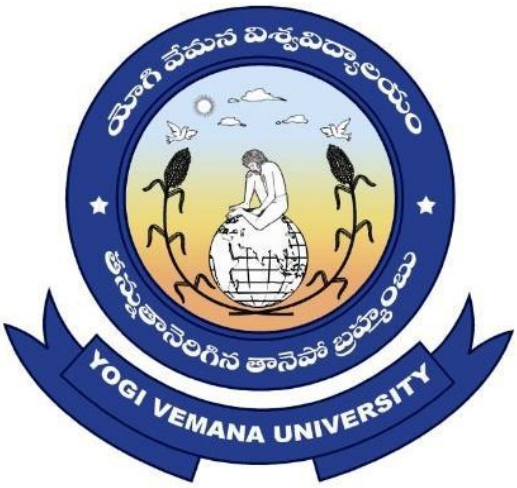
YOGI VEMANA UNIVERSITY::KADAPA



Syllabus of New Courses introduced in various programmes

15091: Discrete Mathematical Structures

UNIT 1:

The Foundations: Logic and Proofs: Propositional Logic – Propositional Equivalences – Predicates and Quantifiers – Nested Quantifiers – Rules of Inference – Introduction to Proofs – Proof Methods and Strategy

Basic Structures: Sets, Functions, Sequences and Sums: Sets – Set Operations – Functions – Sequences and Summations

The Fundamentals Algorithms , The Integers and Matrices: Algorithms – The Growth of Functions –

Complexity of Algorithms – The Integers And Divisions – Primes and Greatest Common Divisors – Integers and Algorithms – Applications of Number Theory – Matrices

Introduction and Recursion : Mathematical Induction – Strong Induction and Well-Ordering – Recursive Definitions and Structural Induction – Recursive Algorithms – Program Correctness

UNIT 2:

Counting: The Basics of Counting – The Pigeon Hole Principle – Permutations and Combinations – Binomial Coefficients – Generalized Permutations and Combinations – Generating Permutations and Combinations

Advanced Counting Techniques: Recurrence Relations – Solving Linear Recurrence Relations – Divide and Conquer Algorithms and Recurrence Relations – Generating Functions – Inclusion – Exclusion – Applications of Inclusion & Exclusion.

Relations : Relations and Their Properties – n-ary Relations and Their Applications – Representing Relations – Closures of Relations – Equivalence Relations – Partial Orderings

UNIT 3:

Graphs: Graphs and Graph Models – Graph Terminology and Special Types of Graphs – Representing Graphs and Graph Isomorphism's – Connectivity – Euler and Hamilton Paths – Shortest Path Problems – Planar Graphs - Graph Coloring.

UNIT 4:

Trees: Introduction to Trees – Applications of Trees – Tree Traversal – Spanning Trees – Minimum Spanning Trees - Kruskal's algorithm - Prim's algorithm.

Text Books:

1. Discrete Mathematics and its Applications, Kenneth H Rosen, 6thEdition, McGraw-Hill, 2007
2. Rosen K H. Discrete Mathematics and its Applications, 5th edition.Tata McGraw-Hill, 2003. Vijaylakshmi and Bhupender, Discrete Mathematics.

Reference Books:

1. Johnson Baugh R, and Carman R, Discrete Mathematics, 5th edition, Pearson Education, 2003.
2. Mott J L. Kandel A, and Baker T P, Discrete Mathematics for Computer Scientists and Mathematicians, 2nd edition, Prentice-Hall of India, 2002.
3. Gary Haggard, John Schipf and sue whitesides, Discrete Mathematics for Computer Science, Thomson, 2005.

15092: Object Oriented Programming through JAVA

UNIT 1:

Java Basics - History of Java, Java buzzwords, comments, data types, variables, constants, scope and life time of variables, operators, operator hierarchy, expressions, type conversion and casting, enumerated types, control flow-block scope, conditional statements, loops, break and continue statements, simple java program, arrays, input and output, formatting output, Review of OOP concepts, encapsulation, inheritance, polymorphism, classes, objects, constructors, methods, parameter passing, static fields and methods, access control, this reference, overloading methods and constructors, recursion, garbage collection, building strings, exploring string class, Enumerations, autoboxing and unboxing, Generics.

UNIT 2:

Inheritance – Inheritance concept, benefits of inheritance , Super classes and Sub classes, Member access rules, Inheritance hierarchies, super uses, preventing inheritance: final classes and methods, casting, polymorphism- dynamic binding, method overriding, abstract classes and methods, the Object class and its methods.

Interfaces – Interfaces vs. Abstract classes, defining an interface, implementing interfaces, accessing implementations through interface references, extending interface.

Packages-Defining, Creating and Accessing a Package, Understanding CLASSPATH, importing packages.

UNIT 3:

Exception handling – Dealing with errors, benefits of exception handling, the classification of exceptions- exception hierarchy, checked exceptions and unchecked exceptions, usage of try, catch, throw, throws and finally, rethrowing exceptions, exception specification, built in exceptions, creating own exception sub classes, Guide lines for proper use of exceptions.

Multithreading - Differences between multiple processes and multiple threads, thread states, creating threads, interrupting threads, thread priorities, synchronizing threads, interthread communication, thread groups, daemon threads.

UNIT 4:

GUI Programming with Java - The AWT class hierarchy, Introduction to Swing, Swing vs. AWT,MVC architecture, Hierarchy for Swing components, Containers – Top-level containers – JFrame, JApplet, JWindow, JDialog, Light weight containers – JPanel, A simple swing application, Overview of several swing components- Jbutton, JToggleButton, JCheckBox, JRadioButton, JLabel, JTextField, JTextArea, JList, JComboBox, JMenu, Java‘s Graphics capabilities – Introduction, Graphics contexts and Graphics objects, color control, Font control, Drawing lines, rectangles and ovals, Drawing arcs, Layout management - Layout manager types – border, grid, flow, box.

Event Handling - Events, Event sources, Event classes, Event Listeners, Relationship between Event sources and Listeners, Delegation event model, Semantic and Low-level events, Examples: handling a button click, handling mouse and keyboard events, Adapter classes.

TEXT BOOKS:

1. Java: the complete reference, 7th editon, Herbert Schildt, TMH.
2. Java for Programmers, P.J.Deitel and H.M.Deitel, Pearson education / Java: How to Program P.J.Deitel and H.M.Deitel, 8th edition, PHI.

REFERENCES:

1. Core Java, Volume 1-Fundamentals, eighth edition, Cay S.Horstmann and Gary Cornell, Pearson education.
2. Java Programming, D.S.Malik, Cengage Learning.
3. Object Oriented Programming with Java, B.Eswara Reddy, T.V.Suresh Kumar, P.Raghavan, Pearson-Sanguine.
4. An introduction to Java programming and object oriented application development, R.A. Johnson- Cengage Learning.
5. Advanced Programming in Java2, K.Somasundaram, Jaico Publishing House.
6. Starting out with Java, T.Gaddis, dreamtech India Pvt. Ltd.
7. Object Oriented Programming with Java, R.Buyya, S.T.Selvi, X.Chu, TMH.
8. Object Oriented Programming through Java, P.Radha Krishna, Universities Press.
9. An introduction to programming and OO design using Java, J.Nino, F.A.Hosch, John Wiley & Sons.
10. Java and Object Orientation, an introduction, John Hunt, second edition, Springer.
11. Maurach‘s Beginning Java2,D.Lowe, J.Murach, A. Steelman, SPD.
12. Programming with Java, M.P.Bhave, S.A.Patekar, Pearson Education

15093: Data Base Management Systems

UNIT 1:

INTRODUCTION: Database Systems vs. File Systems-View of Data- Data Models-Database Languages-Transaction Management- Database Systems Structure-History of Database Systems-Database Systems Applications-Entity Relationship Model.

UNIT 2:

RELATIONAL DATABASES: SQL-Basic Structure-Set Operations-Complex Queries-Joined Queries-DDL-DML

Embedded SQL-Dynamic SQL-Other SQL Functions-Query by Example-Integrity and Security of searching-Relational Database Design-Normalization.

UNIT 3:

DATA STORAGE, INDEXING QUERY EVALUATION & OPTIMIZATION: Storage & File Structure-Disks-RAID-File Organization-Indexing & Hashing-B+ TREE-B Tree-Static Hashing-Dynamic Hashing-Multiple Key Access

Query Processing-Selection Operation-Sorting-Join Operation-Evaluation of Expressions-Query Optimization.

UNIT 4:

TRANSACTION MANAGEMENT: Transaction Concept-Static Implementation-Concurrency Control-Protocols-Deadlock Handling

Recovery Systems-Recovery with Concurrent Transactions-Shadow Paging-Buffer Management-Case Studies-Oracle-Microsoft SQL Server.

TEXT BOOKS

1. Abraham Silberschatz, Hentry F.Korth and S.Sudharssan,"Database System Concepts", 4th Edition, Tata McGraw Hill, 2002.
2. Raghu Ramakrishnan & Johannesgerhrke, "Data Base Management Systems", Mc Graw Hill International Edition, 2000.

15094: Principles of Programming Languages

UNIT1:

Preliminary Concepts: Reasons for studying, concepts of programming languages, Programming domains, Language Evaluation Criteria, influences on Language design, Language categories, Programming Paradigms – Imperative, Object Oriented, functional Programming , Logic Programming. Programming Language Implementation – Compilation and Virtual Machines, programming environments.

UNIT2:

Syntax and Semantics: general Problem of describing Syntax and Semantics, formal methods of describing syntax - BNF, EBNF for common programming languages features, parse trees, ambiguous grammars, attribute grammars, denotational semantics and axiomatic semantics for common programming language features.

Data types: Introduction, primitive, character, user defined, array, associative, record, union, pointer and reference types, design and implementation uses related to these types. Names, Variable, concept of binding, type checking, strong typing, type compatibility, named constants, variable initialization.

UNIT3:

Expressions and Statements: Arithmetic relational and Boolean expressions, Short circuit evaluation mixed mode assignment, Assignment Statements, Control Structures–Statement Level, Compound Statements, Selection, Iteration, Unconditional Statements, guarded commands.

Subprograms and Blocks: Fundamentals of sub-programs, Scope and lifetime of variable, static and dynamic scope, Design issues of subprograms and operations, local referencing environments, parameter passing methods, overloaded sub-programs, generic sub-programs, parameters that are sub-program names, design issues for functions user defined overloaded operators, co routines.

UNIT 4:

Logic Programming Language : Introduction and overview of logic programming, basic elements of prolog, application of logic programming.

Functional Programming Languages: Introduction, fundamentals of FPL, LISP, ML, Haskell, application of Functional Programming Languages and comparison of functional and imperative Languages

TEXT BOOKS:

1. Concepts of Programming Languages Robert .W. Sebesta 6/e, Pearson Education.
2. Programming Languages –Louden, Second Edition, Thomson.

REFERENCE BOOKS:

1. Programming languages –Ghezzi, 3/e, John Wiley
2. Programming Languages Design and Implementation – Pratt and Zelkowitz, Fourth Edition PHI/Pearson Education
3. Programming languages –Watt, Wiley Dreamtech
4. LISP Patric Henry Winston and Paul Horn Pearson Education.
5. Programming in PROLOG Clocksin, Springer

15095: Data Structures

UNIT 1:

Introduction: Primitive and Composite data Types, Abstract Data Type, Data Structure, Storage Structure, File Structure, Complexity of an algorithm, Big O Notation. Arrays; Sparse matrix representation and operations. Linked lists: Single double, Circular lists and Operations.

UNIT 2:

Stacks: Representation, Operations, Array and Linked List Implementation, Applications.

Queues: Representation, Operations, Array and Linked list Implementation of single, multiple, priority, dqueue and circular queues, Applications.

UNIT 3:

Trees: Definitions and concepts, Storage representation and manipulation of general trees, Binary trees, Conversion of general tree to binary tree, AVL tree, Tries, B-Trees, Tree traversing techniques

File Organization: Sequential file organization; ISAM, Direct Files, Inverted Lists, Multi lists.

Graphs: Representation, Warshall and Minimal algorithm, Traversal and other operations,

Topological sorting; Minimum Spanning tree;

UNIT 4:

Hashing: Access table handling, Choosing a hash function, Collision resolution methods, Analysis of hashing.

Sorting: Internal Sorting Techniques: Selection sort, Bubble sort, Merge sort, Quick sort, heap sort and Radix sort External Sorting Techniques: Run lists, Tape sorting, sorting on disks, generating extended run lists. Searching Techniques: Linear and Binary search.

TEXT BOOKS:

1. J.P. Trembly and P.G. Sorensen, —An Introduction to Data Structures with Applications‖, Tata McGraw Hill, Second edition.

Reference Books:

1. E. Horowitz and S. Sahani, —Fundamentals of Data Structures‖, Galgotia Book Source, 1996.
2. Sartaj Sahni, —Data Structures, Algorithms, and Applications in C++‖, Tata McGraw-Hill International Editions, 1999

PRACTICALS

15091P: Object Oriented Programming through JAVA Laboratory

1. Programs to illustrate constructors.
2. Programs to illustrate Overloading & Overriding methods in Java.

   3. Programs Illustrate the Implementation of Various forms of Inheritance. (Ex. Single, Hierarchical, Multilevel inheritance.)
4. Program which illustrates the implementation of multiple Inheritance using interfaces in Java.
5. Program to illustrate the implementation of abstract class.
6. Programs to illustrate Exception handling
7. Programs to create packages in Java.
8. Program to Create Multiple Threads in Java.
9. Program to Implement Producer/Consumer problem using synchronization.
10. Program to Write Applets to draw the various polygons.
11. Create and Manipulate Labels, Lists, Text Fields, Text Areas & Panels
12. Handling Mouse Events & Keyboard Events.
13. Using Layout Managers.
14. Create & Manipulate the Following Text Areas, Canvas, Scroll bars, Frames, Menus, Dialog Boxes.
15. Programs, which illustrate the manipulation of strings.
    a. Ex. 1. Sorting an array of Strings.
    b. Frequency count of words & Characters in a text.
16. Programs, which illustrate the use of Streams.
17. Java Program that reads on file name from the user and displays the contents of file.
18. Write an applet that displays a simple message.
19. Write an applet that computes the payment of a loan based on the amount of the loan, the interest rate and the number of months. It takes one parameter from the browser: Monthly rate; if true, the interest rate is per month; Otherwise the interest rate is annual.
20. Write a Java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the + - X % operations. Add a text field to display the result.
21. Write a Java program for handling mouse events.
22. Write a Java program for creating multiple threads
23. Write a Java program that correctly implements producer consumer problem using the concept of inter thread communication.
24. Write a Java program that lets users create Pie charts. Design your own user interface (with AWT)
25. Write a Java program that allows the user to draw lines, rectangles and ovals.
26. Write a Java program that illustrates how run time polymorphism is achieved.

