis of Variance and Design of Experiments : Concept of Gauss-Markoff linear model with examples, statement of Cochran's theorem, ANOVA, one-way, two-way classifications with one observation per cell Expectation of various sums of squares, Statistical analysis, Importance and applications of design of experiments.

Unit-II

Principles of experimentation, Analysis of Completely randomized Design (C.R.D), Randomized Block Design (R.B.D) and Latin Square Design (L.S.D) including one missing observation, expectation of various sum of squares. Comparison of the efficiencies for above designs.

Unit-III

Vital statistics : Introduction, definition and uses of vital statistics. Sources of vital statistics, registration method and census method. Rates and ratios, Crude death rates, age specific death rate, standardized death rates, crude birth rate, age specific fertility rate, general fertility rate, total fertility rate. Measurement of population growth, crude rate of natural increase- Pearl's vital index. Gross reproductive rate sand Net reproductive rate, Life tables, construction and uses of life tables and Abridged life tables.

Unit-IV

Indian Official Statistics: Functions and organization of CSO and NSSO. Agricultural Statistics, area and yield statistics. National Income and its computation, utility and difficulties in estimation of national income.

Index Numbers : Concept, construction, uses and limitations of simple and weighted index numbers. Laspeyer's, Paasche's and Fisher's index numbers, criterion of a good index numbers, problems involved in the construction of index numbers. Fisher's index as an ideal index number. Fixed and chain base index numbers. Cost of living index numbers and wholesale price index numbers. Base shifting, splicing and deflation of index numbers.

References:

1. V.K. Kapoor and S.C. Gupta : Fundamentals of Applied Statistics. Sultan Chand
2. A. M. Goon, M. K. Gupta, B. Das Gupta : Fundamentals of Statistics, Vol - II
World Press Private Ltd, Calcutta
3. A. M. Goon, M. K. Gupta, B. Das Gupta : An outline of Statistical Theory, Vol- II,
World Press Private Ltd, Calcutta-17.

KAKATIYA UNIVERSITY
Under Graduate Courses (Under CBCS AY: 2021-2022 onwards)
B.Sc. STATISTICS
III Year :: Semester-VI

Practical-6(A): Applied Statistics - II

[with 3 HPW, Credits 1 and Marks 25]

Practical (using R-Software and MS-Excel)

1. Generation Random Samples from the Uniform, Binomial, Poisson, Normal and Exponential distributions using R.
2. Fitting of straight line, parabola and power curves of the type $y = ax^b$, $y = ab^x$ and $y = a e^{bx}$ using R.
3. Large sample tests : Testing population means, proportions, variances based on single and two samples using R.
4. Parametric Tests : Testing means, variances based on single and two samples using R.
5. Tests based on χ^2 distribution using R.
6. Nonparametric Tests : one sample run test, Sign test and Wilcoxon signed rank test for one and two samples using R.
7. Nonparametric Tests : Median test, Wilcoxon-Mann Whitney U-test, Wald-wolfowitz's runs test using R.
8. Analysis of Variance for CRD and RBD data using R and MS - Excel.
9. Analysis of Variance for RBD without and with one missing observation using R and MS - Excel.
10. Analysis of Variance for LSD without and with one missing observation using R and MS - Excel.
11. Computation of Morality rates, Fertility rates and Reproduction rates using MS-Excel.
12. Construction of life tables using MS-Excel.

KAKATIYA UNIVERSITY
Under Graduate Courses (Under CBCS AY: 2021-2022 onwards)
B.Sc. STATISTICS
III Year :: Semester-VI

DSE-2(B)/Paper-6 (B) : Analytical Statistics-II
[4 HPW:: 4 Credits :: 100 Marks (External : 80, Internal : 20)]

Unit-I

Multivariate distributions: Introduction, concept of Multivariate, Definitions and Statements of properties of Multinomial and Multivariate Normal Distributions.

Regression Analysis: Definition, procedure of Least square estimation, methods of analysis and interpretation, Simple Linear Regression and Multiple Linear Regression for 'n' variables : estimation of parameters, Lack of fit, Mean Square Error, R^2 and adjusted R^2 values, Testing Regression coefficients.

Logistic regression: Definition and model assumptions, estimation of parameters, statements of properties for simple and Multiple Logistic regression. Interpretation of the same.

Unit-II

Multivariate Data Analysis Techniques : Definitions, Statements of properties of Principal Component Analysis, Factor Analysis, Cluster analysis and Linear Discriminant Analysis (Bayesian and Fisher's approaches), Multi-dimensional Scaling, Applications and interpretation of above techniques to Image processing / pattern recognition.

(In first two Units emphasis will be on concepts and applications of techniques only.)

Unit-III

Vital statistics : Introduction, definition and uses of vital statistics. Sources of vital statistics, registration method and census method. Rates and ratios, Crude death rates, age specific death rate, standardized death rates, crude birth rate, age specific fertility rate, general fertility rate, total fertility rate. Measurement of population growth, crude rate of natural increase- Pearl's vital index. Gross reproductive rate and Net reproductive rate, Life tables, construction and uses of life tables and Abridged life tables.

Unit-IV

Indian Official Statistics: Functions and organization of CSO and NSSO. Agricultural Statistics, area and yield statistics. National Income and its computation, utility and difficulties in estimation of national income.

Index Numbers : Concept, construction, uses and limitations of simple and weighted index numbers. Laspeyer's, Paasche's and Fisher's index numbers, criterion of a good index numbers, problems involved in the construction of index numbers. Fisher's index as an ideal index number. Fixed and chain base index numbers. Cost of living index numbers and wholesale price index numbers. Base shifting, splicing and deflation of index numbers.

References:

1. E-Book : <https://onlinelibrary.wiley.com/doi/book/10.1002/9781118391686>
2. V.K.Kapoor and S.C.Gupta : Fundamentals of Applied Statistics. Sultan Chand
3. Johnson and Wrichon : Multivariate Analysis.
4. Pratirupa Sidhanthamulu , Telugu Academy,
5. Prayoga Rachana and Visleshana, Telugu Academy.



KAKATIYA UNIVERSITY
Under Graduate Courses (Under CBCS AY: 2021-2022 onwards)
B.Sc. STATISTICS
III Year :: Semester-VI

Practical-6 (B): Analytical Statistics - II
[with 3 HPW, Credits 1 and Marks 25]

Practical (using R-Software)

1. Generation Random Samples from the Uniform, Binomial, Poisson, Normal and Exponential distributions using R.
2. Fitting of straight line, parabola and power curves of the type $y = a x^b$, $y = a b^x$ and $y = a e^{bx}$ using R.
3. Large sample tests : Testing population means, proportions, variances based on single and two samples and tests based on χ^2 distribution using R.
4. Parametric Tests : Testing means, variances based on single and two samples using R.
5. Nonparametric Tests : one sample run test, Sign test and Wilcoxon sign rank test for one and two samples, Median test, Wilcoxon Mann Whitney - U test, Wald - Wolfowitz's runs test using R.
6. Principal Component Analysis using R.
7. Factor Analysis using R.
8. Cluster analysis and Linear Discriminant analysis using R.
9. Model fitting by Simple and Multiple Linear Regression methods using R.
10. Model fitting by simple Logistic regression using R.
11. Computation of Morality rates, Fertility rates and Reproduction rates using R.
12. Construction of life tables using R.

