TELANGANA UNIVERSITY

DICHPALLY, NIZAMABAD- 503 322 T.S.

UG (CBCS) – BA/B.Com./B.Sc./BBA
VI- Semester Skill Enhancement Course (SEC) Paper

SEC Paper	Department	Course Combination (Which Student can opt)
RBASICS – 2 (or) RUBY ON RAILS	Computer Applications (B.A./B.Sc.)	BZCa, CaEP, CaHP
LAWS, DUTIES AND RIGHTS OF CITIZENS	For all B.A. Courses (Except B.A. (Comp.) Combination)	
SECRETARIAL PRACTICE (or) E-BANKING AND E-INSURANCE	B.Com. all streams	
BIOFERTILIZERS (or) CHEMISTRY OF COSMETICS AND FOOD PROCESSING	Botany Zoology Chemistry Microbiology Fisheries Forestry	BZC, MbBC, MbZC, BCFo, BCCs, FiZC
INTELLECTUAL PROPERTY RIGHTS	Biotechnology	BtBC, MbBtC, BtZC
BOOLEAN ALGEBRA (or) GRAPH THEORY	Mathematics Physics Electronics	MPC, MPE, MPCs, MECs, MCCs
DISCRETE STRUCTURES-2 (or) INFORMATION SECURITY	Computer Science	MPCs, MECs, MCCs, MStCs
STATISTICAL TECHNIQUES IN DATA MINING	Statistics	MStCs
TOURISM AND HOSPITALITY MANAGEMENT	For BBA	

SEC4[A]   **R Basics – 2**

Unit – I

Simulation – Generation of pseudorandom numbers, Simulation of other random variables (Bernoulli, Binomial, Poisson, Exponential, Normal), Multivariate random number generation, Markov chain simulation, Monte Carlo integration.

Unit – II
Computational linear algebra – Vectors and matrices in R, Matrix Multiplication, Inversion, Other operations. Numerical optimization – The golden section search method, Newton–Raphson, Built-in functions, Linear programming (Solving LPP in R, Maximization and other kinds of constraints, Special situations).

Text   W. John Braun, Duncan J. Murdoch, A First Course in Statistical Programming with R (2e)

References   1.Jared P. Lander, R for Everyone
                        2.Joshua F. Wiley, Larry A. Pace, Beginning R (2e)
                        3. Martin Laredo, R Programming for Beginners For Data Science

SEC4[B]   **Ruby on Rails**

Unit – I
Getting Started with Rails: What Is Rails? A Brief History of Rails, writing and executing simple rail programs.
Understanding Rails: understanding MVC, rails' standard packages, understanding rails' main principles.

Ruby's Data Types: Hello, Ruby! Ruby's essential data types, everything is an object, identifiers and
variables, working with numbers, Booleans, strings, symbols, regular expressions, ranges, arrays, hashes.

Unit – II
Programming Ruby: defining methods, conditionals – if/elsif/else/unless, ternary operator, case statement, looping –
for/in loop, while and until loops, blocks and iterators, exception handling, raising errors, objects and classes,
defining and instantiating classes, attributes and accessor methods, methods visibility, single inheritance, monkey
patching, singleton methods and eigenclasses. A Working Sample: Creating a New Rails Application, Creating
Databases, Scaffolding and Migrations, Putting It All Together: Creating a Rails Application.

Text   Antonio Cangiano, Ruby on Rails for Microsoft Developers (Bible)

References

   1. J. Mark Locklear, Learning Rails 5
   2. Noel Rappin, Professional Ruby on Rails
   3. Antonio Cangiano, Ruby on Rails for Microsoft Developers
   4. David Griffiths, Head First Rails A learner's companion to Ruby on Rails
   5. Michael Hartl, Ruby on Rails Tutorial Learn Web Development with Rails

Note: Student friendly video lecturers pertaining to this course are available at http://spoken-tutorial.org/

B.A
Semester VI
Laws, Duties and Rights of Citizens
(SEC) Paper IV

Course Description:-

More often than not, when we talk of laws we mean authoritatively sanctioned rules, which are considered essential for a well-ordered society. Yet laws in a democracy are also about constituting a society marked by equality, freedom, and dignity. The rights approach to law has assumed importance in democracies, precisely because of people's struggles to broaden the understanding of law as something which reflects the will of the people. As such law becomes an important source of rights and duties, which develop and strengthen alongside institutions of representative democracy, constitutional norms, and the rule of law. This course aims to understand law as a source of rights, as a progressively widening sphere of substantive justice, welfare, and dignity. This relationship between laws and rights will be studied through specific values which have come to be seen as integral for a democratic society viz., equality and non-discrimination, empowerment, redistribution and recognition of traditional rights etc.