15092P: Database Management Systems Laboratory

1. Programs in SQL covering all the SQL Queries.
2. a) Write a program in PL/SQL to determine Statistical functions.
   b) Write a program in PL/SQL to demonstrate functions.
   c) Write a program in PL/SQL to demonstrate cursors.
   d) Write a program in PL/SQL to demonstrate parameterized cursors.
   e) Write a program in PL/SQL to demonstrate procedures.
   f) Write a program in PL/SQL to demonstrate packages.
   g) Write a program in PL/SQL to demonstrate overloading packages.
   h) Write a program in PL/SQL to demonstrate exceptions.
   i) Write a program in PL/SQL to demonstrate triggers.

25091: Advanced JAVA Programming

UNIT 1:

FILES AND STREAMS: Introduction, Data Hierarchy, Files and Streams, Creating a Sequential-Access File, Random-Access Files, Reading Data Sequentially from a Random-Access File.

NETWORKING: Introduction, Manipulating URLs, Reading a File on a Web Server, Establishing a Simple Server, Establishing a Simple Client, Client/Server Interaction with Stream Socket Connections, Connectionless Client/Server Interaction with Datagrams, Client/Server Tic-Tac-Toe Using a Multithreaded Server, Security and the Network. (Chapter 17 and 21 of Book 1)

UNIT 2:

JDBC DATABASE ACCESS: JDBC Basics, New Features in the JDBC 2.0 API (Chapter 26 and 27 of Book 2)

UNIT 3:

REMOTE METHOD INVOCATION (RMI): Introduction, Case Study: Creating a Distributed System with RMI, Defining the Remote Interface Implementing the Remote Interface, Define the Client, Compile and Execute the Server and the Client.

UNIT 4:

SERVLETS: Overview of Serves, Interacting with Clients, The Life Cycle of a Servlet, Saving Client State, The servletrunner Utility, Running Servlets. (Chapters 34 to 39 of Book 2)

TEXT BOOKS:

1. JAVA How to Program Third Edition - Deitel & Deitel
2. The JAVA Tutorial Continued Compione, Walrath, Huml, Tutorial Team - Addison Wesley

REFERENCE BOOKS:

1. Java tutorial continued – campione (addison wesley)
2. The complete reference java 2 (fourth edition) by - patrick naughton & herbet schildt (TMH)
3. Programming java - decker&hirsh field vikas publisking (3001) (thomson learning) (second edition)
4. Introduction to java programming - Y.Daniel Liang PHI(3002)
5. Object oriented programming through JAVA2 by - Thamus WU (Mc.Graw Hill)
6. JAVA 2 - Dietel & Dietel (Pearson Education)
7. Introduction to JAVA –Bala Guru Swamy

25092: Computer Networks

UNIT 1:

Introduction, Uses of Computer Networks, Network Hardware, network software, Reference Models, Example Networks, Example Data Communication Services.

Physical Layer: Transmission media, Guided media, unguided media, Wireless transmission, Telephone system, Narrowband ISDN, Broadband ISDN and ATM, Communication Satellites.

UNIT 2:

Data Link Layer: Data Link Layer Design Issues, Error Detection and Correction, Elementary data link protocols – An unrestricted Simplex protocols, A simplex Stop and Wait Protocol, Sliding Window Protocol – one bit sliding window protocol, Go back-N ARQ, Selective repeat protocol, Media Access Sub Layer: Static Channel Allocation, Dynamic Channel allocation, Aloha, , IEEE Standard 802.4 token bus, IEEE Standard 802.5 token ring. Comparison 802.4 and 802.5.

UNIT 3:

Network Layer: Network layer design issues, Routing algorithms – classification of routing algorithms, routing tables, Shortest path routing, flooding, Hierarchical routing, Distance Vector routing, Link state routing, Broadcast routing, Multicast routing.

Congestion control algorithms, open loop control, closed loop control, Internetworking design principles, Types of Internetworking, IP Protocol, IPV4 addressing, subnet addressing.

UNIT 4:

Transport layer: The Transport Service, Elements of Transport Protocols, Internet Transport Protocols(TCP and UDP).

Application Layer: Network Security, Secret key algorithms DES, Domain Name System, Electronic Mail, the World Wide Web.

TEXT BOOKS:

1. Computer Networks -- Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI

Reference Books:

1. Computer Communications and Networking Technologies –Michael A.Gallo, William M .Hancock - Thomson Publication
2. Data Communications and Networking – Behrouz A. Forouzan. Third Edition TMH

25093: Web Technologies

UNIT 1:

Introduction to XHTML : Introduction – First XHTML –XHTML Validation service – Headers – Linking– Images – Unordered Lists – Nested and Ordered Lists – Basic XHTML Tags – Intermediate XHTML Tables and Formatting – XHTML Forms – Internal Linking – Creating and Using Image maps – meta Elements – frameset element – Nested framesets.

Cascading Style Sheets – Introduction –Inline Styles – Embedded Style Sheets – Conflicting Styles–Linking External Style Sheets – Positioning Elements – Backgrounds – Element dimensions – Text flow and the Box Model – User Style Sheets

UNIT 2:

Java Script: Introduction to Scripting: Introduction – A Sample Program: Printing a Line of Text in a Web Page – Obtaining user with prompt Dialogs

Functions: Introduction – Program Modules in JavaScript – Programmer-Defined Functions – Function Definitions – Random Number Generation – Example – Scope Rules – JavaScript Global Functions– Recursion vs. Iteration

Arrays: Declaring and Allocating Arrays – Examples Using Arrays – References and Reference Parameters – Passing Arrays to Functions – Sorting Arrays – Searching Arrays : Linear Search and Binary Search – Multidimensional Arrays.

Objects: Introduction – Thinking About Objects – Math Object – String Object – Date Object – Boolean, Number, document, window Object

UNIT 3:

Dynamic HTML – Object Model and Collections: Introduction – Object Referencing – Collections all and Children – Dynamic Styles – Dynamic Positioning – Using the frames Collection – navigator Object Event Model – Event Onclick – Event onload – Error Handling with onerror – Tracking the Mouse with Event onmousemove – Rollovers with onmouseover and onmouseout – Form Processing with onfocus and onblur – More Form Processing with onsubmit and onreset – Event Bubbling – More DHTML Events.

Filters and Transitions: Flip filters: flipv and fliph – Transparency with the chroma Filter – Creating Image

masks – Miscellaneous Image filters: invert, gray and xray – Adding shadows to Text – Creating Gradients with alpha – Making Text glow – Creating Motion with blur – Using the wave Filter – Advanced Filters: dropshadow and light – blendTrans Transitions – revealTrans Transitions

UNIT 4:

XML (Extensible Markup Language): Introduction – Structuring Data – XML Namespaces Document Type Definitions (DTDs) and schemas– XML vocabularies- Document Object Model – DOM methods- Simple API for XML - Extensible Style Language(XSL) – Simple Object Access Protocol(SOAP)

Web Servers (IIS, Apache): Introduction – HTTP request Types – System Architecture – Client side scripting vs Server Side Scripting - Microsoft Internet Information Server (IIS) – Apache Web Server–Requesting documents

TEXT BOOKS:

1.DEITEL & DEITEL: *Internet & World Wide Web - How to Program*, Pearson Education -Third Edition

REFERENCE BOOKS

1. Ivan Bayross : *HTML, DHTML , Java Script , Perl, CGI*, BPB
2. Web Technologies by Achyut S Godbole and Atul Kahate, TMH

25094: Software Engineering

UNIT 1:

Introduction to Software Engineering: The evolving role of software, Changing Nature of Software, Software myths.

A Generic view of process: A layered technology, A process framework, The Capability Maturity Model Integration (CMMI), Process patterns, process assessment, personal and team process models.

Process models: The waterfall model, Incremental model, Rad model, Spiral model, Evolutionary process models, The Unified process.

An Agile View of process: Agility, Agile process models- Scrum process model, Extreme programming (XP).

UNIT2:

Software Requirements: Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document.

Requirements engineering process: Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management.

System models: Context Models, Behavioral models, Data models, Object models, structured methods.

UNIT 3:

Product metrics: Software Quality, Metrics for Analysis Model, Metrics for Design Model, Metrics for source code, Metrics for testing, Metrics for maintenance.

Testing Strategies: A strategic approach to software testing, test strategies for conventional software, Black-Box and White-Box testing, Validation testing, System testing, the art of Debugging.

Metrics for Process and Products : Software Measurement, Metrics for software quality.

UNIT 4:

Risk Management: Reactive vs Proactive risks strategies, software risks, risk identification, risk projection, risk refinement, RMMM, RMMM plan.

Quality Management: Quality concepts, software quality assurance, software reviews, formal technical reviews, statistical software quality assurance, software reliability.

TEXT BOOKS:

1. Software Engineering, A practitioner's Approach- Roger S. Pressman, 6th edition. McGrawHill International Edition.
2. Software Engineering- Sommerville, 7th edition, Pearson education.
3. Designing Flexible Object Oriented systems with UML-Charles Ritcher
4. Object Oriented Analysis & Design, Sat/.inger. Jackson, Burd Thomson

REFERENCE BOOKS:

1. Software Engineering- K.K. Agarwal & Yogesh Singh, New Age International Publishers
2. Software Engineering, an Engineering approach- James F. Peters, Witold Pedrycz, John Wiely.
3. Systems Analysis and Design- Shely Cashman Rosenblatt,Thomson Publications.
4. Software Engineering principles and practice- Waman S Jawadekar, The McGraw-Hill Companies.

25095: Artificial Intelligence

UNIT 1:

Problems and Search: What is Artificial Intelligence?, The AI Problems, The Underlying Assumption, What is an AI Technique, The Level of the Model, Criteria for Success.

UNIT 2:

Problems, Problem Spaces, and Search: Defining the Problem as a State Space Search, Production systems, Problem Characteristics, Production System Characteristics, Issues in the Design of Search Programs.

Heuristic Search Techniques: Generate and Test, Hill Climbing, Best-First Search, Problem Reduction, Constraint Satisfaction, Means Ends Analysis.

UNIT 3:

Knowledge Representation:- Knowledge Representation Issues, Representations and Mappings, Approaches to knowledge Representation, Issues in Knowledge Representation.

UNIT 4:

Using Predicate Logic:- Representing Instance and Isa Relationships, Computable Functions and Predicates, Resolution, Natural Deduction.

Representing Knowledge Using Rules:- Procedural Versus Declarative knowledge, Logic Programming, Forward versus Back ward Reasoning, Matching, Control Knowledge.

TEXT BOOK:

1. Artificial Intelligence, Elaine Rich, Kevin Knight, Tata McGrawHill

REFERENCE:

1. Artificial Intelligence – A modern approach, Stuart Russel, Peter Norwig, Pearosn Education.

NON-CORE SYLLABUS

*25096-CBCS-I: Introduction to Computers and MS-Office

UNIT 1:

Exploring Computers and their Uses: Computers in our World, the Computer defined, Computer for individual users, Computer for Organizations, Computer in Society, Why was Computers so important.

Types of Storage Devices: An ever-growing need, Categorizing storage devices, Magnetic

Storage Devices-How data is stored on a disk, how data is organized on magnetic disk, how the operating system finds data on a disk, Diskettes, hard disks, removable high-capacity magnetic disks, tape drivers, optical storage devices, solid-state storage devices, smart cards, solid-state disks.

Operating System Basics: Introduction to OS, Types of Operation System, Evolution of OS, purpose of operating systems, functions of an OS, Modern OS (windows 9x, Windows XP, NT, Some Windows server OS),Introduction to UNIX OS, Introduction to LINUX OS, Basic commands.

UNIT2: MS-WORD

Word Basics: Starting word, creating a new document, operating preexisting document, the parts of a word window, typing text, selecting text, deleting text, undo, redo, repeat, inserting text, replacing text, formatting text, cut, copy, paste-formatting text and document: Auto format, Line spacing margins, Boards and shading.

Header and Footer: Definition of header and footer, creating basic header and footer, creating different headers and footers for odd and even pages.

Tables: Creating a simple table, creating a table using the table menu. Entering and editing text in the table, selecting table, adding rows, deleting rows, changing row height, inserting columns, deleting columns, changing column width.

Graphics: Importing graphics, Clip Art, insert picture, Clip Art Gallery. Using word's drawing features, drawing objects, text in drawing.

Macros: Macro. Record Macros, Editing macros, running a macro.

Mail Merge: Mail Merge Concept, Main document, data sources, merging data source and main document, overview of word menu options word basic tool bar.

UNIT 3: MS-EXCEL

Excel Basics: Overview of Excel features, Getting Started, creating a new worksheet, selecting cells, Entering and editing text, entering and editing numbers, entering and editing formulas, Referencing cells, moving cells, copying cells, sorting cell data.

Formatting: Page setup, changing height and width of row & column. Auto format, changing font sizes and attributes, centering text across columns, using boarders buttons and commands, changing colors and shading, hiding rows and columns.

Introduction to Functions: Parts of Functions, Functions requiring add-ins, the function wizard, examples functions by category: Date and Time functions, Engineering Functions, Math and Trig Functions, Statistical Functions, Text Functions.

Excel Charts: Chart parts and technology, instant charts with the chart wizard, creation of different types of charts, printing charts, deleting charts, linking in excel.

UNIT 4: MS-POWER POINT

Power Point Basics: Terminology, Getting Started, Views. Creating Presentations: Using auto content wizard, Using blank presentation option, Using design template option, Adding and deleting slides, Importing image from the outside world, Drawing in power point, Transitions and build effects, Deleting a slide, numbering a slide saving presentation. Closing presentation, printing presentation elements.

TEXT BOOKS

1. Peter Norton, Introduction to Computers, Sixth Edition, Tata MC Graw Hill (2007)
2. Ran Mansfield. Working in Microsoft Office, Tata MC Graw Hill (2008)

REFERENCE BOOKS

1. Michael Miller, Absolute Beginner's guide to computer Basics, Fourth Edition, Pearson Education (2007)
2. Deborah Morly, Charles S. Parker, understanding computers to day and tomorrow , 11th edition, Thomson
3. Ed Bott, woody Leonhard, using Microsoft Office 2007, Pearson Education (2007)

PRACTICALS

25091P: Advanced JAVA Programming Laboratory

1. Programme to illustrate the File Class.
2. Programme to illustrate the IO, Utility Package & Display the File Properties.
3. Programme to illustrate the File Input Stream.
4. Programme to illustrate the nio, io package.
5. Programme for simple Railway Reservation System.
6. Programme to illustrate the Client & Server.
7. Programme for DDL, DML operations on a database through JDBC.
8. Programme for DDL, DML operations of a Database through JDBC prepared Statement.
9. Programme for DDL, DML operations of a Database through JDBC to Result set Metadata.
10. Programme for RMI Methods.
11. Programme to using of servlet print the current date & time.
12. Programme to demonstrate JAVA URL class.