Question Papers Pattern

(A) Final Examination:

KAKATIYA UNIVERSITY
B.Sc. (STATISTICS)
Theory Question Paper Pattern
Academic Years: 2019-2022

Time: 3 hours]

[Max. Marks: 80

Section - A

Answer ALL questions. All questions carry equal marks. (4Qx12m=48)

Q1. (a)

[OR]

From Unit-I

Q1. (b)

Q2. (a)

[OR]

From Unit-II

Q2. (b)

Q3. (a)

[OR]

From Unit-III

Q3. (b)

Q4. (a)

[OR]

From Unit-IV

Q4. (b)

Section - B

Answer any EIGHT questions. All questions carry equal marks. (8Qx4m=32)

Q5

Q6

Q7

}
}
}

From Unit-I

Q8

Q9

Q10

}
}
}

From Unit-II

Q11

Q12

Q13

}
}
}

From Unit-III

Q14

Q15

Q16

}
}
}

From Unit-IV

KAKATIYA UNIVERSITY
B.Sc. (STATISTICS)
Practical Question Paper Pattern
Academic Years: 2019-2022

Time: 2 hours]

[Max. Marks: 25

[Practical:15, Record:5, Viva:5]

Note: Solve any **THREE** problems choosing at least one from each Section

Section-A (Solve Using Calculator)

Problem. 1 }
Problem. 2 } From Part-I of Question Bank
Problem. 3 }

Section - B (Solve Using Computer Programs)

Problem. 4 }
Problem. 5 } From Part-2 of Question Bank

(B) Internal Examinations:

- 1 Two Internal exams are to be conducted and best of two internal marks is considered.
- 2 First internal exam is to be conducted after completion of Unit-I & II.
- 3 Second internal exam is to be conducted after completion of Unit-III & IV.
- 4 Internal Examination duration: 1 hr 30 min.
- 5 Internal Theory QP consists of 20 marks.
- 6 10 Short questions are to be given (5Q from each of 2 Completed units).
- 7 All TEN questions are to be answered (10QX2m=20m).

Prof A Rajendra Prasad
Chairperson, BOS in Statistics, KU

KAKATIYA UNIVERSITY
Under Graduate Courses (Under CBCS 2020 – 2021 onwards)
B.SC. BIOTECHNOLOGY III YEAR
SEMESTER – VI

Elective Course DSE-6

ENVIRONMENTAL BIOTECHNOLOGY
(ELECTIVE - a)

UNIT-I

- 1.1.Introduction to environment and pollution.
- 1.2.Types of pollution- air, water and land pollution.
- 1.3.Types of pollutants- inorganic, organic and biotic sources.
- 1.4.Sources of pollution- domestic waste, agriculture waste, industrial effluents, municipal waste.
- 1.5. Biomonitoring of environmental pollutants by bioindicators.
- 1.6. Emission control biotechnology - air sampling techniques

UNIT-II

- 2.1. Renewable and non renewable energy resources.
- 2.2.Fossil fuels as energy source and their impact on environment.
- 2.3.Non conventional source- biomass as source as bio energy.
- 2.4.Types of biomass- plant, animal and microbial biomass.
- 2.5.Biodelignification by enzymes.
- 2.6.Biodesulphurisation of coal.

UNIT-III

- 3.1. Microbial treatment of waste water (sewage of industrial effluents)- aerobic and anaerobic methods.
- 3.2. Solid waste and management- bioremediation- concepts and types (insitu and exsitu).
- 3.3. Bioremediation of toxic metal ions- bio sorption and bioaccumulation.
- 3.4. Microbial bioremediation of pesticides and xenobiotic compounds.
- 3.5. Phytoremediation- concepts and applications.
- 3.6. Degradative plasmids and genes in biomining.

UNIT-IV

- 4.1.Climate change, Green house gases and global warming.
- 4.2.Impact of pollution on environment and measurement methods.
- 4.3.Production of bio fuels, Bio ethanol and Bio methanol.
- 4.4.Conservation of Biodiversity.
- 4.5.Carbon sequestration- vision, methods and managements strategies.
- 4.6. GEMS and their impact on environment.

PRACTICAL PAPER –VI

1. Estimation of BOD in water samples
2. Estimation of COD in water samples
3. Estimation of total dissolved solid in water samples
4. Isolation of microorganisms from soil/ industrial effluents
5. Production of biogas using cow/cattle dung
6. Bioremediation

SPOTTERS

1. Aerosols
2. Biomagnification
3. Tidal energy
4. Habitat destruction
5. Biodegradable plastic - Poly hydroxyl butyrate
6. El Niño effect
7. Coral reefs
8. Xenobiotic compounds
9. Global warming
10. Bioethanol

REFERENCE BOOKS

1. Text Book of Biotechnology- By H.K. Das (Wiley Publications)
2. Biotechnology- By B.T. Nijaguna
3. Biogas Technology-by K Trehan
4. Industrial Microbiology by L.E. Casida
5. Food Microbiology by M.R. Adams and M.O Moss
6. Introduction to biotechnology by P.K. Gupta
7. Essentials of Biotechnology for Satya N. Das
8. Bioprocess Engineering by Shuler (Pearson Education)
9. Essentials of Biotechnology by Irfan Ali Khan and Atiyakhanum (Ukaaz Publication)

KAKATIYA UNIVERSITY
Under Graduate Courses (Under CBCS 2020 – 2021 onwards)
B.SC. BIOTECHNOLOGY III YEAR
SEMESTER – VI

Elective Course DSE-6

ANIMAL BIOTECHNOLOGY
(ELECTIVE - b)

UNIT-I

- 1.1. Animal tissue culture, history, requirements for animal cell culture.
- 1.2. Substrate, liquids, culture mediums – Natural (Clots, Biological fluids, Tissue extracts),
Completed natural and chemically defined media.
- 1.3. Explant – culture of explants, cell culture technique – initiation, preparation and sterilization
of media.
- 1.4. Isolation of explants, disaggregation of explants, culture, subculture.
- 1.5. Cell lines, evolution of cell lines, maintenance of cell lines, Large scale culture of cell lines –
monolayer, suspension and immobilized cell culture.
- 1.6. Development of primary culture and cell lines, subculture.

UNIT-II

- 2.1. Cultured cells and evolution of continuous cell lines (established cell lines).
- 2.2. Commonly used cell lines – their origin and characteristics.
- 2.3. Cell line preservation and characterization.
- 2.4. High level expression of foreign gene in animal cells - expression vectors, enhancers,
Regulatory sequences.
- 2.5. Expression foreign genes in animal cell - advantages and disadvantages.
- 2.6. Properties of cell lines – Biology and characterisation of cultured cells.

UNIT-III

- 3.1. Transfection methods of animal cells (Calcium phosphate, DEAE – dextran, lipofection,
Electroporation, Microinjection).
- 3.2. Embryonic stem cell transfer.
- 3.3. Selection of recombinant cells with various marker genes (Thymidine Kinase,
Dihydrofolate reductase, CAD protein, DGPRT, HAT, Neomycin phosphotransferase)
- 3.4. Production of transgenic animals (Mice, Cattle, Sheep, pigs, Fish and Birds)
- 3.5. Applications, advantages and disadvantages of animal tissue culture.
- 3.6. Ethical issues related to transgenic animals.

UNIT-IV

- 4.1. Stem cells: Characteristic features, maintenance, culture and applications of Embryonic
and adult stem cells.
- 4.2. Animal cloning – Nuclear transfer and embryonic stem cell method.
- 4.3. Molecular pharming: Transgenic animals and their applications.
- 4.4. Methods used for transgenesis with reference to transgenic mice, cattle, sheep, goats,
pigs, chicken and fish.
- 4.5. Animal cells as bioreactors for the production of commercially important products.
- 4.6. Cryopreservation – principles.