MODULE-I: Equality and non-discrimination

a. Gender: the protection of women against domestic violence, rape and sexual harassment

b. Caste: laws abolishing untouchability and providing protection against atrocities

c. Class: laws concerning minimum wages

d. Disability and equality of participation and opportunity

MODULE-II: Access to Identification documents and Social Security Schemes Familiarise yourself with the following:

Procedure for obtaining an Election Commission of India Identity Card, Driving license, Ration Card, Rashtriya Swasthya Bima Yojna, Old Age Pension Scheme.

Suggested Readings:

1. K. Sankaran and U. Singh, (2008) 'Introduction', in Towards Legal Literac. New Delhi: Oxford University Press
2. P. Mathew, (2002) The Law on Atrocities Against Scheduled Castes and Scheduled Tribes, Indian Social Institute. New Delhi.
3. P. Mathew, (2004) The Minimum Wages Act, 1948, New Delhi:
4. S. Naib, (2013) 'Right to Information Act 2005', in The Right to Information in India, Oxford University Press, New Delhi
5. Dreze, Dey and Khera, (2008) Employment Guarantee Act, A Primer, National Book Trust, New Delhi.

Paper: (BCO601 H): SECRETARIAL PRACTICE

Paper: BC601 H   Max.Marks:40UE+10IA
PPW: 2 Hrs   Exam Duration: 3Hrs
Credits: 2

Objective: *This paper indented to give the practical knowledge on secretarial abilities*.

UNIT I:
Role of Secretary: Definition; Appointment; Duties and Responsibilities of a Personal Secretary; Qualifications for appointment as Personal Secretary.

UNIT II:
Modern technology and office communication, email, voice mail, internet, multimedia, scanner, video-conferencing, web-casting. Agenda and Minutes of Meeting. Drafting, fax-messages, email. Maintenance of appointment diary.

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SUGGESTED READINGS :

1. Terry, George R: *Office Management and Control*.
2. Ghosh, Evam Aggarwal: *Karyalaya Prabandh*, Sultan Chand & Sons.
3. Duggal, B: *Office Management and Commercial Correspondence*, Kitab Mahal.

Paper: (BCO601 G) : E-BANKING AND E-INSURANCE

Paper: BC601 G   Max.Marks:40UE+10IA
PPW: 2 Hrs   Exam Duration: 3Hrs
Credits: 2

Objective:*. To enable the student practical knowledge on e-banking and e-insurance.*

UNIT-I:

E-Banking :Meaning, Benefits, Home banking, Mobile banking, Virtual banking, E-payments, ATM Card/Biometric card, Debit/Credit card, Smart card, NEFT, RTGS, ECS (credit/debit), E-money, Electronic purse, Digital cash, Payment bank.

UNIT-II:

E- Insurance – Benefits, - Applying for online insurance policy – prerequisites for online insurance – premium payment through online – status of policy – downloading bond – policy surrender – downloading premium payment statements.

SUGGESTED READINGS:

1. E-Finance: The Future is Here V. C. Joshi 2010.
2. Frontiers of Electronic Commerce: Ravi Kalakota, Andrew B Whinston, Pearson.
3. E-Commerce: An Indian Perspective: P.T. Joseph, S.J, PHI.

B.Sc. III Year

Semester-VI

Skill Enhancement Course

SEC-4 (2 hrs/week) (Credits 2) Lectures: 30

<u>BIOFERTILIZERS</u>

Unit-I

1. Microbes as biofertilizers – *Rhizobium* – isolation, identification, mass multiplication, carrier based inoculants, Actinorrhizal symbiosis. (4h)

2. *Azospirillum*: isolation and mass multiplication – carrier based inoculant, associative effect of different microorganisms. *Azotobacter*: classification, characteristics – crop response to *Azotobacter* inoculum, maintenance and mass multiplication. (8h)

3. Cyanobacteria (blue green algae), *Azolla* and *Anabaena azollae* association, nitrogen fixation, factors affecting growth, the role of blue green algae and *Azolla* in rice cultivation. (4h)

Unit-II

4. Mycorrhizal association, types of mycorrhizal association, taxonomy, occurrence and distribution, phosphorus nutrition, growth and yield – colonization of VAM – isolation and inoculum production of VAM, and its influence on growth and yield of crop plants. (8h)