25092P: Web Technologies Laboratory

1. Create your own Resume using HTML 5 Tags
2. Debug and validate your HTML document (Resume) using W3C validator and fix the issues.
3. Add Styles to your Resume using CSS 3 Properties.
   a. Add External, Internal and Inline CSS styles to know the priority.
   b. Add CSS3 Animation to your profile.
4.
   a. Add functionalities that use any 2 of HTML 5 API"s.
   b. Create a student Registration form for Job Application and validate the form fields using JavaScript
5.
   a. Create a CGPA Calculator in Web Brower using HTML, CSS and JavaScript. Use functions in JavaScript.
   b. Create a Quiz Program with adaptive questions using JavaScript.
6. Create a Pan Card Validation form using Object Oriented JavaScript, consider the 10th character to be an alphabet.
   a. Get the user"s First Name, Last Name and other required fields as input
   b. Assume the last digit of the Pan Number to be an alphabet
   c. Validate the PAN Number
7.
   a. Create an online Event Registration form and validate using JQuery
   b. Create an online video Player which will allow you to play videos from the system and also create custom playlist using JQuery.
8. Construct a JSON Structure for a bookstore and validate it using JSON Validator such as http://jsonlint.com/ and parse the Json file to list the books under the category “Fiction”. Use Javascript or JQuery for parsing
9. Using PHP and MySQL, develop a program to accept book information viz. Accession number, title, authors, edition and publisher from a web page and store the information in a database and to search for a book with the title specified by the user and to display the search results with proper headings.
10. Develop a Social Media Web Application using HTML5, CSS3, JQuery, AJAX & PHP.

35091: Dot Net Programming

UNIT 1:

Fundamentals of Visual Basic, Exception handling, windows forms, Control Classes, Different Types of Boxes, Labels, Buttons, Panels. (Chapters 1 to 7)

UNIT 2:

WINDOWS FORMS: Different types of Bars, Menus, Views. **OBJECT - ORIENTED PROGRAMMING**: Classes and objects constructors and distructors, inheritance, modifiers, Interfaces, Polymorphism, Vate Binding, Graphics handling and File handling. (Chapters 8 to 13)

UNIT 3:

WEB FORMS: Working with webforms, Web forms and HTML, The Web control class, Web Forms and Boxes, Web Forms and Buttons, Validation Controls, Ad Rotators, Web Forms and HTML controls. (Chapters 14 to 19)

UNIT 4:

DATA ACCESS WITH ADO.NET: Accessing data with the server explorer, Data adapters and Data sets, Binding Controls to databases, Handling databases in code, Database access in Web Applications. Creating user Controls, Web user Controls, and Multithreading creating Windows services, Web Services and Deploying applications. (Chapters 30 to 25)

TEXT BOOK:

1. VB.NET PROGRAMMING (BLACK BOOK) BY STEVEN HOLZNER (Dreamtech-3003)

REFERENCE BOOKS:

1. VB.NET PROGRAMMING BY T. GADDIS (Dreamtech)
2. Microsoft Visual Basic. Net step by step By Halvosrson (PHI)
3. OOP with Microsoft Visual Basic.Net By Reynold Hacrtte (PHI)

35092: Data Warehousing & Data Mining

UNIT1:

Introduction: Fundamentals of data mining, Data Mining Functionalities, Classification of Data Mining systems, Major issues in Data Mining.

Data Preprocessing: Needs Preprocessing the Data, Data Cleaning, Data Integration and Transformation, Data Reduction, Discretization and Concept Hierarchy Generation.

UNIT2:

Data Warehouse and OLAP Technology for Data Mining Data Warehouse, Multidimensional Data Model, Data Warehouse Architecture, Data Warehouse. Implementation, Further Development of Data Cube Technology, From Data Warehousing to Data Mining.

UNIT3:

Concepts Description: Characterization and Comparison: Data Generalization and Summarization- Based Characterization, Analytical Characterization: Analysis of Attribute Relevance, Mining Class Comparisons: Discriminating between Different Classes, Mining Descriptive Statistical Measures in Large Databases.

Mining Association Rules in Large Databases: Association Rule Mining, Mining Single-Dimensional Boolean Association Rules from Transactional Databases, Mining Multilevel Association Rules from Transaction Databases, Mining Multidimensional Association Rules from Relational Databases and Data Warehouses, From Association Mining to Correlation Analysis, Constraint-Based Association Mining.

UNIT4:

Classification: Issues Regarding Classification and Prediction, Classification by Decision Tree Induction, Bayesian Classification, Classification by Back propagation, Classification Based on Concepts from Association Rule Mining, Other Classification Methods, Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Methods, Density-Based Methods, Grid-Based Methods, Model-Based Clustering Methods, Outlier Analysis.

TEXT BOOKS:

1. Data Mining – Concepts and Techniques - JIAWEI HAN & MICHELINE KAMBER Harcourt India.

REFERENCE BOOKS:

1. Data Mining Introductory and advanced topics –MARGARET H DUNHAM, PEARSON EDUCATION
2. Data Mining Techniques – ARUN K PUJARI, University Press.
3. Data Warehousing in the Real World – SAM ANAHORY & DENNIS MURRAY. Pearson Edn Asia.
4. Data Warehousing Fundamentals – PAULRAJ PONNAIAH WILEY STUDENT EDITION.
5. The Data Warehouse Life cycle Tool kit – RALPH KIMBALL WILEY STUDENT EDITION.

35093: Cryptography and Network Security

UNIT 1:

Introduction: Security trends, OSI Security Architecture, Security Attacks, services and mechanisms, Model for Network Security.

Classical techniques: Symmetric Cipher model, Substitution Techniques, Transposition Techniques, Steganography.

Modern techniques: Simplified DES, block cipher principles, data encryption standard, strength of DES, differential and linear crypt analysis, block cipher design principles and modes of operations. Algorithms: Triple DES, international data encryption algorithm, characteristics of advanced symmetric block ciphers.

UNIT 2:

Conventional encryption: Placement of encryption function, traffic confidentially, key distribution.

Public key cryptography: Principles of public key cryptosystems, RSA algorithm, key management, Diffie-Hellmen key exchange.

Message authentication and hash functions: Authentication requirements and functions, Message Authentication, Hash functions, security of hash functions and Macs

UNIT 3:

Authentication applications: Kerbores, X.509 directory authentication service. Electronic mail security: Pretty good privacy, S/MIME.

UNIT 4:

System Security: Intruders, Intrusion detection, Password management. Malicious Software: Virus and related threats, Virus counter measures. Firewall: Firewall design principles, Trusted systems.

TEXT BOOKS:

1. Cryptography and Network Security: Principles and Practice – William Stallings, Pearson Education.
2. Network Security Essentials (Applications and Standards) by William Stallings, Pearson Education.

REFERENCE BOOKS:

1. Fundamentals of Network Security by Eric Maiwald (Dreamtech Press)
2. Network Security – Private Communication in a Public World by Charlie kaufman, Radia Perlman and Mike Speciner, Pearson/PHI.
3. Introduction to Cryptography, Buchmann, Springer.

35094A: Grid Computing

UNIT I

Introduction – Early Grid Activities, Current Grid Activities, an overview of Grid business areas, Grid applications, Grid infrastructure – Grid computing organizations and their roles – Grid computing Anatomy – Grid computing Roadmap

UNIT II

Service-Oriented and ,Web Service Architecture- XML Messages and enveloping – Service message description mechanisms, relationship between web and grid service – Sample use cases that drive OGSA – The OGSA Platform components

UNIT III

A high level introduction to OGSI – Technical details of OGSI specification, Service data concepts - Grid Service: Naming and change Management – OGSA Basic Services: Common Management Model, Service domains, Policy and Security Architecture

UNIT IV

The Grid Computing Toolkits – GLOBUS GT3 Toolkit: Architecture - GLOBUS GT3 Toolkit: Programming Model

TEXTBOOK

1. Joshy Joseph & Craig Fellenstein, “Grid Computing”, Pearson-2004.

REFERENCE

1. Ahmar Abbas, “Grid Computing: A Practical Guide to technology and Applications”, Firewall media – 2006.

35094B: Machine Learning

UNIT - I

Introduction - Well-posed learning problems, designing a learning system Perspectives and issues in machine learning

Concept learning and the general to specific ordering – Introduction, A concept learning task, concept learning as search, Find-S: Finding a Maximally Specific Hypothesis, Version Spaces and the Candidate Elimination algorithm, Remarks on Version Spaces and Candidate Elimination, Inductive Bias.

Decision Tree Learning – Introduction, Decision Tree Representation, Appropriate Problems for Decision Tree Learning, The Basic Decision Tree Learning Algorithm Hypothesis Space Search in Decision Tree Learning, Inductive Bias in Decision Tree Learning, Issues in Decision Tree Learning. **UNIT - II**

Artificial Neural Networks Introduction, Neural Network Representation, Appropriate Problems for Neural Network Learning, Perceptions, Multilayer Networks and the Back propagation Algorithm. Discussion on the Back Propagation Algorithm, An illustrative Example: Face Recognition **Evaluation Hypotheses** – Motivation, Estimation Hypothesis Accuracy, Basics of Sampling Theory, A General Approach for Deriving Confidence Intervals, Difference in Error of Two Hypotheses, Comparing Learning Algorithms.

UNIT - III

Bayesian learning - Introduction, Bayes Theorem, Bayes Theorem and Concept Learning Maximum Likelihood and Least Squared Error Hypotheses, Maximum Likelihood Hypotheses for Predicting Probabilities, Minimum Description Length Principle , Bayes Optimal Classifier, Gibs Algorithm, Naïve Bayes Classifier, An Example: Learning to Classify Text, Bayesian Belief Networks, EM Algorithm. **Computational Learning Theory –** Introduction, Probably Learning an Approximately Correct Hypothesis, Sample Complexity for Finite Hypothesis Space, Sample Complexity for Infinite Hypothesis Spaces, The Mistake Bound Model of Learning.

Instance-Based Learning – Introduction, k-Nearest Neighbor Learning, Locally Weighted Regression, Radial Basis Functions, Case-Based Reasoning, Remarks on Lazy and Eager Learning.

UNIT - IV

Pattern Comparison Techniques, Temporal patterns, Dynamic Time Warping Methods, Clustering, Codebook Generation, Vector Quantization

Pattern Classification: Introduction to HMMS, Training and Testing of Discrete Hidden Markov Models and Continuous Hidden Markov Models, Viterbi Algorithm, Different Case Studies in Speech recognition and Image Processing

Analytical Learning – Introduction, Learning with Perfect Domain Theories: PROLOG-EBG Remarks on Explanation-Based Learning, Explanation-Based Learning of Search Control Knowledge, Using Prior Knowledge to Alter the Search Objective, Using Prior Knowledge to Augment Search Operations.

Combining Inductive and Analytical Learning – Motivation, Inductive-Analytical Approaches to Learning, Using Prior Knowledge to Initialize the Hypothesis.

TEXT BOOKS:

1. Machine Learning – Tom M. Mitchell, MGH

2. Fundamentals of Speech Recognition By Lawrence Rabiner and Biing – Hwang Juang.

REFERENCE BOOKS:

1. Machine Learning : An Algorithmic Perspective, Stephen Marsland, Taylor & Francis

35094C: Distributed System

UNIT 1:

Characterization of Distributed Systems-Introduction-Examples-Resource Sharing and the Web-Challenges. System Models-Architectural-Fundamental.

Interprocess Communication-Introduction-API for Internet protocols-External data representation and marshalling--Client-server communication-Group communication-Case study: Interprocess Communication in UNIX.

UNIT 2:

Distributed Objects and Remote Invocation-Introduction-Communication between distributed objects- Remote procedure calls-Events and notifications

Case study: Java

RMI, Operating System Support-Introduction-OS layer-Protection-Processes and threads-Communication and invocation OS architecture.

UNIT 3:

Distributed File Systems-Introduction-File service architecture-Case Study: Sun Network File System-Enhancements and further developments.

Name Services-Introduction-Name Services and the Domain Name System-Directory Services Case Study: Global Name Service.

UNIT 4:

Time and Global States-Introduction-Clocks, events and process states-Synchronizing physical clocks-Logical time and logical clocks-Global states-Distributed debugging. Coordination and Agreement-Introduction-Distributed mutual exclusion-Elections- Multicast communication-Consensus and related problems.

TEXT BOOK:

1. George Coulouris, Jean Dollimore, Tim Kindberg, , "Distributed Systems: Concepts and Design", 4th Edition, Pearson Education, 2005.

REFERENCE BOOKS:

1. A.tS. Tanenbaum and M. V. Steen, "Distributed Systems: Principles and Paradigms", Second Edition, Prentice Hall, 2006.
2. M.L.Liu, —Distributed Computing Principles and Applications‖, Pearson Addison Wesley, 2004.
3. Mukesh Singhal, —Advanced Concepts In Operating Systems‖, McGrawHill Series in Computer Science, 1994.
4. Nancy A. Lynch, "Distributed Algorithms", The Morgan Kaufmann Series in Data Management System, Morgan Kaufmann Publishers, 2000.

35094D: Management Information System

UNIT I

The meaning and role of MIS: What is MIS? Decision support systems, systems approach, the systems view of business, MIS organization within the company, Managers view of Information systems.

Management organizational theory and the systems approach - Development of organizational theory, organizational behavior, management - information and the systems approach – Data processing and the computer – components of computer system – computer based information system -Applications

Information systems for decision making: Evolution of an information system - Basic information systems - decision making and MIS - MIS as a technique for making programmed decisions - decision assisting information systems –DSS

UNIT II

Strategic and project planning for MIS: General business planning - appropriate MIS response - MIS planning general - MIS planning details

Conceptual system design: Define the problems - set system objectives - establish system constraints - determine information needs - determine information sources - develop alternative conceptual designs and select one - prepare the conceptual design report.

Detailed system design: Inform and involve the organization - aim of detailed design - project management of MIS detailed design - identify dominant and trade off criteria - sketch the detailed operating subsystems and information flows – automation - inputs, outputs, and processing - software, hardware and tools - propose an organization to operate the system - document the detailed design - revisit the manager-user.

UNIT III

Implementation, evaluation and maintenance of the MIS: Plan the implementation - acquire floor space and plan space layouts - organize for implementation - develop procedures for implementation train the operating personnel - computer related acquisitions - develop forms for data collection and information dissemination - develop the files - test the system - evaluate the MIS - control and maintain the system.

Pitfalls in MIS development: Fundamental weaknesses - soft spots in planning - design problems - implementation

UNIT IV

Systems concepts and control: Systems classifications – concepts – control: Key system concept – business organization as a system – control and system design

Management science and systems modeling for MIS: What is Management science? – What are models? – Kinds and use of models for analysis of systems characteristics – simulation – construction of models Case studies

TEXT BOOK:

1. Information systems for modern management, 3rd Edition by R.G Murdick, J.E Ross and J. R clagget, PHI-2004.

REFERENCE BOOKS:

1. Management Information Systems, 9/e, Laudon & Laudon, V.M.Prasad, Pearson, 2005,
2. Management Information Systems , C.S.V.Murthy, Himalaya Publications, 2004

35095A: Digital Image Processing

UNIT 1:

INTRODUCTION: What is Digital Image Processing, The origins of Digital Image Processing, Examples of Fields that use Digital Image Processing, Fundamentals steps in Digital Image Processing, Components of an Image Processing System

DIGITAL IMAGE FUNDAMENTALS: Elements of Visual Perception, Light & Electro magnetic spectrum, Image sensing and acquisition, Image sampling & quantization, some basic relationships between pixels, Linear and non linear operations.