PRACTICAL PAPER –VI

1. Preparation of media
2. Isolation of cells from Chick Embryo
3. Establishment and maintenance of primary cell cultures
4. Subculture of monolayer cells
5. Subculture of suspension cells
6. Determination of viable cells by trypan blue test

SPOTTERS

1. Trypsinization
2. Monolayer
3. Transgenic mice
4. Lipofection
5. Cells lines
6. Marker genes
7. Bioreactor
8. HAT
9. Dolly
10. Microinjection

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1. Strategies in transgenic animal sciences by Glenn MM and James M. Robl ASM Press 2000
2. Practical biotechnology methods and protocols by S. Janarthana and S. Vincent
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5. Principles and practice of Animal tissue culture by Sudha Gangal university
6. Biotechnology by U. Satyanarayana

KAKATIYA UNIVERSITY
Under Graduate Courses (Under CBCS 2020 – 2021 onwards)
B.SC. BIOTECHNOLOGY III YEAR
SEMESTER – VI

Elective Course DSE-6

ENVIRONMENTAL BIOTECHNOLOGY
(ELECTIVE - a)

UNIT-I

- 1.1.Introduction to environment and pollution.
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- 2.1. Renewable and non renewable energy resources.
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3. Tidal energy
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KAKATIYA UNIVERSITY
Under Graduate Courses (Under CBCS 2020 – 2021 onwards)
B.SC. BIOTECHNOLOGY III YEAR
SEMESTER – VI

Elective Course DSE-6

ANIMAL BIOTECHNOLOGY
(ELECTIVE - b)

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Completed natural and chemically defined media.
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KAKATIYA UNIVERSITY
Under Graduate Courses (Under CBCS 2019 - 2022)
B.Sc. ZOOLOGY III Year
SEMESTER – VI

ECOLOGY, ZOOGEOGRAPHY AND EVOLUTION

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

UNIT – I

1.1 Ecology- I

- 1.1.1 Ecosystem Structure and Functions; Types of Ecosystems – Aquatic and Terrestrial
- 1.1.2 Bio-geo chemical nutrient cycles - Nitrogen, Carbon, Phosphorus and Water
- 1.1.3 Energy flow in ecosystem
- 1.1.4 Food chain, food web and ecological pyramids
- 1.1.5 Animal Associations-Mutualism; Commensalism; Parasitism; Competition, Predation

UNIT – II

2.1 Ecology – II

- 2.1.1 Concept of Species, Population dynamics and Growth curves
- 2.1.2 Community Structure and dynamics and Ecological Succession
- 2.1.3 Ecological Adaptations
- 2.1.4 Environmental Pollution- Sources, Effect and Control measures of Air, Water, Soil and Noise Pollution
- 2.1.5 Wildlife conservation - National Parks and Sanctuaries of India, Endangered species; Biodiversity and Hotspots of Biodiversity in India.

UNIT – III

3.1 Zoogeography


- 3.1.1 Zoogeographical regions
- 3.1.2 Climatic and faunal peculiarities of Palaearctic, Nearctic, Neotropical, Oriental, Australian and Ethiopian regions
- 3.1.3 Wallace line, Discontinuous distribution
- 3.1.4 Continental Drift

Unit – IV

4.1. Evolution

- 4.1.1 Theories of Evolution – Lamarckism, Neo-Lamarckism, Darwinism, Neo-Darwinism, Modern synthetic theory, Evidences of Evolution.
- 4.1.2 Forces of Evolution–Natural Selection, Genetic drift, Gene flow, Genetic load, Organic variations, Hardy Weinberg Equilibrium.
- 4.1.3 Isolation –Premating and post mating isolating mechanisms.
- 4.1.4 Speciation: Methods of Speciation - Allopatric and Sympatric; Causes and Role of Extinction in Evolution.


HEAD
Department Of Zoology
University College
Kakatiya University,
WARANGAL.-506009(T.S)


Dr. G. SHAMITHA
Chairperson
Board of Studies
Department of Zoology & Sericulture Unit
KAKATIYA UNIVERSITY - WGL-506009 (T.S)

Suggested Readings:

1. Ecology – Himalaya Publishing company – M.P Arora
2. Environmental Biology – P.D. Sharma
3. Environmental Ecology – P.R. Trivedi and Gurdeep Raj
4. Indian Wildlife Threats and Prervation – Buddhadev Sharma and Te Kumar
5. Ecology-Principles and Application II Edn. Cambridge Univ Press, London, Champan. JL and Re.iss MJ.
6. Environmental Studies, TATA McGraw Hill Com. New Delhi, Benny Joseph.
7. Fundamentals of Ecology Third Edn., Nataraj Publishers, Dehradun, Eugene.P. Odum.
8. Ecology and Animal Distribution, Veea Bala Rastogi.
9. Text Book of Ecology and Environment, P.K. Gupta.
10. Ecology and Wildlife Biology, Bhatnagar and Bansal.
11. Evolution 3rd Edn. Blackwell Publishing, Ridley, M (2004).
12. Evolutionary Biology, Addison –Wesley; Minkoff,E(1983).
13. *Evolution*. Cold Spring, Harbour Laboratory Press Barton, N. H., Briggs, D. E. G., Eisen, J. A., Goldstein, D. B. and Patel, N. H. (2007).
14. *Evolution*. IV Edition. Jones and Bartlett Publishers; Hall, B. K. and Hallgrimsson, B. (2008).
15. *Evolution*, 2nd Edn, Oxford and IBH Publishing Co., New Delhi, Jan M. Savage.


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KAKATIYA UNIVERSITY
Under Graduate Courses (Under CBCS 2019 - 2022)
B.Sc. ZOOLOGY III Year
SEMESTER – VI

**ECOLOGY, ZOOGEOGRAPHY AND EVOLUTION
PRACTICAL**

Instruction: 3 hrs per week
No. of Credits: 1

Ecology

1. Determination of pH of Soil and Water.
2. Estimation of Salinity (Chlorides) of water in given samples.
3. Estimation of Carbonates and Bicarbonates in the given water samples.
4. Estimation of dissolved Oxygen of Pond water, sewage, effluents.
5. Identification of Zooplankton from different water bodies.
6. Study of Pond Ecosystem / Local polluted site – Report submission.

Zoogeography


1. Study of at least 3 endangered or threatened wild animals of India through photographs/specimens/models
2. Field visit to Zoo Park to study the management, behavior and enumeration of wild animals.
3. Identification of Zoogeographical realms from the Map and identify specific fauna of respective regions.


Evolution

1. Museum Study of fossil animals: **Peripatus; Coelacanth fish, Dipnoi fishes; Sphenodon; Archaeopteryx.**
 2. Study of homology and analogy from suitable specimens and pictures
 3. Problems on Hardy-Weinberg Law
 4. Macroevolution using Darwin finches (pictures)
- **Laboratory Record work shall be submitted at the time of practical examination**
 - **Computer aided techniques should be adopted as per UGC guide lines.**

Suggested manuals:

1. Ecology Student Lab Manual, Biology Labs – Robert Desharnais, Jeffrey Bell.
2. Ecology Lab manual – Darrell S Vodopich.