5. Organic farming – Green manuring and organic fertilizers, Recycling of biodegradable municipal, agricultural and Industrial wastes – preparation of biocompost, types and method of vermicomposting – field Application. (6h)

Suggested Readings

1. Dubey, R.C., 2005 A Text book of Biotechnology S.Chand & Co, New Delhi.

2. Kumaresan, V. 2005, Biotechnology, Saras Publications, New Delhi.

3. John Jothi Prakash, E. 2004. Outlines of Plant Biotechnology. Emkay Publication, New Delhi.

4. Sathe, T.V. 2004 Vermiculture and Organic Farming. Daya publishers.

5. Subha Rao, N.S. 2000, Soil Microbiology, Oxford & IBH Publishers, New Delhi.

6. Vayas,S.C, Vayas, S. and Modi, H.A. 1998 Bio-fertilizers and organic Farming Akta Prakashan, Nadiad.

SEMESTER VI

SKILL ENHANCEMENT COURSE- IV (2 Credits)

CHEMISTRY OF COSMETICS AND FOOD PROCESSING

30 Hrs

Unit-I: CHEMISTRY OF COSMETICS AND PERFUMES   15 Hrs

A general study including preparation and uses of the following: Hair dye, hair spray, shampoo, sunscreen lotions, lipsticks, talcum powder, nail enamel, creams (cold, vanishing and shaving creams), antiperspirants and artificial flavours. Essential oils and their importance in cosmetic industries with reference to eugenol, geraniol, sandalwood oil, eucalyptus, 2-phenyl ethyl alcohol.

Demonstration experiments or illustration of experimental procedures through charts for the preparation of talcum powder, shampoo and vanishing cream. Analysis of deodorants and antiperspirant - Aluminum, Zinc, Boric acid, Chloride and Sulphide.

Unit-II: FOOD PROCESSING AND FOOD ADULTERATION   15 Hrs

Introduction, methods for food processing, additives and preservatives. Food processing- impact on nutrition, analysis of calcium in milk by complexometric titration, spectrophotometric analysis of iron in foods, Spectrophotometric identification and determination of caffeine and benzoic acid in soft drinks.

FIELD WORK -VISIT TO FOOD INDUSTRIES:

Food adulteration: Adulterants in some common food items and their identification: Pulses, chilli powder, turmeric powder, milk, honey, spices, food grains and wheat flour, coffee powder, tea leaves, vegetable oil, ghee, ice creams, tomato sauce.

Field Work-Collection of adulterated food samples, demonstration of a minimum of five experiments for testing adulterants in food items.

REFERENCES

1. E. Stocchi: Industrial Chemistry, Vol -I, Ellis Horwood Ltd. UK.
2. P.C. Jain, M. Jain: Engineering Chemistry, Dhanpat Rai & Sons, Delhi.
3. Sharma, B.K. & Gaur, H. Industrial Chemistry, Goel Publishing House, Meerut (1996).
4. Rameen Devi, Food Processing and Impact on Nutrition, Sc J Agric Vet Sci., Aug-Sep 2015; 2(4A):304-311.
5. W.A. Poucher, Perfumes, Cosmetics and Soaps (1993).
6. Srilakshmi, Food Science. Edition: 3rd (2004).
7. Lillian Hoagland Meyer, Food chemistry (2008).
8. Handbook of Analysis and Quality Control for Fruit and Vegetable Products,S. Ranganna,Tata McGraw-Hill Education, 1986 – Food.
9. Fundamental concepts of applied chemistry J.C Ghosh, S. Chand and Co, Ltd, New Delhi.
10. Applied Chemistry K .Bhagavathi Sundhar, MJP publishers.

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SEMESTER- VI
SKILL ENHANCEMENT COURSE
INTELLECTUAL PROPERTY RIGHTS

Unit 1: Introduction to Intellectual Property Rights

1.1 Intellectual property rights (IPR): genesis and scope.

1.2 Types of Intellectual property rights: patent, trademarks, copyright, design registration, trade secret, geographical indicators, plant variety protection.

1.3 Patents- objectives, rights, procedure of obtaining and working of patents, infringement.

1.4 Copyrights - works protected under copyright law, rights, transfer of copyright.

1.5 Trademarks - protection of good will, defenses, domain name.

1.6 Geographical indications – International position, multilateral treaties, national level, Indian position.

1.7 International organizations – World Trade Organization (WTO), Trade-Related Aspects of Intellectual Property Rights (TRIPS), General Agreement on Tariffs and Trade (GATT).