UNIT2:

IMAGE ENHANCEMENT IN THE SPATIAL DOMAIN: Background, some gray level transformations, histogram processing , enhancement using arithmetic/logic operations, basics of spatial filtering, smoothing spatial filters, sharpening spatial filters, combining spatial enhancement methods

IMAGE ENHANCEMENT IN THE FREQUENCY DOMAIN: Background, Introduction to fourier transform and frequency domain, smoothing frequency domain filters, sharpening frequency domain filters, homomorphism filtering, implementation.

UNIT 3:

IMAGE RESTORATION: A model of the image degradation, restoration process, noise models, restoration in the presence of noise only spatial filtering, periodic noise reduction by frequency domain filtering, Linear, position invariant degradation, Estimating the degradation function, inverse filtering, minimum mean square error filtering, constrained least squares filtering, geometric mean filter, geometric transformation

UNIT 4:

IMAGE COMPRESSION: Fundamentals, image compression models, elements of information theory, error free compression, lossy compression, image compression standards

TEXT BOOKS:

1. Digital Image Processing by Rafael C. Gonzalez & Richard E. Woods, Second Edition, Pearson Education.

REFERENCE BOOKS:

1. Image Processing, Analysis, and Machine Vision, Milan Sonka, Vaclav Hlavac and Roger Boyle,Second Edition, Thomson Learning.
2. Digital Image Processing by S Jayaraman, S Esakkirajan, T VeeraKumar (Tata McGraw Hill Education Pvt Ltd)
3. Computer Vision and Image Processing, Adrian Low, Second Edition, B.S.Publications
4. Digital Image Processing using Matlab, Rafeal C.Gonzalez, Richard E.Woods, Steven L. Eddins,Pearson Education.
5. Digital Image Processing, William K. Prat, Wily Third Edition
6. Digital Image Processing and Analysis, B. Chanda, D. Datta Majumder, Prentice Hall of India.

35095B: Mobile Computing

UNIT 1:

Introduction: Mobile Communications, Mobile Computing–Paradigm, Promises/Novel applications and Impediments and Architecture; Mobile and Handheld Devices, Limitations of Mobile and Handheld Devices.

GSM–Services, System Architecture, Radio Interfaces, Protocols, Localization, Calling, Handover, Security, New Data Services, GPRS.

UNIT-2:

(Wireless) Medium Access Control (MAC) : Motivation for a specialized MAC (Hidden and exposed terminals, Near and far terminals), SDMA, FDMA, TDMA, CDMA.

UNIT-3:

Mobile Network Layer : IP and Mobile IP Network Layers, Packet Delivery and Handover Management, Location Management, Registration, Tunneling and Encapsulation, Route

Optimization, DHCP.

UNIT-4:

Mobile Transport Layer: Conventional TCP/IP Protocols, Indirect TCP, Snooping TCP, Mobile TCP, Other Transport Layer Protocols for Mobile Networks.

Database Issues: Database Hoarding & Caching Techniques, Client-Server Computing & Adaptation, Transactional Models, Query processing, Data Recovery Process & QoS Issues.

TEXT BOOKS:

1. Jochen Schiller, —Mobile Communications‖, Addison-Wesley, Second Edition, 2009.
2. Raj Kamal, —Mobile Computing‖, Oxford University Press, 2007, ISBN: 0195686772

REFERENCE BOOK:

1. ASOKE K TALUKDER, HASAN AHMED, ROOPA R YAVAGAL, —Mobile Computing, Technology Applications and Service Creation‖ Second Edition, Mc Graw Hill.
2. UWE Hansmann, Lother Merk, Martin S. Nocklous, Thomas Stober, —Principles of Mobile Computing,‖ Second Edition, Springer.

35095C: Cloud Computing

UNIT 1:

Systems modeling, Clustering and virtualization: Scalable Computing over the Internet, Technologies for Network based systems, System models for Distributed and Cloud Computing, Software environments for distributed systems and clouds, Performance, Security And Energy Efficiency

UNIT 2:

Virtual Machines and Virtualization of Clusters and Data Centers: Implementation Levels of Virtualization, Virtualization Structures/ Tools and mechanisms, Virtualization of CPU, Memory and I/O Devices, Virtual Clusters and Resource Management, Virtualization for Data Center Automation.

UNIT 3:

Cloud Platform Architecture: Cloud Computing and service Models, Architectural Design of Compute and Storage Clouds, Public Cloud Platforms, Inter Cloud Resource Management, Cloud Security and Trust Management. Service Oriented Architecture, Message Oriented Middleware.

UNIT 4:

Cloud Programming and Software Environments: Features of Cloud and Grid Platforms, Parallel & Distributed Programming Paradigms, Programming Support of Google App Engine, Programming on Amazon AWS and Microsoft Azure, Emerging Cloud Software Environments.

TEXT BOOKS:

1. Distributed and Cloud Computing, Kai Hwang, Geoffry C. Fox, Jack J. Dongarra MK Elsevier.
2. Cloud Computing, Theory and Practice, Dan C Marinescu, MK Elsevier.
3. Cloud Computing, A Hands on approach, Arshadeep Bahga, Vijay Madisetti, University Press

REFERNCE BOOK:

1. Cloud Computing, A Practical Approach, Anthony T Velte, Toby J Velte, Robert Elsenpeter, TMH
2. Mastering Cloud Computing, Foundations and Application Programming, Raj Kumar Buyya, Christen vecctiola, S Tammarai selvi, TMH

35095D: Enterprise Application Integration

UNIT I

Defining EAI : What Is EAI?, Applying Technology, How Did Things Get This Bad?, Chaos Today, Order Tomorrow.

Evolution of Stovepipes: Traditional Systems, Microcomputer Systems, Distributed Systems, Packaged Applications.

Making the Business case for EAI: The Virtual System, E-Business, Types of EAI.

UNIT II

Data-Level EAI: Going for the Data, Data-Level EAI by Example, Database-to-Database EAI, Federated Database EAI.

Consider the Data Source: Relational Data, Object-Oriented, Multidimensional, Other Data Storage Models

Application Interface-Level EAI: Application Interfaces, What's an API?, Interface by Example, Approaching Application Interfaces, The Interface Tradeoff, Packaged Applications, Custom Applications.

UNIT III

Method-Level EAI: Method-Level Example, What's a Process?: Scenarios, Rules, Logic, Data, Objects.

Method Warehousing: Leveraging Frameworks for EAI, Enabling Technology, Sharing Methods to Bind Your Enterprise.

User Interface-Level EAI: Leveraging User Interface-Level EAI, Going to the User Interface.

UNIT IV

The EAI Process—Methodology or Madness?: Applying a Procedure/Methodology, Understanding the Enterprise and Problem Domain, Making Sense of the Data, Making Sense of the Processes, The Common Business Model, Identifying Application Interfaces, Identifying the Business Events, Identifying the Schema and Content Transformation Scenarios, Mapping Information Movement, Applying Technology, Testing, Testing, Testing, Considering Performance, Defining the Value, Creating Maintenance Procedures, Method or Madness?

TEXT BOOKS

1. David S. Linthicum, Enterprise Application Integration, Addison Wesley Information Technologies Series, printed December 2003.

NON-CORE SYLLABUS
*35096-CBCS-II: Internet and World Wide Web

UNIT 1:

Telecommunications and Networks: The Telecommunications system, networks, network communication software, network processing strategies, Telecommunication applications

The Internet, Intranets and Extranets: What exactly is the Internet?, the evolution of the Internet, the operation of the Internet, services provided by the Internet, the World Wide Web, Internet Challenges, Intranets, Extranets.

UNIT2:

Internet Communication Protocols: Internet hosts, Servers and Clients, Port and Port Numbers, Domain Name System and DNS Servers.

Types of Internet Connections: Dial-up Connection, DSL, ISDN, Leased-lines, Cable-TV Internet, Satellite Internet, Wireless internet Connections, Connecting LAN to the Internet.

UNIT3:

Web Browsers: What is a Web Browser, Main functions, Types of Web Browsers, Main Elements of Web Browsers, Browsing the Web, Search Engines Web Directories, Navigating Web Pages, Domain Name System, Uniform Resource Locator.

UNIT4:

Email Concepts: How do you get your email, Email Addressing, Message Headers, Email Netiquette, General Information about attachments, Downloading and Storing Data:

TEXT BOOKS

1. EFRAIM Turban, R.Kelly Rainer, Richard E.Potter, —"Introduction to Information Technology" John Wiley(2008)
2. Margaret Levine Young, Internet: The Complete Reference, Second Edition, McGraw-Hill/Osborne

REFERENCE BOOKS

1. ITL Education Solutions Ltd., —Introduction to Information Technologyǁ, Pearson India (2008).

PRACTICALS

35091P: Dot Net Programming Laboratory

1. Design and develop a program to process electricity bill with the given condition by choosing console application.
2. Design and develop a program to demonstrate array of strings by using console application.
3. Design and develop a program to demonstrate exception handling by using console application.
4. Design and develop a VB.Net program for login form creation by using Windows form application.
5. Design and develop a VB.Net program for calculating simple interest and compound interest by using radio buttons.
6. Design and develop a VB.Net program to demonstrate ComboBox, ListBox and CheckedListBox.
7. Design and develop a VB.Net program to demonstrate Menu creation.
8. Design and develop a VB.Net program to demonstrate Status Bar.
9. Design and develop a VB.Net program for Single Inheritance.
10. Design and develop a VB.Net program for Graphics Handling.
11. Design and develop a VB.Net program to Create a Directory and Copy the selected file to the Directory.
12. Design and develop a VB.Net program to write a File using Console application.
13. Design and develop a web form for validating whether the person is eligible for vote or not.
14. Design and develop a Registration form to demonstrate validation controls in ASP.Net.
15. Design and develop a web form for demonstration of AdRoutator control inASP.Net.
16. Design and develop a form to s Inserting, deleteting, update and Searching records from database

35092D: MINI PROJECT

45091S: SEMINAR IN PROJECT WORK

45092D: MAJOR PROJECT

PAPER CODE:

M.Sc Degree Examinations, Month –Year
I/II/III/IV Semesters
Problem solving and programming using C
(With effect from under CBCS 2018-19)

Time: 3Hours **Max.Marks:75**

(No additional Sheet will be supplied)

Part-A **5x3=15**

Answer **any five** Questions
Each Question carries **Three(3)** Marks

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

Part-B **4x15=60**

Answer **All** Questions
Each Question carries **Fifteen(15)** Marks

Unit-I

9**.**

(OR)

10.

Unit-II

11**.**

(OR)

12

Unit-III

13**.**

(OR)

14.

Unit-IV

15**.**

(OR)

16.

.

PAPER CODE:

M.Sc. Mathematics Degree Examinations, Month –Year

Second/Third Semesters

Introduction to Computers and MS-OFFICE

(NON-CORE SUBJECT)

Time: 3Hours **Max.Marks:75**

(No additional Sheet will be supplied)

Part-A **5x3=15**

Answer **any five** Questions

Each Question carries **Three(3)** Marks

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

Part-B **4x15=60**

Answer **All** Questions

Each Question carries **Fifteen(15)** Marks

Unit-I

9**.**

(OR)

10.

Unit-II

11**.**

(OR)

12

Unit-III

13**.**

(OR)

14.

Unit-IV

15**.**

(OR)

16.

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M.Sc. Biochemistry syllabus

(With effect from Academic year 2018-19 for first semesters)

Structure of M.Sc. Biochemistry course

A two years M.Sc. programme is formulated for developing competent Biochemists. The course is based on choice based credit system (CBCS) and interdisciplinary nature of Biochemistry, Chemistry, Quantitative Biology, Genetics and Microbiology. The programme obliges students to read original publications and envisages significant inputs in Laboratory work, communication skills, creativity, planning, execution and critical evaluation of the scientific data. The course titles have been carefully chosen to represent the core courses and the specialization introduced in the two years course of Biochemistry are :- Enzymology, Molecular Biology, Biotechnology, Clinical Biochemistry, Nutritional Biochemistry and Immunology inconsonance with the objectives of the University. The courses formulated have a biochemical slant than biological and are up to date. The course is fine tuned in order to enhance the job opportunities of the students.

M.Sc. BIOCHEMISTRY

I Semester

S.**No**	Course	Marks		Total Marks	Credits
		Internal	External		
BCH 1	Chemistry of Biomolecules	25	75	100	4
BCH 2	Analytical Biochemistry	25	75	100	4
BCH 3	Intermediary Metabolism - I	25	75	100	4
BCH 4	Cell Biology and Physiology	25	75	100	4
BCH 5	Qualitative and quantitative Biochemical Analysis (Practical-1)	--	--	100	4
BCH 6	Biochemical Techniques and Biochemical Preparations (Practical-2)	--	--	100	4

II Semester

S.**No**	Course	Marks		Total Marks	Credits
		Internal	External		
BCH 7	Intermediary Metabolism II	25	75	100	4
BCH 8	Enzymology	25	75	100	4
BCH 9	Microbiology & Genetics	25	75	100	4
BCH 10	Molecular Biology	25	75	100	4
BCH 11	Enzymology (Practical-1)	--	--	100	4
BCH 12	Microbiology (Practical – 2)	--	--	100	4

III Semester

S.**No**	Course	Marks		Total Marks	Credits
		Internal	External		
BCH 13	Endocrine Biochemistry	25	75	100	4
BCH 14	Nutritional Biochemistry	25	75	100	4
BCH 15	Nerve, Vision and Muscle Biochemistry	25	75	100	4
BCH 16	Genetic Engineering	25	75	100	4
BCH 17	Molecular Biology and Genetic Engineering (Practical-1)	--	--	100	4
BCH 18II	Nutrition Biochemistry (Practical-2)	--	--	100	4

IV Semester

S.**No**	Course	Marks		Total Marks	Credits
		Internal	External		
BCH 19	Clinical Biochemistry	25	75	100	4
BCH 20	Immunology	25	75	100	4
BCH 21	Biotechnology	25	75	100	4
BCH 22	Technical writing, Biostatistics, Computers and Bioinformatics	25	75	100	4
BCH 23	Clinical Biochemistry (Practical-1)	--	--	100	4
BCH 24	Immunology and Hematology (Practical-2)	--	--	100	4

S.**No**	Course	Marks		Total Marks	Credits
		Internal	External		
Non-Core I	**Fundamentals of Biochemistry (I Semester)**	**25**	**75**	**100**	**4**
Non-Core II	**Nutrition and Clinical Biochemistry (III Semester)**	**25**	**75**	**100**	**4**

BCH 4: Cell Biology & Physiology

Unit I

Structural organization of prokaryotic and eukaryotic cells, Plant and animal cells – variation in structure and function, Types of tissues – Epithelial tissues, basement membrane, extracellular matrix, Chromatin organization, telomere, centromere, Ultrastructure and functions of nucleus, mitochondria, plastids, endoplasmic reticulum, Golgi complex, lysosomes, microbodies, ribosomes. Cytoskeleton – microtubules and microfilaments.

Unit II

Cell division by mitosis and meiosis, cell cycle and its regulation, cell receptors, endocytosis and exocytosis. Bio-membranes - composition of Membranes. Membrane lipids, proteins and carbohydrates. Molecular structure of membranes, fluid mosaic model of biological membranes. Membrane transport: Active transport, Active transport of Na+ K+(sodium potassium ATPase) Ca^{2+} (Ca^{2+} - ATPase).