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KAKATIYA UNIVERSITY - WARANGAL - TELANGANA

B.Sc. Programme under CBCS

With effect from the A.Y: 2019

Optional Paper

(Common to all Science Courses)

III Year SEMESTER – VI

PUBLIC HEALTH AND HYGIENE

UNIT-I: Nutrition, Environment and Health

- 1.1 Classification of foods – Carbohydrates, Proteins, Lipids and Minerals.
- 1.2 Nutritional deficiencies and disorders of Carbohydrates, Proteins, Lipids and Minerals.
- 1.3 Concept, Steps and Applications of Environment and Health Impact Assessment.
- 1.4 Industrial, Agricultural and Urban Health. Environmental Pollution and Associated Health Hazards.

UNIT-II : Communicable and Non-Communicable Diseases

- 2.1 Causes, symptoms, diagnosis, treatment and prevention of Communicable Diseases (Malaria, Filariasis, Tuberculosis and AIDS).
- 2.2 Causes, symptoms, diagnosis, treatment and prevention of Non-Communicable Diseases (Hypertension, Coronary Heart Diseases, Diabetes and Obesity).
- 2.3 Symptoms, treatment and prevention measures of Water Borne Diseases (Diarrhea, Typhoid, Hepatitis and Amebiasis).
- 2.4 Symptoms, treatment and prevention measures Air Borne Diseases (COVID-19, Influenza, Whooping cough and Chickenpox).

UNIT-III :Food and Diet Systems

- 3.1 Definition of Food, Types of foods (Texturized foods, Novel foods and Organic foods).
- 3.2 Food safety system and issues; Physical, chemical and microbiological contaminants; The significance of foodborne diseases.
- 3.3 Principles of diet in diseases, Classification of diets according to nutrients.
- 3.4 Etiology, Symptom and Dietary Management in Obesity, Underweight, Hypertension, Diabetes Mellitus, Atherosclerosis.

UNIT-IV : Personal Hygiene and Sanitation

- 4.1 Definition of Hygiene and Sanitation, Personal Hygiene of food handler, Techniques of Washing Hands, Pest control and Garbage Disposal.
- 4.2 Definition of Public Health, Hygiene, Social and Preventive Medicine, Basic aspects of Personal Hygiene and Disposal of Waste.
- 4.3 The Hygiene Practices of the different categories of family members (children, parents and aged members)
- 4.4 Definition of Sanitation, Environmental Sanitation, Sanitation of Food Serving Institution, The importance of proper sanitation practices.

Suggested Readings:

PAPER-2A: PLANT MOLECULAR BIOLOGY

(DSE-2: ELECTIVE)

Theory: 4 Hours/Week; Credits: 4 Marks: 100 (Internal: 20; External: 80)
Practical: 3 Hours/Week Credits: 1 Marks: 25

UNIT-I

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

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

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

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*.

Sharma *Manoj* *B. Lakshmi* *SP*

Suggested Readings

1. Gardner, E.J., Simmons, M.J., Snustad, D.P. (1991). Principles of Genetics, John Wiley & Sons, India. 8th edition.
2. Snustad, D.P. and Simmons, M.J. (2010). Principles of Genetics, John Wiley & Sons Inc., India. 5th edition.
3. Klug, W.S., Cummings, M.R., Spencer, C.A. (2012). Concepts of Genetics. Benjamin Cummings, U.S.A. 10th edition.
4. 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.
5. 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.
6. Snustad, D.P. and Simmons, M.J. (2010). Principles of Genetics. John Wiley and Sons Inc., U.S.A. 5th edition.
7. Klug, W.S., Cummings, M.R., Spencer, C.A. (2009). Concepts of Genetics. Benjamin Cummings. U.S.A. 9th edition.
8. Russell, P. J. (2010). iGenetics- A Molecular Approach. Benjamin Cummings, U.S.A. 3rd edition.
9. 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.

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KAKATIYA UNIVERSITY - WARANGAL - TELANGANA
Under Graduate Courses (Under CBCS 2021 – 2022 onwards)
B.SC. BOTANY III YEAR
SEMESTER – VI

PAPER-2A: PLANT MOLECULAR BIOLOGY PRACTICAL
(DSE-2: ELECTIVE)

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).

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KAKATIYA UNIVERSITY - WARANGAL - TELANGANA
Under Graduate Courses (Under CBCS 2021 – 2022 onwards)
B.SC. BOTANY III YEAR
SEMESTER – VI

PAPER-2B: TISSUE CULTURE AND BIOTECHNOLOGY
(DSE-2: ELECTIVE)

Theory: 4 Hours/Week; Credits: 4 Marks: 100 (Internal: 20; External: 80)
Practical: 3 Hours/Week Credits: 1 Marks: 25

UNIT - I

1. Tissue culture: Introduction, sterilization procedures, explants, culture media- composition and preparation; Nutrients and hormone requirements. Micropropagation.
2. Organ culture: Totipotency, Induction of callus, Shoot, leaf culture, Anther culture, Ovule and Embryo culture.
3. Callus culture and isolation and fusion of protoplast culture
- 4 Organogenesis, Somatic and Zygotic embryogenesis

UNIT- II

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 Cybrid

UNIT- III

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:

10. Gene Libraries: construction of genomic and cDNA libraries, Polymerase Chain Reaction (PCR) and its applications.
11. Methods of gene transfer-*Agrobacterium* mediated Direct gene transfer by Electroporation, Microinjection, Microprojectile bombardment.

B. Lakshmi. Ram S. Sharma AP

12. 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).

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.

name Shreya B. Calitka

KAKATIYA UNIVERSITY - WARANGAL - TELANGANA
Under Graduate Courses (Under CBCS 2021 – 2022 onwards)
B.SC. BOTANY III YEAR
SEMESTER – VI

PAPER-2B: TISSUE CULTURE AND BIOTECHNOLOGY PRACTICAL
(DSE-2: ELECTIVE)

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.
3. Study of steps of genetic engineering for production of Bt cotton, Golden rice, Flavr Savr tomato through photographs.
4. Restriction digestion and gel electrophoresis of plasmid DNA.

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KAKATIYA UNIVERSITY - WARANGAL - TELANGANA
Under Graduate Courses (Under CBCS 2021 – 2022 onwards)
B.S.C. BOTANY III YEAR
SEMESTER – VI

PAPER-2C: ANALYTICAL TECHNIQUES IN PLANT SCIENCES
(DSE-2: ELECTIVE)

Theory: 4 Hours/Week; Credits: 4 Marks: 100 (Internal: 20; External: 80)
Practical: 3 Hours/Week Credits: 1 Marks: 25

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, , 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, Ion exchange 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, , 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.

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. Lakshmi Reddy

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KAKATIYA UNIVERSITY - WARANGAL - TELANGANA
Under Graduate Courses (Under CBCS 2021 – 2022 onwards)
B.SC. BOTANY III YEAR
SEMESTER – VI

PAPER-2C: ANALYTICAL TECHNIQUES IN PLANT SCIENCES
PRACTICALS
(DSE-2: ELECTIVE)

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 AGE.
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).

B. Lalitha Devi *Stamp* *of*

KAKATIYA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
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, 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.

Department of Computer Science, KU

With Effect from the Academic Year 2019-2020


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KAKATIYA UNIVERSITY
FACULTY OF SCIENCE
B.Sc. (Computer Science)
SEMESTER – VI
Web Technologies Lab

Practical 3 Hours/Week 1 Credit Marks: 25

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.

KAKATIYA UNIVERSITY
FACULTY OF SCIENCE
B.A./B.Sc. Life Science (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.