Unit 2: Biotechnology and Intellectual Property Rights

2.1 Plant varieties protection- Rights of farmers, breeders and researchers, National gene bank, International union for the protection of new varieties of plants (UPOV), protection of plant varieties and farmers' rights act, 2001

2.2 Animal breeder's rights, patenting animal breeds: Example of Animal patents (Dolly the cloned sheep, Super-salmon, Sex-selection in Animals, genetically manipulated dairy cows)

2.3 Patenting microbes and organisms - Novelty, International Depository Authorities (IDAs), submitting details of the deposit.

2.4 Patenting genes - Pros and cons, ethics, examples

2.5 Patenting markers and variants - examples

2.6 Product vs process patent - Product life cycle and process design.

REFERNCE BOOKS

1. An Introduction to Ethical, Safety and Intellectual Property Rights Issues in Biotechnology" by Padma Nambisan

2. IPR, Biosafety and Bioethics" by Goel and Parashar

3. Genetically Modified Crops and Agricultural Development (Palgrave Studies in Agricultural Economics and Food Policy)" by MatinQaim

4. Biosafety and Bioethics" by Rajmohan Joshi

5. Bioethics and Biosafety in Biotechnology" by V Sree Krishna

6. Biotechnology, IPRs and Biodiversity - By M.B. Rao and Manjula Guru (Pearson Education)

7. Text Book of Biotechnology- By H.K. Das (Wiley Publications)

8. Biotechnology-By H.J. Rehm and G. Reed. VIH Publications, Germany

SEC-4G   BOOLEAN ALGEBRA   BS: 601

Credits: 2
Theory: 2 hours /week

Objective: Students will be exposed to Elements of theory of lattices.

Outcome : Students apply their Knowledge in solving some problems on switching circuits.

Unit I

Lattices: Properties and Examples of Lattices - Distributive Lattices – Boolean Algebras - Boolean Polynomials - Ideals, Filters, and Equations - Minimal Forms of Boolean Polynomials

Unit II

Applications of Lattices – Switching Circuits - Applications of Switching Circuits . - More Applications of Boolean Algebras

Text : Rudolf Lidl and Gunter Pilz, *Applied Abstract Algebra (2e)*

References: Davey and Priestly, *Introduction to Lattices and Order*

SEC-4H   GRAPH THEORY   BS: 601

Credits: 2
Theory: 2 hours /week

Objective: The students will be exposed To some basic ideas of group theory.

Outcome: Students will be able to appreciate the subject learnt.

Unit I

Graphs: A Gentle Introduction - Definitions and Basic Properties - Isomorphism

Unit II

Paths and Circuits: Eulerian Circuits - Hamiltonian Cycles -The Adjacency Matrix Shortest Path Algorithms

Text : Edgar Goodaire and Michael M. Parmenter, *Discrete Mathematics with Graph Theory (2e)*

References: Rudolf Lidl and Gunter Pilz, *Applied Abstract Algebra*

S Pirzada*, Introduction to Graph Theory*

SEC–4 [A] Discrete Structures -2 BS602
    Theory 2 Hours/Week 2 credits

Unit – I

Elementary Combinatorics **:** Basics of Counting, Combinations and Permutations, Enumeration of Combinations and Permutations, Enumerating Combinations and Permutations with Repetitions, Enumerating Permutations with Constrained Repetitions, Binomial Coefficients, The Binomial and Multinomial Theorems, The Principle of Inclusion-Exclusion.

Unit – II

Recurrence Relations **:** Generating Functions of Sequences, Calculating Coefficients of generating functions, Recurrence relations, Solving recurrence relations by substitution and Generating functions, The method of Characteristic roots, Solutions of Inhomogeneous Recurrence Relations.

*Graph s***:** Basic Concepts, Isomorphisms and Subgraphs, Trees and their Properties, Spanning Trees, Directed Trees, Binary Trees, Planar Graphs, Euler's Formula, Multigraphs and Euler Circuits, Hamiltonian Graphs, Chromatic Numbers, The Four-Color Problem.

TEXT BOOKS:

1. Discrete Mathematics for Computer Scientists & Mathematicians, Joe L. Mott, Abraham Kandel, Theodore P. Baker, Pearson , 2nd ed.