Unit III

Basic concepts of cell signaling and transduction, different signaling molecules, second messengers, calcium, calmodulin, inositol phosphate, cAMP, cGMP, NO. Signal cascades. Introduction to physiology. Homeostasis. Excretory System: Kidneys – Glomerular filtration, tubular function, formation of urine, regulation of water and mineral balance.

Unit IV

Digestive system: Various regions of digestive system. Gastrointestinal secretions-composition, function of saliva, gastric, pancreatic, intestinal and bile secretions. Regulation of gastrointestinal function.

Circulatory System: Blood composition, Heart-Structure. Electrical activity, Heartbeat, Arterial system, micro circulation and lymphatics, cardiac cycle and cardiac output, control of circulation.

Respiratory system: Mechanics of respiration, gas exchange in the lungs, control of breathing.

Recommended Books:

1. Molecular Biology of the cell by Alberts *et al*.
2. Cell and Molecular Biology by EDP de Robertis and EMF de Robertis.
3. Cell and Molecular Biology 2nd Ed. By P.K. Gupta, Rastogi Publ.
4. Molecular Genetics by D Friefelder
5. Cell molecular biology, albert Bruce
6. Gene VII by Lewin
7. Molecular cloning by Maniatis and Co Vol I, II, III
8. Genetics by Gardner
9. Genetics by Suzuki
10. Molecular genetics by klug and Cummings
11. Cell and Molecular Biology 2nd Ed. by P.K. Gupta, Rastogi Publ.

YOGI VEMANA UNIVERSITY

***M. Sc.*, Biotechnology -Choice Based Credit System**

APPROVED SYLLABUS BY BOARD OF STUDIES (Effect from 2018 – 2021)

I Semester

				Max.Marks:100		
Code	**Title of the Paper**	**No of Credits**	**Hours per week**	**Internal**	**External**	**Exam time (hrs)**
15081	Cell Biology and Genetics	4	4	25	75	3
15082	Biomolecules	4	4	25	75	3
15083	Microbiology and Microbial Genetics	4	4	25	75	3
15084	Biochemical and Biophysical Techniques	4	4	25	75	3
15081P	Practical 1: Cell Biology, Genetics and Biomolecules	4	8	100		3
15082P	Practical 2: Microbiology & Microbial Genetics, Biochemical and Biophysical Techniques	4	8	100		3
II Semester						
				Max.Marks :100		
25081	Molecular Biology	4	4	25	75	3
25082	Computer Applications & Biostatistics	4	4	25	75	3
25083	Immunology	4	4	25	75	3
25084	Enzymology	4	4	25	75	3
25081P	Practical 1: Molecular Biology and Computer Applications & Biostatistics	4	8	100		3
25082P	Practical 2: Immunology and Enzymology	4	8	100		3
Non-core-1	**Essentials of Biotechnology**	**4**	**4**	**25**	**75**	**3**
III Semester				**Max.Marks :100**		
35081	Genetic Engineering	4	4	25	75	3
35082	Medical and Pharmaceutical Biotechnology	4	4	25	75	3
35083	Food and Industrial Biotechnology	4	4	25	75	3
35084	Bioprocess Technology	4	4	25	75	3
35081P	Practical 1: Genetic Engineering and Medical and Pharmaceutical Biotechnology	4	8	100		3
35082P	Practical 2: Food and Industrial Biotechnology and Bioprocess Technology	4	8	100		3
Non-core-2	**Introduction to Bioethics in Biotechnology**	**4**	**4**	**25**	**75**	**3**
IV Semester: Theory				Max.Marks :100		

Programme: ***M. Sc.*, Biotechnology**
Course Title: ***Medical and Pharmceutical biotechnology***
Type of Course: **Core**
Course No.: 35082
Semester: **III**

UNIT-I

Medical biotechnology- History,Definition, applications and uses of recombinant DNA technology Products like "Insulin, growth factor, factor- VIII, tissue plasminogen activator, interferons, B-cell, Blood products-Erythropoietin"

UNIT – II

Disease Diagnosis - Gene therapy- vector engineering and gene delivery methods, gene replacement, gene agumentation, gene silencing. Current strategies for development of vaccines against HBV, Malaria, Tuberculosis. Role of PCR and RFLP in disease prognosis

UNIT – III

Definition – history of development of pharmaceutical products by biotechnology, scope of biotech products in pharmaceutical industry. Drug designing, drug receptor interactions, antagonism- reversible and irreversible.

UNIT-IV

Vaccines- Genetic recombinant vaccine, recombinant vector based vaccines- live, subunit and their production of Hepatitis-B vaccines, HIV vaccine, pre clinical, toxicological acute, sub acute and chronic studies, types of clinical trials Phase-I, Phase-II and Phase III.

BOOKS RECOMMENDED:

1. Biotechnology by B.D.Singh (Kalyani).
2. Molecular Biology and Biotechnology by Meyers, RA, A comprehensive Desk reference (VCH Publishers).
3. Biotechnology by U. Satyanarayana (Books & Allied (P) Ltd).
4. Biopharmaceuticals-Walsh, John Willey and Sons, New York 1998
5. Pharmaceutical Biotechnology – Daan J.A. Crommelin, Robest D. Sindelar, Daan J.A. Crommelin Amazon. WM
6. Physical Methods to characterize Pharmaceutical Protines- James N. Herron, Wim jishkoor and Daan J.A. Crommelin Amazon. Wm
7. From clone to clinic (Developments in Biotherapy) Daan J.A. Crommelin and H. Schellekom Amazon.Wm
8. Hand Book of Pharmaceutical Biotechnology - Jay P.Rho, Star 4 lonie The Haworth press, Alice Sr. Bringhamtoon, NY 13904, US Tramas bartifai, Harold L. Dorn's

18. Isoenzyme assays - Peroxidase, catalases, IDH and SOD

Programme: *M. Sc.*, Biotechnology
Course Title: *Genetic engineering and Medical and Pharmaceutical Biotechnology*
Type of Course: Practical
Course No.: 35081P
Semester: III

1. Total genomic DNA isolation from plants
2. Restriction enzyme analysis of genomic DNA
3. Preparation of competent cells - calcium chloride method
4. Bacterial Transformation
5. Plasmid isolation from *E.coli*
6. Restriction mapping of Plasmid
7. Colony PCR
8. Bacterial transformation
9. Fragment isolation and ligation
10. Selection of recombinants (Blue / white selection)
11. Total protein isolation, SDS PAGE / Native PAGE and Western Blotting
12. Sterilization By Autoclaving And Test For Sterility
13. Sterilization By Dry Heat And Test For Sterility
14. .Sterilization By Heating With Bactericide And Test For Sterility
15. Test For Presence Of Fungi In Tap Water
16. Immobilization Of Microbial Cells By Entrapment In Sodium Alginate
17. Bioinformatic software-Hex
18. Bioinformatic software -Rasmol
19. Drug Receptor intractions (Molecular docking)
20. DNA Finger printing for disease diagnosis

Programme: *M. Sc.*, Biotechnology
Course Title: *Food and Industrial Biotechnology and Bioprocess Technology*
Type of Course: Practical
Course No.: 35082P
Semester: III

1. Media preparation and sterilization (plant and microbe)
2. Isolation of industrially important microorganisms from different sources
3. Development of inoculums for industrial fermentation (Bacterial and mycelial)
4. Recovery and purification of fermentation products
5. Preparation of wine
6. Production of citric acid
7. Design of a fermentor
8. Types of bioreactors
9. Design of a typical aerobic fermenter
10. Preservation of industrially important microorganisms
11. Isolation of amylase producing microorganism from soil
12. Lethal effects of temperature on microorganisms (TDP)

SEMESTER-I

Paper	Title of the paper	Instructional Hrs./Week	Internal Assessment Marks	Semester End Marks	Total Marks	Credits
15011	Biology and Diversity of Virus, Bacteria, Fungi and Plant Pathology	4	25	75	100	4
15012	Genetics and Plant Breeding	4	25	75	100	4
15013	Biology and Diversity of Algae, Bryophytes, Pteridophytes and Gymnosperms	4	25	75	100	4
15014	Taxonomy of Angiosperms	4	25	75	100	4
15015 P	Corresponding to 15011 &15012	8	100		100	4
15016 P	Corresponding to 15013 & 15014	8	100		100	4
	Field Trip/Botanical Tour for minimum of 5 days must for all students	Herbarium/Field note book will cover total of 20 marks (10 Marks in 15015 P & 10 marks in 15016 P)				

SEMESTER-II

25011	Plant Developmental Biology	4	25	75	100	4
25012	Plant Reproduction	4	25	75	100	4
25013	Plant Ecology and Environment	4	25	75	100	4
25014	Cell Biology and Cytogenetics	4	25	75	100	4
25015 P	Corresponding to 25011 & 25012	8	100		100	4
25016 P	Corresponding to 25013 & 25014	8	100		100	4
Elective-I	Plants and Society	4			100	4

SEMESTER-III

35011	Ethnobotany and Pharmacognosy	4	25	75	100	4
35012	Plant Physiology	4	25	75	100	4
35013	Tools and Techniques in Plant Science and Biostatistics	4	25	75	100	4
35014	Molecular Biology of Plants	4	25	75	100	4
35015 P	Corresponding to 35011 & 35012	8	100		100	4
35016 P	Corresponding to 35013 & 35014	8	100		100	4
Elective-II	Herbal Medicine	4			100	4

SEMESTER-IV

45011	Plant Tissue Culture	4	25	75	100	4
45012	Genetic Engineering of Plants	4	25	75	100	4
45013	Plant Metabolism	4	25	75	100	4
45014	Biodiversity Conservation and Management	4	25	75	100	4
45015 P	Corresponding to 45011 & 45012	6	100		100	4
45016 P	Corresponding to 45013 & 45014	6	100		100	4
	Total for Core Papers	**128**	**400**	**2000**	**2400**	**96**
	Total for Elective Papers	**8**	**50**	**150**	**200**	**8**
	Grand Total	**136**	**450**	**2150**	**2600**	**104**

25011 - Plant Developmental Biology

Unit- I: Morphogenesis and Organogenesis in plants

Organization of Shoot Apical Meristem (SAM) and Root Apical Meristem (RAM), Shoot and root development, Leaf development and phyllotaxy. **Dermal tissue system** - types of trichomes and stomata. **Vascular tissue system** - types of vascular bundles. Primary growth of root and stem, secondary growth in dicot stem, root and monocot stem. **Anomalous secondary growth** - abnormal position and activity of cambium, intraxylary and interxylary phloem, Wood anatomy, wood development in relation to environmental factors

Unit- II: Hormonal regulation of plant development

Overview of plant harmones. **Auxins**: discovery, structure, biosynthesis, developmental role and mode of action. **Gibberellins**: discovery, structure, biosynthesis, developmental role and physiological effects (effects on growth and development). **Cytokinins**: structure, types and biological roles of cytokinins. **Abscisic acid**: occurrence, chemical structure and physiological effects. Ethylene, brassinosteroids, polyamines, jasmonic acid and salicylic acid.

Unit- III: Envirnomnetal regulation of plant development

Structure, function and mechanism of action of phytochrome, cryptochrome and phototropins; scotomorphogenesis and photomorphogensis. **Ecological anatomy**: Adaptations in Hydrophytes, mesophytes and xerophytes, anatomy in relation to taxonomy: Hairs, stomata, epidermal cells, **microchemistry**: crystals, cystoliths, laticiferous tissue. Bicollateral vascular bundles, wood.

Unit-IV: Programmed Cell Death and Senescence

Concept of PCD, categories of cells undergo PCD during vegetative and reproductive stages, mechanism of PCD, developmental and stress induced PCD. Overview of plant senescence, patterns of senescence, **physiological changes during senescence**: photosynthesis, respiration, nitrogen fixation, protein and nucleic acids, environmental, biochemical, and molecular aspects of senescence. Environmental influence on senescence.

Suggested Practical's:

1. Study of important fossil (pteridophytes and gymnosperms) from prepared slides and specimens.
2. Study of T.S. of stem, root and leaf
3. Study of secondary growth in angiosperms
4. Study of anomalous structures in angiosperms
5. Study of dermal tissue system and vascular tissue system
6. Wood anatomy, T.S, T.L.S, and R.L.S

Note: Every student has to submit at least five permanent slides at the time of practical examination.

25013 - Plant Ecology and Environment

Unit- I: Ecology and Environment

Definition, Scope and History of Ecology; climatic and topographic factor; physical environment and plant life- light, temperature and fire factors and biotic environment; Ecosystem-structure and function; energy flow in ecosystems-concept of productivity, types of food chains; Biogeochemical cycling- global carbon cycle, sulphur and water cycle; Ecosystems of the world-terrestrial (tropical forests-seasonal and rainforests; grasslands) and aquatic ecosystems.

Unit- II: Plant Communities and Classification

Characteristics of plant communities; analytic-qualitative (life forms, phenology), and quantitative (abundance, density, frequency, basal area); synthetic-species dominance and species diversity. Methods of study of plant communities- quadrats and transects; Importance Value Index, dominance index, similarity index, species diversity indices; community succession-process and modeling; concept of climax. Ecological adaptations.

Unit- III: Populations and Individuals

Characteristics of plant populations-density, dispersion, natality, mortality and survival, age structure and biotic potential; population growth patterns; population regulation; concept of metapopulation; Population dynamics. Species interactions: plant-plant (inter-specific competition) and plant-animal (pollination ecology and plant defense against herbivores); concept of ecological niche.

Unit- IV: Environmental Challenges

Natural resources, Classification of natural resources. Energy resources: Renewable energy resources-solar energy, wind energy, hydeal energy, thermal energy, bio energy. Non-renewable energy resources-fossil fuels; coal, natural gas, petroleum. Environmental pollution; sources, effects and control measures of air pollution, water pollution, soil pollution and noise pollution. Global warming-greenhouse gases, impacts on global environment and biodiversity; Ozone layer depletion; El Nino Southern Oscillation, La Nino; Earth Summit – 1992 (RIO DE JANERIO) and 2002 (JOHANNESBURG) and its outcome. Bioremediation. Environmental Impact Assessment (EIA).

Suggested Practical's:

1. Determination of texture of different soil samples.
2. Determination of organic matter in soil samples.
3. Determination of salinity in soil and water samples.
4. Estimation of dissolved oxygen in water samples.
5. Determination of minimum size of quadrates.

35013 - Tools and Techniques in Plant Science and Biostatistics

Unit-I: Microscopic, histochemical and radioisotope techniques

Microscopy: Principles and application of light, phase contrast, fluorescence, scanning and transmission electron microscopy. **Microtomy and staining**: Microtomy and double staining of plant sections. **Radioisotope Techniques:** Types of isotopes, radioactive decay. **Detection and measurement of radioactivity**- GM counter, scintillation counter, autoradiography. Isotopes used in biology, safety methods in handling radioisotopes.