Dr. B. RAMA
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KAKATIYA UNIVERSITY
FACULTY OF SCIENCE
B.A./B.Sc. Life Science (Computer Applications)
SEMESTER – VI
Web Technologies 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.
- 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.

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, <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.
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19. Write a JavaScript program to wish good morning, good afternoon, good evening depending on the current time.
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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.



Dr. B. RAMA
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Department of Computer Science, KU

With Effect from the Academic Year 2019-2020

PAPER – VI :: (A) ELECTRONICS

(DSE-2: ELECTIVE)

Theory:	4 Hours/Week;	Credits: 4	Marks: 100 (Internal: 20; External: 80)
Practical:	3 Hours/Week	Credits: 1	Marks: 25

Unit - I

Band theory of P-N junction: Energy band in solids (band theory), valence band, conduction band and forbidden energy gap in solids, insulators, semi conductors and pure or intrinsic semiconductors and impure or extrinsic semi-conductors. N-type semi-conductors, P-type semi-conductors, Fermi level, continuity equation.

Diodes: P-N junction diode, Half-wave, full-wave and bridge rectifier. Zener diode & its characteristics. Zener diode as voltage regulator.

UNIT-II

Bipolar Junction Transistor (BJT) – p-n-p and n-p-n transistors, current components in transistors, CB, CE and CC configurations – transistor as an amplifier -RC coupled amplifier – Frequency response (Qualitative analysis).

Feedback concept & Oscillators: Feedback, General theory of feedback–Concepts of oscillators, Barkhausen’s criteria, Phase shift oscillator – Expression for frequency of oscillation.

UNIT-III

Special devices- Construction and Characteristics: Photo diode - Shockley diode -Solar cell, Opto-couplers - Field Effect Transistor (FET) - FET as an Amplifier - Uni Junction Transistor (UJT), UJT as a relaxation oscillator - Silicon controlled rectifier (SCR) - SCR as a switch.

UNIT-IV

Digital Electronics

Binary number system, conversion of binary to decimal and vice-versa. Binary addition and subtraction (1’s and 2’s complement methods). Hexadecimal number system. Conversion from binary to hexadecimal and vice-versa, Decimal to hexadecimal and vice-versa.

Logic gates:

OR, AND, NOT gates, truth tables, realization of these gates using discrete components. NAND, NOR as universal gates, Exclusive – OR gate (EX-OR). De Morgan’s Laws – Verification.

NOTE: Problems should be solved from every chapter of all units.

Suggested Books:

1. Electronic devices and circuits – Millman and Halkias. *Mc.Graw-Hill Education.*
2. Principles of Electronics by V.K. Mehta – *S. Chand & Co.*
3. Basic Electronics (Solid state) – B. L. Theraja , *S. Chand & Co.*
4. A First Course in Electronics- Anwar A. Khan&Kanchan K. Dey, *PHI.*
5. Physics of Semiconductor Devices- *S. M. Sze*
6. Physics of Semiconductors- *Streetman.*
7. Basic Electronics – *Bernod Grob.*
8. Basic Electronics for B.Sc (Physics) III Year, 2019, *Telugu Academy*
9. Digital Principles & Applications – *A.P. Malvino and D.P. Leach*

**PAPER – VI:: (A) ELECTRONICS PRACTICALS
(DSE-2: ELECTIVE)**

1. Construction of logic gates (AND, OR, NOT, gates) with discrete components– Truth table Verification
2. AND, OR, NOT – gates constructions using universal gates – Verification of truth tables.
3. Construction of NAND and NOR gates with discrete components and truth table verification
4. Characteristics of a Transistor in CE configuration
5. R.C. coupled amplifier – frequency response.
6. Verification of De Morgan's Theorem.
7. Zener diode V-I characteristics.
8. P-n junction diode V- I characteristics.
9. Zener diode as a voltage regulator
10. Construction of a model D.C. power supply
11. R C phase shift Oscillator –determination of output frequency

Note: Minimum of eight experiments should be performed.

Suggested Books:

1. B.Sc. Practical Physics – C. L. Arora – S. Chand & Co.
2. Viva-voce in Physics – R.C. Gupta, Pragathi Prakashan, Meerut.
3. Laboratory manual for Physics Course by B.P. Khandelwal.
4. Practical Physics by M. Arul Thakpathi by Comptex Publishers.
5. B.Sc. practical physics – Subbi Reddy.

Paper – VI:: (B) APPLIED OPTICS

(DSE-2: ELECTIVE)

Theory: 4 Hours/Week; Credits: 4 Marks: 100 (Internal: 20; External: 80)
Practical: 3 Hours/Week Credits: 1 Marks: 25

UNIT I

Principles of LASER

Emission and absorption of Radiation, -Einstein Relations- Pumping Mechanism- optical feedback- Laser rate equation for two, three and Four level Lasers, pumping threshold condition- Principle of Laser beams. Classification of LASER Systems- Gas, Liquid and Solid Lasers He-Ne and Argon Lasers, their energy level schemes- Ruby Laser and YAG laser, Ga-As Laser and their applications in various fields.

UNIT II

Holography

Basic principle of Holography- Recording of amplitude and phase. The recording medium- reconstruction of original wave front- Image formation by wave front reconstruction- Gabor Hologram- limitations of Gabor Hologram- Fourier Transform Hologram- Volume Hologram- Applications of holograms.

UNIT III

Fourier and Non-Linear Optics: Thin lens as phase transformation-thickness function-various types of lenses- Fourier transforming properties of lenses-Object placed In front of the lens- Object placed behind the lens.

Non-Linear Optics: harmonic generation- second harmonic generation-phase matching condition- Optical mixing- parametric generation of Light- Self focusing of light.

Unit IV: Optical Fibers (14 Hrs)

Fiber types and their structures. Ray optic representation, Acceptance angle and numerical aperture. Step index and graded index fibers. Single mode and multi-mode fibers. Fiber materials for glass fibers and plastic fibers. Signal attenuation in optical fibers. Absorption, Scattering and bending losses in fibers, core and cladding losses. Material dispersion, wave guide dispersion, inter modes distortion and pulse broadening.

Note:-Problems should be solved at the end of every chapter of all units

Suggested Books:

1. Optoelectronics an Introduction-Wilson & JFB Hawkes 2nd edition
2. Introduction to Fourier optics-JW Goodman
3. Lasers and Non linear Optics--BB Laud
4. Optical electronics – Ghatak and Thyagarajan
5. Principles of Lasers- O. Svelto
6. Optical fiber communication -By Geradkeiser
7. Optical fiber communication-by John M Senior(PHI)





**Paper – VI:: (B) APPLIED OPTICS PRACTICALS
(DSE-2: ELECTIVE)**

1. Study of the Profile of a laser beam
2. Determination of the diameter of a thin wire using laser
3. Determination of wavelength of He-Ne laser by transmission grating
4. Construction and recording of a Hologram
5. Study of Fourier transforming properties of lenses
6. Study of second harmonic generation by KDP crystal
7. Measurement of numerical aperture of an optical fiber
8. Measurement of coupling losses in optical fiber
9. Measurement of bending losses in optical fiber
10. Study of audio signal transmission through optical fiber
11. To study the interference of light using optical fiber

Note: Minimum of eight experiments should be performed.