REFERENCE BOOKS:

1. Discrete Mathematics and its Applications, Kenneth H. Rosen, 7th Edition, McGrawHill education (India) Private Limited.
2. Discrete Mathematics, D.S. Malik & M.K. Sen, Revised edition Cengage Learning.
3. Elements of Discrete Mathematics, C. L. Liu and D. P. Mohapatra, 4th edition,McGraw Hill education (India) Private Limited.
4. Discrete Mathematics with Applications, Thomas Koshy, Elsevier.
5. Discrete and Combinatorial Mathematics, R. P. Grimaldi, Pearson.

SEC–4[B]   Information Security   BS602
                    Theory   2 Hours/Week   2 credits

Unit – I

Introduction to Information Security – Need for Information Security, Threats to Information Systems, Information Assurance, Cyber Security.
Introduction to Application Security and Counter Measures – Introduction to Application Security, Data Security Considerations, Security Technologies, Security Threats, Security Threats to E-Commerce, E-Cash and Electronic Payment System.

Unit – II

Credit/Debit/Smart Cards, Digital Signature, Cryptography and Encryption, Information Security Governance and Risk Management.
Introduction to Security Policies and Cyber Laws – Need for an Information Security Policy, Introduction to Indian Cyber Law, Objective and Scope of the IT Act, 2000, Intellectual Property Issues, Overview of *Intellectual-Property-* Related Legislation in India, Patent, Copyright.

Text   Dr. Surya Prakash T, Ritendra G, Praveen Kumar S, KLSI, Introduction to information
                        security and cyber laws (Dreamtech Publication)

References

                        1. Anderson, Ross, Security Engineering
                        2. G.R.F. Snyder, T. Pardoe, Network Security
                        3. Mark Stamp, Information Security: Principles and Practice
                        4. A.Basta, W.Halton, Computer Security: Concepts, Issues and Implementation
                        5. Mark S. Merkow, Jim Breithaupt, Information Security: Principles and Practice

Telangana University
B.Sc. III Year VI Semester (CBCS): Statistics Syllabus   R-16
(With Mathematics Combination)
(Examination at the end of III Year VI Semester)
SEC-4: Statistical Techniques in Data Mining
(2 HPW with 2 Credits and 50 Marks)

UNIT-I

Introduction: Introduction to Data mining, The nature of Data sets, Types of structure, Models and patterns, Data mining Tasks, components of data mining algorithms, The Interacting roles of Statistics and Data mining, Data mining: Dredging, snooping and fishing.

Data mining: Definitions, KDD vs Data mining, DBMS vs DM, other related areas, DM Techniques, other mining problems, Issues and challenges in Data mining,

Association Rules: What is an association rule, methods to discover association rules; Apriori Algorithm, Partition Algorithm

UNIT-II

Association Algorithms: Dynamic Item Set Counting Algorithm, FP Tree growth algorithm.

Clustering Algorithms: Introduction, Clustering Paradigm, K-Medoid Algorithm, DBSCAN

Classification Algorithms: Introduction, Nearest Neighbor methods

Decision tree Algorithms: Introduction, Pruning technique.

Reference Books:

1. David Hand, Heikki Manila and Padhraic Smyth (2012): Principles of Data Mining, PHI, New Delhi, (Text Book: Ch. 1, Ch. 2,   Ch. 10.6)

2. Arun K Pujari (2013): Data Mining Techniques, University Press Inia private Ltd. Third Edition. (T.B-2: (T.B.2: Ch 5.4, 5.8, Ch. 6.18).

Note: *Theory paper is for 40 Marks and Internal is 10 Marks*

6.7 TOURISM AND HOSPITALITY MANAGEMENT
(Skill Enhancement course)

Unit – I: - Tourism Industry

Definition – Scope & Importance of Tourism India – Travel and Transport –Travel Motivation – Social Significance of Travel- Modes of Travel – Road ravel- Rail Travel – Indian Railways – Waterways – Civil Aviation Industry in India – Itinerary Planning and Development- Tourism Destinations in Telangana.

Unit – II: -Hospitality Industry

Definition, Size and scope of Hotel Industry, Principles and concepts of Hotel and its objectives organization, development and classification of Hotels, Star categorization, Types of rooms Online hotel booking.

Suggested Books:-

1. Angelo, Andrew, An Introduction to Hospitality Today, ELBS, 2002

2. Anand, M. M.: Tourism and Hotel Industry in India, Prentice Hall, New Delhi, 1976.

3. Gray, W and Ligouri; S. C: Hotel and Hotel Management for Hotels, Pub, Williams Heinemenn, London.