Unit-II: Electrophoresis and Centrifugation methods

Polyacrylamide gel Electrophoresis: Native-PAGE, SDS-PAGE. **2D-Electrophoresis**: Isoelectricfocusing, 2D Electrophoresis. **Agarose Gel Electrophoresis**: Preparation, separation and determination of molecular size of DNA, denaturing agarose gel electrophoresis and their applications. **Centrifugation types**: differential centrifugation, density-gradient, analytical, and ultracentrifugation and their applications

Unit-IV: Spectroscopy and Chromatography Techniques

Spectroscopy: Laws of light absorption: Beer and Lamberts, **Instrumentation and applications**: UV- visible spectrophotometer, NMR and ESR spectroscopy, Mass Spectroscopy. **Chromatography: Principle, instrumentation, practical procedure and applications of**: Paper chromatography, thin-layer chromatography, gas-liquid chromatography, High-performance liquid chromatography (HPLC).

Unit-IV: Biostatistics

Introduction, role of statistics in botanical research, collection of data, tabulation. Statistical tools: **Variables:** qualitative variables and quantitative variables, measurement of variables. Frequency distribution, **Measures of Central Tendency:** Arithmetic mean, Median, Mode, Average, Percentage. **Measures of Dispersion:** Mean Deviation, Variance and Standard deviation, Coefficient variation. **Probability**; measures of probability, laws of probability. **Probability Distributions**: Binomial, Poisson, Normal and 't' distribution. Regression and Correlation, The Chi-Square test, Analysis of Variance (ANOVA). Non-Parametric statistics: Advantages and disadvantages of Non-Parametric statistics.

Suggested Practical's:

1. Micrometry- calibration of microscope using stage and ocular micro meters
2. Preparation of plant material for microtome sections and double staining
3. Separation of proteins by PAGE
4. Separation of nucleic acids by Agarose gel electrophoresis
5. Absorption spectra of amino acids, Proteins and nucleic acids
6. Isolation and spectrophotometric characterization of plant pigments
7. Verification of Beer's law
8. Statistical problems

Suggested Readings:

SEMESTER - III: ELECTIVE - II: (Non-core) Herbal Medicine

UNIT – I: Ethnobotany

Introduction, history, scope and importance, Inter disciplinary approaches in Ethnobotany. Study of Medicinal, Edible and Miscellaneous plants used by the Tribes. **Breif account on Indian medicine:** Ayurveda, Homeopathy, Unani and Siddha. Study of locally available medicinal plants and their thereupetic values (*Adathoda*, *Gymnema*, *Andrographis*, *Rauvolfia*, *Ocimum*).

UNIT – II: Pharmacognosy

Introduction, history and scope of Pharmacognosy. Drugs of alkaloids, glycosides, phenolics, antibiotics, psychoactive and poisonous plants. **Study of important medicinal plants**: Amla, Aswagandha, Aloe, Brahmi, Kesar. **Classification of drugs** - Alphabetical, Morphological (Organized and unorganized), Taxonomical, Chemical, Pharmacological, Chemotaxonomical and **drug evaluation** - morphological, microscopic, physical, chemical and biological evaluation. Genetic engineering of medicinal plants.

UNIT III: Herbal Cosmetics

Uses of herbal cosmetics like emulsifiers (fixed oils, waxes, butters), moisturizing agents, colours, perfumes, and fragrances, bleaching agents, preservatives, antioxidants, chelating agents, skin lotions, sunscreens, dyes, anti aging creams, deodarants, nail polishes, hair oils, soaps, shampoos, nail polishes and lipsticks.

UNIT IV: Medicinal plants

Formulation and standardization of various herbal cosmetic products, Henna, Turmeric, Sandalwood, Neem, Coconut, Rice, Holy basil, Red sandal wood, Camphor, Jaboba. Drugs for digestive disorders – *Withania somnifera*. Memory stimulants – *Centella asiatica*, *Bacopa monnieri*. Drugs for dissolving kidney stones – *Musa paradisiaca*. Antiinflammatory drugs – *Cardiospermum*. Anticancer drugs – *Catharanthus roseus*.

Suggested Readings:

1. Harborne, J. B. 1948. Phytochemical Methods (Ed.) Chapman and Hall, London.
2. Khare, C. P. 2000. Indian Herbal Therapies. Delhi Book Co., M-Connaught, Circus, New Delhi.
3. Kokate, C. K. Purohit, A.P. Gauchely, S.B. 1990. Pharmacognosy, Narial Prakashan, India.
4. Jain, S.K. 1995. Mannual of Ethnobotany, Scientific Publishers, Jodhpur.
5. Wallis, T. E. 1999. Text Book of Pharmacognosy, (5th Ed.) CBS Publishers & Distributions, New Delhi.
6. Singh, M. P. and Panda, Himadri 2005. Medicinal herbs with their formulations. Volume 1 & 2. Daya Publishing House, Delhi.
7. Herbal cosmetics, hand book By H. Panda
8. Kumar, N.C. (1993). An Introduction to Medical botany and Pharmacognosy. Emkay Publications, New Delhi.
9. Rao, A.P. (1999). Herbs that heal. Diamond Pocket Books (P) Ltd., New Delhi.
10. Gokhale, S.S., C.K.Kokate and A.P. Purohit (1994) Pharmacognosy. Nirali Prakashan. Pune.
11. Tyagi, Dinesh Kumar (2005) Pharma Forestry. Field Guide to Medicinal Plants. Atlantic Publishers and Distributors, New Delhi.

45011 - Plant Tissue Culture

Unit- I: Basics of plant tissue culture technique

Historical aspect and landmarks in plant tissue culture, concept of cellular totipotency and cellular differentiation, basic techniques in plant tissue culture, formulation of media for plant tissue culture, cultural conditions, physiological, biochemical and molecular role of mineral, carbohydarte and growth regulators in differention of organs under *in vitro* conditions.

Unit-II: Pathways of *in vitro* regeneration (Vegetative explants)

In vitro regeneration methods: Micropropagation, organogenesis (direct and indirect), somatic embryogenesis; Problems of tissue culture: contamination, phenolics, recalcitrance; Genome reorganization induced *in vitro*, somaclonal and gametoclonal variations; problems in establishment of regenerated plants in nature, hardening of plants.

Unit- III: Pathways of *in vitro* regeneration (reproductive explants) and protoplast culture

Gametic embryogenesis (androgenesis and gynogenesis), doubled haploids, culturing of ovary, ovule, nucellus, embryo, embryo rescue, triploid production, somatic hybridization; protoplast isolation, fusion and culture, hybrid selection and regeneration, possibilities, achievements and limitations of protoplast regenerants.

Unit- IV: Application of Plant Tissue Culture

Meristem culture for production of virus free plants, artificial seeds, production of secondary metabolites from cell suspension culture and hairy root culture, elicitors, plant cell reactors-bio reacters culture of isolated single cell, role of tissue culture in gene transfer, cryopreservation and germplasm storage.

Suggested Practicals

1. Preparation of different types of Media
2. Callus induction from carrot cambial explants or any other source. Callus cytological studies
3. Induction of Somatic Embryogenesis
4. Suspension Cultures
5. In vitro rooting of cultures
6. Culture of anthers for production of haploids
7. Induction of multiple shoots
8. Preparation of artificial seeds by sodium alginate.

Suggested Readings

1. Razdan, M.K. 2014. Introduction to Plant Tissue Culture (Second edition). Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi.
2. Bhojwani, S.S. 1990. Plant Tissue Culture Applications and Limitations: Elsevier, New York
3. Bhojwani, S.S. and M.K.Razdan 1996. Plant Tissue Culture. Theory and practice (rev. ed) Elsevier Science Publishers, New York.

YOGI VEMANA UNIVERSITY

Vemanapuram, KADAPA-516003, Andhra Pradesh, INDIA

DEPARTMENT OF CHEMISTRY

CURRICULUM (CBCS) – MSc (ORGANIC CHEMISTRY)

(With effect from the academic year 2018-19, for the M. Sc. Previous)

M.Sc. Previous

Sl. No.	Paper Code	Title of the paper	Allotted per Week (Hours)		Uni.Exam Duration(Hours)		Distribution of Marks						No of Credits
I-SEMESTER			L	P	T	P	IE	TE	PE	R	V	TOTAL	
1	15031	Inorganic Chemistry	4	-	3	-	25	75	-	-	-	100	4
2	15032	Organic Chemistry	4	-	3	-	25	75	-	-	-	100	4
3	15033	Physical Chemistry	4	-	3	-	25	75	-	-	-	100	4
4	15034	GeneralChemistry	4	-	3	-	25	75	-	-	-	100	4
5	15031P	Inorganic Chemistry Practical	-	9	-	3	-	-	75	10	15	100	4
6	15032P	Organic Chemistry Practical	-	9	-	3	-	-	75	10	15	100	4
7		Seminar	2	-	-	-	-	-	-	-	-	-	-
		Total Hours/Week	18	18	-	-	Total Marks/credits					600	24

Sl. No.	Paper Code	Title of the paper	Allotted per Week (Hours)		Uni.Exam Duration(Hours)		Distribution of Marks						No of Credits
II-SEMESTER			L	P	T	P	IE	TE	PE	R	V	TOTAL	
1	25031	Inorganic Chemistry	4	-	3	-	25	75	-	-	-	100	4
2	25032	Organic Chemistry	4	-	3	-	25	75	-	-	-	100	4
3	25033	Physical Chemistry	4	-	3	-	25	75	-	-	-	100	4
4	25034	Chromatography and Natural products	4	-	3	-	25	75	-	-	-	100	4
5	25031P	Organic Chemistry Practical	-	7	-	3	-	-	75	10	15	100	4
6	25032P	Physical Chemistry Practical	-	7	-	3	-	-	75	10	15	100	4
7	25035 NC	Basics of Chemistry		4	3	-	25	75				100*	-
8		Seminar	2										
		Total Hours/Week	18	18	-	-	Total Marks/credits					600	24

***Students need to pass the Non-Core paper but marks will not be added to grade points**

NC: non-Core **L: Lecture** **P: Practical** **T: Theory** **IE: Internal Examination**

TE: Theory Examination **PE: Practical Examination** **R: Record** **V: Viva-Voce**

M.Sc. Final

Sl. No.	Paper Code	Title of the paper	Allotted per Week (Hours)		Uni.Exam Duration(Hours)		Distribution of Marks						No of Credits
III-SEMESTER			L	P	T	P	IE	TE	PE	R	V	TOTAL	
1	35031	Inorganic Chemistry	4	-	3	-	25	75	-	-	-	100	4
2	35032	Organic Chemistry	4	-	3	-	25	75	-	-	-	100	4
3	35033	Physical Chemistry	4	-	3	-	25	75	-	-	-	100	4
4	35034	Spectroscopy	4	-	3	-	25	75	-	-	-	100	4
5	35031P	Multistep Synthesis of Organic Compounds	-	7	-	3	-	-	75	10	15	100	4
6	35032P	Estimations	-	7	-	3	-	-	75	10	15	100	4
7	35035 NC	Drug Discovery, Design and Development		4	3	-	25	75				100*	-
8		Seminar	2										
		Total Hours/Week	18	18	-	-	Total Marks/credits					600	24

***Students need to pass the Non-Corepaper but marks will not be added to grade points**

Sl. No.	Paper Code	Title of the paper	Allotted per Week (Hours)		Uni.Exam Duration(Hours)		Distribution of Marks						No of Credits
IV-SEMESTER			L	P	T	P	IE	TE	PE	R/D	V	TOTAL	
1	45031	Reagents in Organic Synthesis	4	-	3	-	25	75		-	-	100	4
2	45032	Designing and Modern Topics of OrganicSynthesis	4	-	3	-	25	75		-	-	100	4
3	45033	Chemistry of Heterocyclic Compounds	4	-	3	-	25	75		-	-	100	4
4	45034	Medicinal Chemistry and Natural products	4	-	3	-	25	75		-	-	100	4
	45031P	Spectral Identification of Organic Compounds		9		3			75	10	15	100	4
5	45032P	Project Work	-	9	-	3	-	-	50	35	15	100	4
6		Seminar	2	-	-	-	-	-		-	-	-	
		Total Hours/Week	18	18	-	-		Total Marks/credits				600	24

NC: non-Core L: Lecture P: PracticalT: Theory IE: Internal Examination
TE: Theory Examination PE: Practical Examination R: Record V: Viva-VoceD: Dissertation

General consideration, costing on electrolytic process, electrolysis parameters, principles of cell design and the addition technology of electrolysis process and typical cell design. Cyclic voltammetry and its applications.

Books Suggested

1.Physical Chemistry, P. W. Atkins, (ELBS)
2. Introduction to quantum Chemistry, A. K. Chandra (Tata McGraw Hill)
3. Quantum Chemistry, Ira N. Levine, (prenticxe Hall)
4. Coulson's Valence, R. Mcweeny, (ELBS)
5. Modern Electrochemistry, vol.I& II, J. O. M. Bockris and A. K. N. Reddy (Plenum)
6. An Introduction to Electrochemistry (3rd ed.), S. Glasstone (Affiliated East-West)
7. Micelles, theoretical and applied aspects, V. Moroi (Plenum)
8. A text Book of Physical Chemistry (2nd Ed.), S. Glasstone (Macmilan)
9. Principles of Physical Chemistry, Maron and Prutton
10. Theoretical Electrochemistry, L. I. Antropov.

25034: CHROMATOGRAPHY AND NATURAL PRODUCTS

UNIT – I: Chromatography **15Hrs**

Definition, classification, partition or distribution coefficient, partition ratio, efficiency, resolution, plate height, plate number, theories of chromatography: plate theory, rate theory, band broadening; principle and applications of paper chromatography, thin layer chromatography, column chromatography, size exclusion chromatography, ion exchange chromatography.

UNIT – II: HPLC and GC

(A) High Performance Liquid Chromatography (HPLC): Principle, Instrumentation, isocratic, gradient and stepwise elution, Mobile phase delivery systems, Separation columns, detectors and Applications.

(B) Gas Chromatography (GC): Principle, Instrumentation, GC columns, Detectors and Applications of GC.

UNIT – III: Terpenoids **15 Hrs**

Occurrence, isolation, general methods of structure determination, isoprene rule; structure determination, stereochemistry, biosynthesis and synthesis of camphor, farnesol, zingiberene, cadinene, abietic acid and lanosterol.

UNIT – IV: Alkaloids **15 Hrs**

Introduction, isolation, general methods of structural elucidation and physiological action, degradation, classification based on nitrogen heterocyclic ring, structural elucidation, stereochemistry and synthesis of morphine, papaverine and reserpine, biosynthesis of alkaloids.

Books Suggested

1.Physical and Chemical Methods of Separation, E. W. Berg (McGraw Hill).
2. Separation Process Principles, J. D. Seader and E. J. Henley (John Weily& Sons Inc).
3. Instrumental Methods of Analysis, H. W. Willard, L. L. Merritt and J. A. Dean (Affiliated East-West)
4. Vogel's Text Book of Quantitative Chemical Analysis, J. Mendham, R. C. Denney, J. D. Barnes and M. J. Thomas,4th& 6th Ed. (Pearson Education Asia).
5. Principles of Instrumental Analysis, D. A. Skoog and D. M. West (Holt, Rinehart and Wilson)
6. Natural Products: Chemistry and Biological Significance, J. Mann, R.S. Davidson, J. B. Hobbs, D. V. Banthrope and J. B. Hatrbnome, Longman, Essex.
7. Organic Chemistry, Vol. 2, I. L. Finar, ELBS.