Suggested Books:

1. Introduction to fourier Optics- J Goodman
2. Optical Fiber Communication- john M senior
3. Principles of Lasers-by O.Svelto
4. Modern Optics by Grant Fowles
5. Principles of Optics byBorn & Wolf
6. Fundamentals of Optics by Jekins& White





B.Sc. Geology III Year
Semester – VI
Paper – VI - (A) Hydrogeology
(DSE-6- Elective- I)

(4 hrs/week)

Credits-4 (60 hours)

Unit-I

Introduction: Definition of hydrology, hydrogeology, scope and application of hydrogeology.

Hydrological Cycle: Concept of hydrological cycle, evaporation, condensation, precipitation, infiltration, transpiration, evapotranspiration; groundwater and runoff, connate water, juvenile water, movement of subsurface water.

Ground Water: Origin, occurrence, vertical distribution of sub-surface water, zone of aeration soil water, vadose water, capillary fringe. zone of saturation – water table. perched water table.

Unit-II

Aquifers : Definition of aquifer, aquitard, aquiclude, aquifuge. types of aquifers, confined, semi-confined, unconfined. properties of aquifer – porosity, retention of water in rocks, yield of water from rocks (specific yield and specific retention), darcy's law, permeability, hydraulic conductivity. storage co-efficient .

Quality of Groundwater : Physical, chemical and bacteriological characteristics of groundwater. suitability of groundwater for drinking (with special reference to fluoride content).

Pollution of Groundwater: pollution in relation to water use urban, industrial and agricultural sources and causes of pollution.

Unit-III

Groundwater Investigations: Scope of investigations, methods of groundwater explorations, brief account of geologic, hydrogeologic, geo-botanical investigations, introduction to remote sensing techniques.

Unit-IV

Geophysical Exploration: Basic principles of geophysical exploration methods, electrical methods – schlumberger and wenner configuration, resistivity profiling and vertical electrical sounding.

B.Sc. Geology III Year
Semester – VI
Paper – VI – (A) Hydrogeology practicals
(DSE-6- Elective I)

(3 hrs/week)

Credits-3 (45 hours)

1. Methods of water analyses for physical and chemical parameters.
2. pH Electrical conductivity and total dissolved solids estimation in water.
3. Electrical Resistivity - Schlumberger method and VES for groundwater exploration.

Text Books :

1. Groundwater hydrology, by Todd, D. K. 2006, 2nd Ed., John Wiley & Sons, N.Y.
2. Applied Hydrogeology by Fetter.

Reference books:

1. Hydrogeology by Davis and Dewiest.
2. Hydrogeology by Karanth.
3. Groundwater Assessment - Development and Management by Karanth, Tata McGrawHill Pub. Co.
4. Applied principles of Hydrogeology by Mannings.

Practical Model Paper

B.Sc. (CBCS) - III Year Practical Examination

GEOLOGY

Semester-VI : Paper VI (A)

Hydrogeology

(DSE-6-Elective-1)

Credits : 1

Max.Marks:25

Time: 2 Hours

- 1) Analyze the given water sample and estimate their chlorides, carbonates, Bi-carbonates and calcium. (5 M)
- 2) Find out the pH and Electrical conductivity of the given water sample. (5 M)
- 3) Conduct the geophysical survey in field for ground water exploration and suggest a suitable point for bore well / open well by interpreting the data. (10 M)
- 4) Record & Viva (5 M)

B.Sc. Geology III Year

Semester VI

Paper-VI- (B) Mineral Exploration

(DSE-6 - Elective-II)

(4 hrs/week)

Credits-4 (60 hours)

Unit-I

Definition and scope of mineral prospecting and exploration; prospecting criteria and detailed geological guides: physiographic, lithological, structural and stratigraphic.

Unit – II

Geochemical prospecting –anomaly, types of geochemical surveys and exploration tools, primary and secondary dispersion, pathfinder elements.

Unit-III

Geophysical exploration brief description and application of gravity, magnetic seismic electrical and radioactive methods.

Unit-IV

Estimation of ore reserves – classification – sampling: chip sampling, grab sampling, pitting, trenching and calculation of ore reserves and characterisation under UNFC.



**B.Sc. Geology III Year
Semester VI
Paper-VI - (B) Mineral Exploration practicals
(DSE-6- Elective-II)**

(3 hrs/week)

Credits-3 (45 hours)

1. Sample preparation - Coning and quartering.
2. Estimation of ore reserves, Bedded type and vein type (included area and extended area method problems).
3. Calculation of tonnage by grid pattern.

Text books:

1. Courses in mining geology - R.N.P.Arogya Swamy.
2. Mining Geology - Mc.Kinstry

Reference books:

1. Geological Prospecting and exploration- V.M.Kneiter.
2. Mineral Economics - R. K.Sinha & N.L.Sharma.
3. Elements of Mining. Clark, G.B. 1967, 3rd Ed. John Wiley & Sons.
4. Introduction to Mineral Exploration, Blackwell Publishing. Moon, C.J., Whateley, M.K.G., Evans, A.M., 2006,

Practical Model Paper

**B.Sc. (CBCS) - III Year Practical Examination
GEOLOGY
Semester-VI : Paper VI (B)
(Mineral Exploration)
(DSE-6-Elective -II)**

Time: 2 Hours

**Credits : 1
Max.Marks:25**

- 1) Prepare the given sample by coning and quartering method . (5 M)
- 2) 25 bore holes were sunk in a grid pattern at an interval of 200 Mts. for the Exploration and Mining of Bauxite. All the eastern and western bore holes yielded 20 Mts. and 30 Mts. of Bauxite. Calculate the volume and the tonnage of Bauxite if the specific gravity is 1.8. (15 M)
- 3) Record & Viva (5 M)

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KAKATIYA UNIVERSITY
B. Sc (CBCS) Microbiology – III Year
Semester-VI – (Discipline Specific Elective)
CELL BIOLOGY

Theory syllabus

UNIT – I

1. Structure of Cell: Plasma membrane: Structure and transport of small molecules.
2. Cell Wall: Eukaryotic cell wall, extracellular matrix and cell matrix interactions, cell-cell Interactions - adhesion junctions, tight junctions, gap junctions, and plasmodesmata (only structural aspects).
3. Mitochondria, chloroplasts and peroxisomes.

UNIT - II

1. Cytoskeleton: Structure and organization of actin filaments, association of actin filaments with plasma membrane, cell surface protrusions, intermediate filaments, microtubules.
2. Nucleus: Nuclear envelope, nuclear pore complex and nuclear lamina. Chromatin – Molecular organization. Nucleolus.
3. Protein targeting and Transport

UNIT - III

1. Golgi Apparatus – Organization, protein glycosylation, protein sorting and export from Golgi Apparatus. Lysosomes.
2. Cell Signaling: Signaling molecules and their receptors. Function of cell surface receptors.
3. Pathways of intracellular receptors – Cyclic AMP pathway, cyclic GMP and MAP kinase pathway.

UNIT - IV

1. Cell Cycle, Cell Death and Cell Renewal: Eukaryotic cell cycle and its regulation, Mitosis and Meiosis.
2. Development of cancer, causes, types, Diagnosis and therapy. Programmed cell death.
3. Stem cells. Types: Embryonic stem cell, induced pluripotent stem cells.

KAKATIYA UNIVERSITY
B. Sc (CBCS) Microbiology – III Year
Semester-VI – A (Discipline Specific Elective)
CELL BIOLOGY

Practical syllabus

1. Study a representative plant and animal cell by microscopy.
2. Cytochemical staining of DNA – Feulgen.
3. Study of polyploidy in Onion root tip by colchicine treatment.
4. Identification and study of cancer cells by photomicrographs.
5. Study of cell division in onion root tip (mitotic divisions)
6. Study of different stages of Mitosis.
7. Study of different stages of Meiosis by permanent slides.