9. Text book of practical organic chemistry including qualitative organic analysis by A.I. Vogel (Longman).
10. Advanced Medicinal Chemistry, M. Raghu Prasad and A. Raghuram Rao (Pharma Med Press).

25035N: BASICS OF CHEMISTRY

UNIT – I: Basics of Organic Chemistry
UNIT – II: Basic Parameters in Sample Preparation
UNIT – III:Basics of Bioinorganic Chemistry
UNIT – IV: Basics of Polymer Chemistry

UNIT – I:Basics of Organic Chemistry 15 Hrs

Hybridization in organic compounds; dipole moment; inductive effect; electromeric effect; conjugation and resonance; homolysis; heterolysis; types of organic reactions; isomerism; introduction to reactive intermediates; classification of isomerism; stereochemistry of organic compounds –*E*&*Z* and *R*&*S* nomenclature

UNIT – II: Basic Parameters in Sample Preparation 15 Hrs

Definition and calculation of substance in moles and millimoles; solutions and their concentrations:definition of solution, solute and suspension, weight percentage, volume to volume percentage, mole fraction, mole percentage, molarity, molality, normality; density and specific gravity; conversion of weight/moles to volume using density; compound empirical and molecular formulae.

UNIT – III: Basics of Bioinorganic Chemistry 15 Hrs

Essential and trace elements – role of metal ion in biological process; Na^+/K^+ pump; photosynthesis – structure of chlorophyll, photosynthetic mechanism in bacteria and in green plants (Z-scheme, PS-I & PS-II); respiration (transport and storage of dioxygen) – structure and function of myoglobin, hemoglobin, hemerythrin and model systems.

UNIT – IV: Basics of Polymer Chemistry 15 Hrs

Terminology: monomers, repeat units, degree of polymerization, linear, branched and network polymers, classification of polymers.
Synthetic methods: Condensation, addition, radical chain, ionic and coordination, copolymerization.
Applications: biomedical and industrial applications

Books Suggested

1. Organic Chemistry, Paula YurkanisBruice, 4th Ed. (Printice Hall).
2. Mechanism and Theory in Organic Chemistry, Thomas H. Lowry, Kathleen S. Richardson, Harper & Row, (Publishers, Inc.).
3. Analytical Chemistry, G. D. Christian, 5th Edition, John Wiley & Sons.
4. Bioinorganic Chemistry, R. W. Hey, Ellis Horwood Ltd.,Chichester, New York
5. Bioinorganic Chemistry, K. Hussain Reddy, New Age International Publisher, New Delhi.
6. Text Book of Polymer Science, F. W. Billmeyer, Jr. (Wiley Inter Science).
7. Polymer Chemistry, Gowarikar.

8. A Complete Introduction to Modern NMR Spectroscopy, Roger S. Macomber, (John Wiley & Sons, Inc.).

35031P:Multistep Synthesis of Organic Compounds:

1. Benzanilide from Benzophenone
   Benzophenone → Benzophenone oxime → Benzanilide
2. Benzilic acid from benzoin
   Benzoin → Benzil → Benzilic acid
3. *p*-Bromoaniline from Acetanilide
   Acetanilide → *p*-Bromoacetanilide → *p*-Bromoaniline
4. Flavone from *o*-hydroxyacetophenone
   o-hydroxyacetophenone →*o*-benzoyl acetophenone → *o*-hydroxydibenzoylmethane → Flavone
5. 2-Acetylnaphthalene→ 4-(naphthalen-2-yl)thiazol-2-amine

2-Acetylnaphthalene → 2-bromo-1-(naphthalen-2-yl)ethanone → 4-(naphthalen-2-yl)thiazol-2-amine

35032P:Estimations

1. Estimation of glucose
2. Estimation of phenol
3. Estimation of aniline
4. Estimation of aspirin
5. Estimation of paracetamol
6. Estimation of ibubrofen

Books Suggested

1. Modern Organic Synthesis in the Laboratory *A Collection of Standard Experimental Procedures*,Jie Jack Li, Chris Limberakis, Derek A. Pflum
2. Practical organic chemistry by Mann & Saunders
3. Text book of practical organic chemistry by Vogel
4. Spectrometric Identification of organic compounds, R.M. Silverstein, F.X. Webster and D.J. Kiemle, 7th Ed.,(Wiley).

35031N: DRUG DISCOVERY, DESIGN AND DEVELOPMENT

UNIT – I: Basic Principles of Pharmacology
UNIT – II: Lead Discovery and Optimization
UNIT – III:SAR and QSAR Studies
UNIT – IV: Common Drugs

UNIT – I:Basic Principles of Pharmacology **15 Hrs**

Definitions: disease, drug, bioassay, pharmacokinetics and pharmacodynamics, stages involved in drug discovery, formulation, drug dosing, routes of drug administration,

Pharmacokinetics: absorption, distribution, metabolism and excretion of drugs (ADME), drug delivery.

Pharmacodynamics: nature of drug - receptor interactions, theories of drug action: occupancy theory, rate theory, induced-fit theory, macromolecular perturbation theory.

Drug synergism and antagonism, drug toxicity, clinical trials.

UNIT – II: Lead Discovery and Optimization **15 Hrs**

Lead discovery: existing drugs as leads (me too drugs), pharmacophore.Principles of design of agonists e.g. salbutamol, antagonists e.g. cimetidine and enzyme inhibitors e.g. captopril.Drug discovery without lead – serendipity-penicillin and librium as examples.

Lead optimization: Bioisosterism, variation of alkyl substituents, chain homologation and branching, variation of aromatic substituents, extension of structure, ring expansion and ring contraction, ring variation, variation and position of hetero atoms, ring fusion, simplification of the lead, rigidification of lead, conformational blockers, discovery of oxamnquine.

UNIT – III: SAR and QSAR Studies **15 Hrs**

Structure Activity relationship (SAR): SAR in sulfa drugs, benzodiazepines, and taxol analogs, principles of prodrug design

Quantitative Structure Activity relationship (QSAR): Introduction to QSAR, physicochemical properties – lipophilicity: partition coefficient (P) and the lipophilicity substituent constant (π), electronic effects: Hammett constant (σ), steric effects: Traft's constant (E_s), Hanscth analysis, Craig's plot,Topliss scheme, free Wilson approach, Lipenski rule of five.

UNIT – IV: Common Drugs **15 Hrs**

Structure, uses, mechanism of action of antibacterial agents: sulfamethoxazole, penicillin G, antiviral agents: acyclovir, indinavir, anticancer agents: mechlorethamine, methotrexate, antifungal agents: fluconazole, griseofulvin, gastrointestrinal agents: ranitidine, omeprazole, metoclopramide, cardiovascular agents: amrinone, procainamide, captopril, propranolol, mehyldopa, anticoagulants: warfarin, central nervous system agents: paracetamol, betamethasone, chlorpromazine, levodopa, diazepam, phenytion, procaine.

Books Suggested

1. Medicinal Chemistry and Pharmaceutical Chemistry, H. Singh and Kaur.
2. An Introduction to Medicinal Chemistry, 4th Ed., G. L. Patrik.
3. Fundamentals of Medicinal Chemistry, Gareth Thomas.
4. Biochemical Approach to Medicinal Chemistry, Thomas Nogrady.
5. Principles of Medicinal Chemistry, William Foye.
6. Medicinal Chemistry, AshutoshKar.
7. Medicinal Chemistry, R. R. Nadendla.
8. Berger's Medicinal Chemistry, Vols. 1-5, Manfred E. Wolf.

Books Suggested:

1. Modern Synthetic Reactions, H. O. House, 2nd Ed., (W.A. Benjamin)
2. Modern Methods of Organic Synthesis, W. Carruthers, 3rd Ed., (Cambridge University Press).
3. Principles of Organic Synthesis, R. O. C. Norman and J. M. Coxon, (Blakie Academic and Professional). Advanced Organic Chemistry: Part A & B, F. A Carey and R. J. Sundberg, 5th Ed., Springer, 2007.
4. Guide book to Organic Synthesis, R. K. Machie and D.N.Smith, (ELBS).
5. Principles of organometallic chemistry, P.Powell, (ELBS).
6. Organo transition metal chemistry-Applications to organic synthesis, S.G.Davis, Pergmon.
7. Multi-component Reactions: J. Zhu and H. Bienaymé (Wiley-VCH).
8. Strategies for organic drug synthesis and design By Daniel Ledneicer.

45032: DESIGNING OF ORGANIC SYNTHESIS

UNIT – I: Basics of Organic Synthesis andDisconnection Approach – I
UNIT – II: Disconnection Approach – II
UNIT – III: Disconnection Approach – III and Other Synthetic Strategies
UNIT – IV: Methods in Organic Synthesis

UNIT–I: Basics of Organic Synthesis andDisconnection Approach - I 15 Hrs

(A) Basics in Organic Synthesis

Classification of organic reactions; carbon-carbon single bond formation reactions; carbon-carbon double bond formation reactions; functionalization; functional group interconversion; organic synthesis: reason for organic synthesis and total (complete), partial (semi), formal, linear and convergent synthesis; introduction to synthetic strategies.

(B) Disconnection Approach - I

(i)Introduction: Terminology: retrosynthetic analysis (disconnection approach), target, synthon, synthetic equivalent (reagent), functional group interconversion (FGI), functional group addition (FGA), functional group elimination (removal); synthesis of aromatic compounds: benzocaine, *p*-methoxytoluene, BHT, isobutylbenzene, trifluralin B, phenols, saccharine and *o*-cyanotoluene.

(ii)Protecting groups: Introduction and protective groups for phenols and alcohols, amines, ketones and aldehydes and carboxylic acids.

UNIT–II: Disconnection Approach – II 15 Hrs

(a) Importance of order of events;one group C-X disconnections; chemoselectivity; two group C-X disconnections; reversal of polarity (umpolung); cyclization reactions.

(b) One group C-C disconnections –synthesisof alcohols and carbonyl compounds; regioselectivity; olefin synthesis; use of alkynes in synthesis.

(c) Two group C-C disconnections: Diels-Alder reaction; 1,3-difunctionalized compounds – 1,3-dicarbonyl, β-hydroxy carbonyl and α,β-unsaturated compounds, 1,5-dicarbonyl compounds – Michael addition and Robinson annulation, synthesis 1,2- and 1,4-dicarbonyl compounds – reconnection.

UNIT–III: Disconnection Approach – III and OtherSynthetic Strategies 15 Hrs

(A)Disconnection Approach - III

General strategy; retrosynthetic analysis oftarget molecules: simple targets – ibogamine, salbutamol, propoxycaine, ibuprofen and dinocap, complex targets - longifolene, (+)-disparlureandpenicillin V.

(B) Other approaches to Synthetic Strategies

(i) Biomimetic approach: introduction, Robinson's tropinone synthesis, Johnson polyene cyclization

(ii) Chiral template approach: introduction, synthesis of reserpine

(iii) Retro-mass spectral approach – introduction, Kametani's mass spectral analysis of tetrahydroisoquinoline alkaloids.

UNIT – IV: Methods in Organic Synthesis **15 Hrs**

Enamines – Introduction, generation, Stork enamine reaction, applications of enamines in organic synthesis; Multi component reactions (MCR) – Introduction, Strecker synthesis, Ugi reaction, Mannich reaction, Biginelli reaction, and Hantzsch synthesis; Tandem Synthesis – Definition, advantages, polyene cationic cyclizations, conjugate addition-aldol reaction, Mannich-cation olefin cyclization, Knoevenagal-hetero-Diels-Alder reaction.

Books Suggested:

1. Designing Organic Syntheses: A Programmed Introduction to the Synthon Approach, S. Warren, John Wiley &Sons.
2. Organic Synthesis: Strategy and Control, P. Wyatt and S. Warren, John Wiley &Sons.
3. Organic Synthesis: The Disconnection Approach, 1st& 2ndEd.s, S. Warren and P. Wyatt, John Wiley & Sons.
4. Organic Synthesis: Concept, Methods and Starting Materials, J. Fuhrhop and G. Perzillin, (Verlage VCH) 2nd Ed., 1994.
5. Organic Synthesis, M. B. Smith, 4th Ed., Elsevier, 2017.
6. Advanced Organic Chemistry: Part A & B, F. A Carey and R. J. Sundberg, 5th Ed., Springer, 2007.
7. Some Modern Methods of Organic Synthesis, W. Carruthers, 3rd Ed., (Cambridge Univ. Press).
8. Introduction to Strategies for Organic Synthesis, L. S. Starkey, John Wiley & Sons, 2012.
9. Organic Chemistry, Paula YurkanisBruice, 4th Ed. (Printice Hall).
10. Modern Synthetic Reactions, H. O. House, 2nd Ed., (W.A. Benjamin).
11. Multi-component Reactions: J. Zhu and H. Bienaymé (Wiley-VCH).

45033: CHEMISTRY OF HETEROCYCLIC COMPOUNDS

UNIT – I: Nomenclature, Aromaticity and Reactivity of Heterocyclic Compounds

UNIT – II: Three- and Four-membered Heterocyclic Compounds

UNIT – III: Five-membered Heterocyclic Compounds with Two Heteroatoms

UNIT – IV: Benzofused Five- and Six-membered Heterocyclic Compounds

UNIT – I: Nomenclature, Aromaticity and Reactivity of Heterocyclic Compounds **15 Hrs**

(A) Nomenclature of Heterocycles

Systamaticnommenclature (Hantzsch-Widman system); trivial system; fusion nomenclature system; replacement nommencalture system; Monocycyclic heterocycles, fused heterocycles, spiroheterocycles; bridged heterocycles; bicyclic systems; polycyclic systems; heterocyclic ring assemblies.

(B) Aromaticity of Heterocycles

Chemical behavior of aromatic heterocycles; five and six-membered aromatic heterocycles and mixed aromatic heterocycles; relationship with carbocyclic aromatic compounds; criteria of aromaticity in heterocycles; structural and electronic criteria.

(C) Reactivity of Heteroaromatics

Selectivity and reactivity of heteroaromatic rings: five- and six-membered heteocyclic system.

UNIT – II: Three- and Four-membered Heterocyclic Compounds **15 Hrs**

(A) Three-membered Heterocycles

Synthesis andchemical reactivity of aziridines, oxiranes, oxaziridinesandthiiranes.

UNIT – II: Drug Design, Lead Modification and SAR **15 Hrs**

(A) Drug design

Lead discovery, Existing drugs as leads (me too drugs), Pharmacophore, Principles of design of agonists, antagonists and enzyme inhibitors, Design of salbutamol, cimetidine and captopril. Drug discovery without lead – serendipity- Penicillin and Librium as examples.

(B) Lead modification strategies

Bioisosterism, variation of alkyl substituents, chain homologation and branching, variation of aromatic substituents, extension of structure, ring expansion and ring contraction, ring variation, variation and position of hetero atoms, ring fusion, simplification of the lead, rigidification of lead.

(C) Structure-Activity Relationship (SAR) studies

SAR in sulfa drugs, benzodiazepines and taxol analogs; Structure pruning techniques with morphine as example, principles of prodrug design.