References:

1. Hardin J, Bertoni G and Kleinsmith LJ. (2010). Becker's World of the Cell. 8th edition. Pearson.
2. Karp G. (2010) Cell and Molecular Biology: Concepts and Experiments. 6th edition. John Wiley & Sons. Inc.
3. De Robertis, EDP and De Robertis EMF. (2006). Cell and Molecular Biology. 8th edition. Lipincott Williams and Wilkins, Philadelphia.
4. Cooper, G.M. and Hausman, R.E. (2009). The Cell: A Molecular Approach. 5th Edition. ASM Press & Sunderland, Washington, D.C.; Sinauer Associates, MA.

KAKATIYA UNIVERSITY
B. Sc (CBCS) Microbiology – III Year
SEMESTER – VI - C
ENVIRONMENTAL MICROBIOLOGY

Theory syllabus

UNIT - I

1. Aero microbiology: Bioaerosols, Air borne microorganisms (bacteria, Viruses, fungi).
2. Impact of air borne microorganisms on human health and environment.
3. Significance of air borne microorganisms in food and pharma industries and operation theatres, allergens.

UNIT - II

1. Air sample collection and analysis: Bioaerosol sampling, air samplers, methods of analysis, CFU.
2. Culture media for bacteria and fungi, Identification characteristics.
3. Control measures: Fate of bioaerosols, inactivation mechanisms – UV light, HEPA filters, desiccation, Incineration.

UNIT - III

1. Water Microbiology: Water borne pathogens.
2. Water borne diseases.
3. Microbiological analysis of water: Sample Collection, Treatment and safety of drinking (potable) water.

UNIT - IV

1. Methods to detect potability of water samples: Standard qualitative procedure: presumptive test(MPN test), confirmed and completed tests for faecal coliforms
2. Membrane filter technique and Presence/absence tests.
3. Control measures: Precipitation, chemical disinfection, filtration, high temperature, UV light.

References:

1. Da Silva N, Taniwaki MH, Junqueira VC, Silveira N, Nascimento MS, Gomes RAR (2012) Microbiological Examination Methods of Food and Water-A Laboratory Manual, CRC Press
2. Atlas RM and Bartha R. (2000). Microbial Ecology: Fundamentals & Applications. 4th edition. Benjamin/Cummings Science Publishing, USA.
3. Maier RM, Pepper IL and Gerba CP. (2009). Environmental Microbiology. 2nd edition, Academic Press.
4. Hurst CJ, Crawford RL, Garland JL, Lipson DA (2007) Manual of Environmental Microbiology, 3rd edition, ASM press.

KAKATIYA UNIVERSITY
B. Sc (CBCS) Microbiology – III Year
SEMESTER – VI - C
ENVIRONMENTAL MICROBIOLOGY

Practical's

1. Determination of Biochemical Oxygen Demand (BOD) of sewage water
2. Determination of Chemical Oxygen Demand (COD) of industrial waste water
3. Bacteriological examination of water using multiple tube fermentation test: presumptive test, confirmed test and completed coli form test
4. Analysis of Air Microflora

SEMESTER-VI

(A) Numerical Analysis

(w.e.f. academic year 2019-20 batch onwards)

DSE-VI

Theory: 5 credits and Tutorials: 0 credits
Theory: 5 hours /week and Tutorials: 1 hours /week

Objective: Students will be made to understand some methods of numerical analysis.
Outcome: Students realize the importance of the subject in solving some problems of algebra and calculus.

Unit- I

Errors in Numerical Calculations - Solutions of Equations in One Variable: The Bisection Method - The Iteration Method - The Method of False Position-Newton's Method - Muller's Method - solution of Systems of Nonlinear Equations.

Unit- II

Interpolation and Polynomial Approximation: Interpolation - Finite Differences - Differences of Polynomials - Newton's formula for Interpolation - Gauss's central differences formulae - Stirling's and Bessel's formula - Lagrange's Interpolation Polynomial - Divided differences - Newton's General Interpolation formula - Inverse Interpolation.

Unit- III

Curve Fitting: Least Square Curve Fitting: Fitting a Straight Line-Nonlinear Curve Fitting.
Numerical Differentiation and Integration: Numerical Differentiation - Numerical Integration: Trapezoidal Rule-Simpson's 1/3rd-Rule and Simpson's 3/8th-Rule - Boole's and Weddle's Rule - Newton's Cotes Integration Formulae.

Unit- IV

Numerical Solutions of Ordinary Differential Equations: Taylor's Series Method - Picard's Method - Euler's Methods - Runge Kutta Methods.

Text:

S.S.Sastry, Introductory Methods of Numerical Analysis, PHI

References:

- 1] Richard L. Burden and J. Douglas Faires, Numerical Analysis (9e)
- 2] M K Jain, S R K Iyengar and R K Jain, Numerical Methods for Scientific and Engineering computation
- 3] B. Bradie , A Friendly introduction to Numerical Analysis




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SEMESTER-VI

(B) Integral Transforms

(w.e.f. academic year 2019-20 batch onwards)

DSE - VI

Theory: 5 credits and Tutorials: 0 credits
Theory: 5 hours /week and Tutorials: 1 hours /week

Objective: Students will be exposed to Integral Transforms. The students also learning the Applications of Laplace Transforms to Differential Equations which arises in Physics and Engineering Problems.

Outcome: Students apply their knowledge to solve some problems on special functions and Differential Equations by using the Integral Transforms.

Unit-I

Laplace Transforms-Definition-Existence theorem-Laplace transforms of derivatives and integrals Periodic functions and some special functions.

Unit- II

Inverse Transformations - Convolution theorem - Heaviside's expansion formula.

Unit- III

Applications to ordinary Differential equations - solutions of simultaneous ordinary Differential equations - Applications to Partial Differential equations.

Unit- IV

Fourier Transforms- Sine and cosine transforms-Inverse Fourier Transforms.

Text:

Vasishtha and Gupta, Integral Transforms, Krishna Prakashan Media(P), Ltd, Meerut (2e)

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SEMESTER-VI

(C) Analytical Solid Geometry

(w.e.f. academic year 2019-20 batch onwards)

DSE - VI

Theory: 5 credits and Tutorials: 0 credits
Theory: 5 hours /week and Tutorials: 1 hours /week

Objective: Students learn to describe some of the surfaces by using analytical geometry.

Outcome: Students understand the beautiful interplay between algebra and geometry.

Unit- I

Sphere: Definition-The Sphere Through Four Given Points-Equations of a Circle- Intersection of a Sphere and a Line-Equation of a Tangent Plane-Angle of Intersection of Two Spheres-Radical Plane.

Unit- II

Cones and Cylinders: Definition-Condition that the General Equation of second degree Represents a Cone-Cone and a Plane through its Vertex -Intersection of a Line with a Cone.

Unit- III

The Right Circular Cone-The Cylinder- The Right Circular Cylinder.

Unit- IV

The Conicoid: The General Equation of the Second Degree-Intersection of Line with a Conicoid-Plane of contact-Enveloping Cone and Cylinder.

Text:

Shanti Narayan and P K Mittal, Analytical Solid Geometry (17e)

References:

- 1] Khaleel Ahmed, Analytical Solid Geometry
- 2] S L Loney , Solid Geometry
- 3] Smith and Minton, Calculus

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B.Sc., III YEAR CHEMISTRY

SEMESTER-VI

DSE-A: Chemistry Paper-VI

(Medicinal Chemistry)

(04 credits)

60 Hrs (04 Hrs/week)

Unit- I: Introduction and Terminology (15 Hrs)

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 (ADI), 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 (15 Hrs)

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 (15 Hrs)

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; Anti-inflammatory – 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 anesthetics – benzocaine.

Unit- IV: Molecular Messengers and Vitamins and Micronutrients (15 Hrs)

S6-E-A-IV: Molecular Messengers: Introduction to hormones and neurotransmitters, Thyroid hormones, Antithyroid drug-Carbimazol. Adrenaline: Adrenergic drugs- salbutamol, atenelol. Serotonin: SSRIs- fluoxetine. Dopamine: Antiparkinson drug- Levodopa .

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.

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B.Sc., III YEAR CHEMISTRY

SEMESTER-VI

DSE-B: Chemistry Paper-VI

(Agricultural & Fuel Chemistry)

(04 credits)

60 Hrs (04 Hrs/week)

Unit I: Pesticides (15 Hrs)

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: Diaammonium 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 anti-knocking 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.

Petroleum products – Petrol, Diesel, LPG, Kerosene, Tar and their applications.

Petrochemicals-Vinyl acetate, Propylene oxide, Isoprene and their uses.

Lubricants: Classification of lubricants- Solid, semi solid 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 bio mass-Bio ethanol, biodiesel, and 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, Thomas A. Unger, Elsevier, (2000).
3. Pesticides, R. Cremllyn, 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. & Jain, M. Engineering Chemistry, Dhanpat Rai & Sons, Delhi.
9. Engineering Chemistry by Shashi Chawla, Dhanpat Rai & Sons, Delhi.

J.P.K.

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B.Sc., III YEAR CHEMISTRY

SEMESTER-VI

LABORATORY COURSE

Paper –V: Experiments in Physical Chemistry-II

(01 Credit)

45 Hrs (03 Hrs/week)

1. Kinetics

- a) Determination of specific reaction rate of the hydrolysis of methyl acetate catalyzed by hydrogen ion at room temperature.
- b) Determination 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 given acid.
- b) pH metric titration of strong 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 measurement

Reference books:

1. Senior practical physical chemistry, B.D.Khosla, V.C.Garg, Adarsh Guati.
2. Advanced Practical Physical chemistry, J.B.Yadav.
3. Practical Physical chemistry, B.Vishvanathan and P.S.Raghavan.
4. Practical Physical chemistry, P.S. Sindhu.

Joshi

Sharma

N. S. Mehta

KAKATIYA UNIVERSITY - WARANGAL - TELANGANA
DEPARTMENT OF ENGLISH

Under Graduate Courses (Under CBCS 2021-2022 onwards)

GENERAL ENGLISH III-YEAR, VI- SEMESTER

B.A., B.Com. B.Sc., B.B.A., B.A(L).

PAPER - VI : ENGLISH

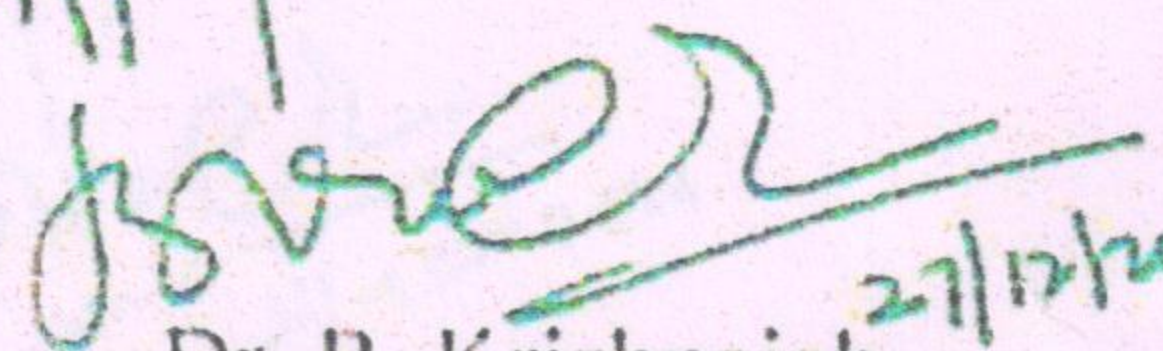
COMMUNICATION SKILLS
English for Employability skills

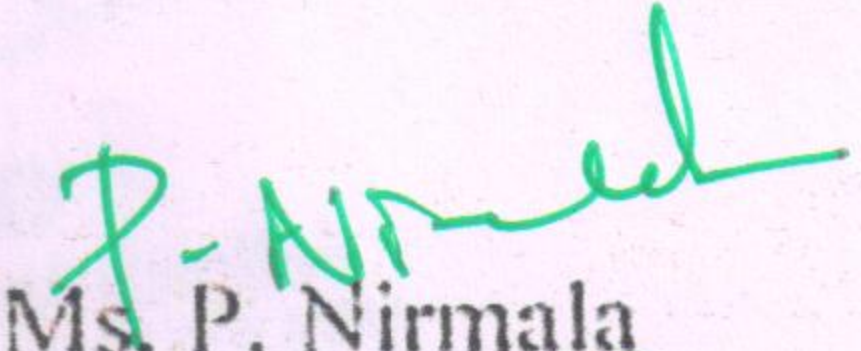
Theory: 3 Hours/Week: Credits: 3: Marks: 75 (Internal: 15; External: 60)

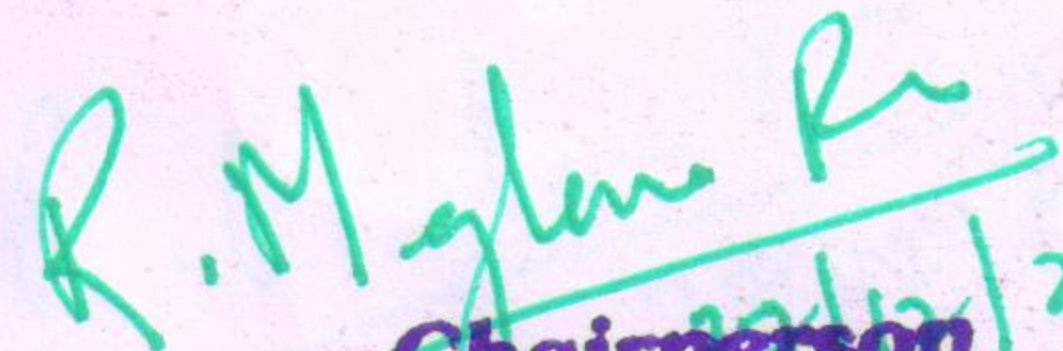
Unit 1	PROSE	Sreelakshmi Suresh
	POEM	For whom the Bell Tolls – John Donne
	LANGUAGE	Official Letters
Unit 2	PROSE	How Work can be Made Meaningful – Katie Bailey
	POEM	Teamwork – Edgar Albert Guest
	LANGUAGE	Job Application Letters and Curriculum Vitae
Unit 3	PROSE	How the Corona-virus Sparked a Wave of Innovation – Sreevas Sahasranamam
	POEM	See it through – Edgar Albert Guest
	LANGUAGE	Email etiquette

PRESCRIBED TEXTBOOK: *English for Careers: A Course book for Undergraduate Learners*

Eds. K. Purushotham, M. Rajeshwar and R. Meghana Rao. Published by Orient Blackswan, 2021.

Approved

27/12/2021
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27/12/2021
25/12/2021