UNIT – III: Steroids and Prostaglandins **15 Hrs**

(A) Steroids

Occurrence, nomenclature, basic skeleton, Diel's hydrocarbon and stereochemistry of steroids; isolation, structure determination of cholesterol, structure determination and synthesis of androsterone, testosterone, estrone and progesterone, biosynthesis of steroids.

(B) Prostaglandins

Occurrence, nomenclature, classification, biogenesis, physiological effects and synthesis of PGE_2 and PGF_2.

UNIT–IV: Flavonoids and Isoflavonoids **15 Hrs**

Occurrence, nomenclature and general methods of structure determination; isolation, structure elucidation and synthesis of apigenin, luteolin, kaempferol, quercetin, and daidzein; biosynthesis of flavonoidsandIsoflavonoids: acetate pathway and shikimic acid pathway.

Books Suggested

1. Natural Products: Chemistry and Biological Significance, J. Mann, R.S.Davidson, J. B. Hobbs, D. V. Banthrope and J. B. Hatrbnome, Longman, Essex.
2. Organic Chemistry, Vol. 2, I. L. Finar, ELBS.
3. Chemistry of Organic Natural Products, O. P. Agrawal, Vols. 1 &2, Goel Pubs.
4. Natural Products Chemistry K. B. G. Torssell, John Wiley, 1983
5. New Trends in Natural Products Chemistry, Atta-ur-Rahman and M.I.Choudhary, Harwood Academic Publisher.
6. Chemistry of Natural products P. S. Kalsi, Kalyani Publishers
7. Biosynthesis of steroids, terpenes and acetogenins, J. H. Richards & J. R. Hendrieson
8. The biosynthesis of secondary metabolites, R. D. Herbert, Chapman & Hall
9. The Biosynthesis of Secondary Metabolite, R. D. Herbert, Second edn, Chapman and Hall 1984
10. Medicinal Chemistry and Pharmaceutical Chemistry, H. Singh and Kaur.
11. An Introduction to Medicinal Chemistry, 4th Ed., G. L. Patrik.
12. Biochemical Approach to Medicinal Chemistry, Thomas Nogrady.
13. Principles of Medicinal Chemistry, William Foye.
14. Medicinal Chemistry, AshutoshKar.
15. Medicinal chemistry An introduction by Garreth Thomas.
16. Berger's Medicinal Chemistry, Vols. 1-5, Manfred E. Wolf.

45031P: Spectral Identification of Organic Compounds (UV, IR, ^{1}H- and ^{13}C- NMR and Mass)

Composite spectral problems in three modes, 10 examples in each mode

(A). Propose the structures for compounds that fit the given spectral data and assign the spectral values.

(B). For the given scheme and spectroscopic data, deduce the structure of compounds I, II and III, and assign the data.

(C). Extract data from the given spectra and elucidate the structure from the obtained data with appropriate discussion.

Books Suggested

1. Organic spectroscopy, W. Kemp, 5th Ed., (ELBS.2)
2. Spectrometric Identification of organic compounds, R.M. Silverstein, F.X. Webster and D.J. Kiemle, 7th Ed., (Wiley)
3. Introduction to Spectroscopy, A guide for students of organic chemistry, Donald L. Pavia, Gary M. Lamp man and George S. Kriz, 3rd Ed., (Thomson).

45032 P: Project Work

Students must do a research based project and submit a dissertation for evaluation. Further, a final presentation of dissertation work and viva need to be conducted.

Yogi Vemana University, Kadapa :: M.Com - Course Structure (CBCS)

Paper code	Title of the Paper	Teaching Hours per Week	Credits	Exam Duration (Hours)	Marks		
					Internal Assessment	External Assessment	Total
M.Com. I Semester							
101	Organisational Behaviour	4	4	3	25	75	100
102	Managerial Economics	4	4	3	25	75	100
103	Business Environment and Policy	4	4	3	25	75	100
104	Corporate Financial Accounting	4	4	3	25	75	100
105	Computer Applications in Business (Theory and Practical)	4	4	2	25	50 Theory 25 Practical*	100
Total		20	20		125	375	500
M.Com. II Semester							
201	Human Resource Management	4	4	3	25	75	100
202	Marketing Management	4	4	3	25	75	100
203	Financial Management	4	4	3	25	75	100
204	Research Methodology for Business	4	4	3	25	75	100
205	E-Commerce (Theory and Practical)	4	4	2	25	50 Theory 25 Practical*	100
OEPT: 206	Offered by other Departments (CBCS)	4	4	3	25	75	100
Total		24	24		150	450	600
M.Com. III Semester							
301	Accounting for Managerial Decisions	4	4	3	25	75	100
302	Corporate Tax and GST	4	4	3	25	75	100
303	Accounting Package – Tally (Theory and Practical)	4	4	2	25	50 Theory 25 Practical*	100
Electives							
304(A)	Security Analysis and Portfolio Management	4	4	3	25	75	100
304(B)	Marketing Research	4	4	3	25	75	100
305(A)	Financial Markets and Services	4	4	3	25	75	100
305(B)	Service Marketing	4	4	3	25	75	100
OEPT: 306	Offered by other departments (CBCS)	4	4	3	25	75	100
Total		24	24		150	450	600
M.Com. IV Semester							
401	Soft Skills for Career Development	4	4	3	25	75	100
402	Entrepreneurship Development	4	4	3	25	75	100
Electives							
403 (A)	Financial Derivatives	4	4	3	25	75	100
403 (B)	Retail Marketing Management	4	4	3	25	75	100
404 (A)	International Financial Management	4	4	3	25	75	100
404 (B)	International Marketing Management	4	4	3	25	75	100
405	Project Report and Viva-Voce	**	4		25 (Viva-Voce)	75 (Project Report)	100
Total		20	20		100	400	500
Grand Total			80		525	1675	2200

OEPT: Open Elective Paper Theory

The Commerce Department offers the following TWO papers for the students of other Departments as Open Elective Paper (CBCS)

Paper code	Title of the Paper	Teaching Hours per Week	Credits	Exam Duration (Hours)	Marks		
					Internal Assessment	External Assessment	Total
OEPT - 206	Stock Markets	4	4	3	25	75	100
OEPT - 306	Banking and Insurance Services	4	4	3	25	75	100

* The Practical Examination shall be conducted by External Examiner and Internal Examiner based on Record, Demo and Viva-Voce.

** A faculty member can guide maximum of EIGHT students. Guidance of EIGHT students by a faculty member will be equivalent to the teaching workload of one paper per semester.

104: CORPORATE FINANCIAL ACCOUNTING

Objective: The objective of this paper is to expose the students to advanced corporate financial accounting issues and practices.

UNIT-I: Introduction to Accounting: Nature and Scope of Financial Accounting – Importance – Objectives - Generally Accepted Accounting Principles (GAAP) – Indian Accounting Standards and International Accounting Standards. (Theory only)

UNIT-II: Inflation Accounting: Definition - Limitations of Historical Accounting – Methods of Accounting for Price Level Changes - Current Purchasing Power (CPP) - Current Cost Accounting (CCA) - Gearing Adjustment. (Theory & Problems)

Unit-III: Human Resource Accounting: Concept - Suggested Methods for Valuation of Human Resources - Advantages and Disadvantages of HR Accounting; Corporate Social Accounting - Concept and Objectives of Social Accounting - Social Accounting Measures - Social Responsibility Accounting; Government Accounting - Structure of Government Accounting - Commercial Accounting Vs Government Accounting.

Unit-IV: Consolidated Financial Statements: Definition - Preparation of Consolidated Balance Sheet – Minority Interest – Pre Acquisition or Post Acquisition Profits – Cost Control or Goodwill – Inter Company Balances – Bonus Shares – Treatment of Dividends – More Than One Subsidiary - Inter Company Holdings – Preparation of Consolidated Financial Statements. (Theory & Problems)

Suggested Books

1. Gupta, R.L. and Radhaswami, M., Advanced Accountancy, S. Chand & Co., New Delhi.
2. Jain and Narang, Advanced Accountancy, Kalyani Publications, New Delhi
3. M.C. Shukla, T.S. Grewel, Advanced Accountancy, S. Chand & Co., New Delhi.
4. S.N. Maheswari and S.K. Maheswari, Corporate Accounting, Vikas Publishing House, New Delhi.
5. Arulanandam, Advanced Accountancy, Himalaya Publishing House, Delhi.
6. Ghosh, T.P., Accounting Standards and Corporate Accounting Practices, Taxmann.
7. Jawaharlal, Accounting Theory, Himalaya Publishing House.
8. I.M. Pandey, Management Accounting, Vikas Publication.
9. Bhatty J, Management Accounting, ELBS.
10. Khan and Jain, Management Accounting, Tata McGraw Hill.

302: CORPORATE TAX AND GST

Objective: The objective of this paper is to describe the theoretical and practical knowledge of taxation to the students.

UNIT- I: Introduction: Meaning - Definition – Brief History of Tax – Types of Taxes – Basic Concepts – Objectives – Principles – Legal Framework – Advantages and Disadvantages of Taxation – Tax Planning – Tax Avoidance – Tax Evasion – Tax Management – Income – Types of Income –Penalties and Prosecutions – Tax Reforms (Theory only)

UNIT- II: Company Taxation: Introduction – Definition- Features – Types of Companies – Residential Status of a Company – Incidence of Tax – Income Sources – Agricultural and Non-agricultural – Income Computation of Gross Total Income of a Company – Tax Deductions U/S 80 – Carry Forward and Set Off - Accumulated Tax (Theory & Problems)

UNIT- III: Goods and Service Tax (GST): Concept – Types of GST – Features of GST - Advantages and Disadvantages – Comprehensive structure of GST Model in India – Registration under GST – GST Migration - GST Slabs in India – Transactions Covered under GST – Items Exempted from GST - Changes in GST since Beginning. (Theory only)

UNIT- IV: GST Execution: Input Tax Credit – Distribution of Tax – Tax Invoice in GST – GST Composition Scheme – GST Returns - Reverse Change Mechanism in GST - GST on Exports and Imports –Taxes on Outside the Purview of GST. (Theory only)

Suggested Books

1. Monica Singhania Vinod K Singhania, Students Guide to Income Tax, 57th Edition (2017-18), July 2017,
2. Vinod K. Singhania, Indirect Tax Laws, Taxmann Publications.
3. Gaur, V.P. Narang, D.B. Gaur, Puja Puri, Rajeev, Income tax Law and Practice, Kalyani Publishers
4. R.G. Saha, Taxation, Himalaya Publishing House Pvt. Ltd.
5. Joy Dhingra, Goods and Services Tax Fundamentals, 2017, Kalyani Publishers.
6. Dr. Thomas Joseph Thoomkuzhy, Dr. Jaya Jacob M., Ms. Chinnu Mariam Chacko, GST The Essentials of Goods and Services Tax: 2017, Himalaya Publishing House.
7. V S Datey, GST Ready Reckoner: Enforced with Effect from 1-7-2017**,** July 2017 4th edition, Taxmann publication
8. The Central Goods and Services Tax Act, 2017, NO. 12 OF 2017 Published by Authority, Ministry of Law and Justice, New Delhi, the 12thApril, 2017.

303: ACCOUNTING PACKAGE - TALLY

Objective: Computer Application is useful for acquisition, processing and organization of data. Main aim of the subject is to make students know and learn about computers through its applications.

UNIT– I: Computerized Accounting: Meaning - Concept – Manual Accounting Vs Computerized Accounting – Significance of Computerized Accounting – Advantages and Disadvantages - Different Software Available in the Market; Tally ERP 9: Features – Components of Gateway of Tally – Creation of Company - Creation of Group - Voucher – Ledger.
Hands on Practice: Creation of a Company – Ledger Creation – Voucher entries

UNIT– II: Vouchers: Voucher – Recording of Transactions - Types of Vouchers – Accounting Voucher – Inventory Voucher – Contra Voucher - Customizing the Existing Vouchers – Alteration of Voucher.
Hands on Practice : Voucher entries – Voucher alteration – Customizing Voucher

UNIT– III: Report Generation: Generating the Reports from Tally: Trial Balance – Account Books – Profit and Loss Account – Balance Sheet; Statement of Accounts: Funds Flow Statement – Cash Flow Statement – Bank Reconciliation Statement – Ratio Analysis.
Hands on Practice: Generation of Trial Balance – Profit and Loss Account – Balance Sheet - Funds Flow Statement – Cash Flow Statement – Bank Reconciliation Statement – Ratio's

UNIT– IV: Goods and Service Tax: Central Goods and Service Tax – Central Excise Service Tax – SAD – CVD – AED – Surcharge and Cess – State Goods and Service Tax – VAT/Sales Tax – Entry Tax – Tax on Lottery - Surcharge and Cess – Purchase Tax – Entertainment and Luxury Tax – Integrated Goods and Service Tax.
Hands on Practice: Creation of CGST – SGST – IGST - Entry Tax – Surcharges

Suggested Books

1. Sulochana, M., Kameswar Rao, K., and Kishore, R., Kumar, Accounting Systems, Kalyani Publishers, Hyderabad.
2. Dr. Kiran Kumar, K.Tally ERP 9, Sri Vaibhava Publications, Hyderabad.
3. Arora J.S, Tally ERP 9 A Financial Accounting Package, 3rd 2017, Kalyani Publishers, Hyderabad.
4. Dr. Prajnadipta Das, Mr. Rasananda Mohanty, Mr. Debiprasad Dash, Computer Applications in Business: 2017, Himalaya Publishing House Pvt. Ltd.
5. Saha R. G., Computer Applications in Business: 2016, Himalaya Publishing House Pvt. Ltd.
6. Kiran kumar K., Tally 9, Laasya Publishers, Hyderabad.
7. Firewall Media, Tally 9.
8. Vishnu Priya Sing, Tally 9, Computech Publications Ltd. New Delhi.

M.A. ECONOMICS - FIRST SEMESTER

103 INTRODUCTORY MACRO ECONOMICS

Module – I: National Income Accounting

Circular Flow Of Income - Definition of National Income – Concepts of National Income – Methods of Estimation – Problems of Estimation of National Income – National Income Statistics of India

Module – II: Consumption Behaviour and Investment

Consumption Function – Keynes Psychological Law of Consumption-implications of the law- Theories of aggregate consumption- Absolute Income Hypothesis, Relative Income Hypothesis, Life Cycle Hypothesis, Permanent Income Hypothesis – Theory of Investment - Determinants of Investment – Marginal Efficiency of Capital - Accelerator.

Module – III: Business Cycles and Unemployment

Business Cycles – Phases of Business Cycles – Theories of Business Cycles – Schumpeter, Samulson, J.R. Hicks, Keynes – Meaning of Unemployment – Types of Unemployment – Theories of Unemployment

Module – IV: Keynesian Macroeconomic Theory

New Classical Economics - Significance of the Keynesian Theory – supply side Economics – Relevance of Keynesian Economics to Underdeveloped Economies – Criticism Of Keynesian Theory.

Reading List:

1.Auckly, G. (1978), Macroeconomics: Theory and Policy, Macmillan, New York.

2. Ahuja H L, *"Advanced Economic Theory – Microeconomic Analysis",* Sultan Chand and Co. Ltd., New Delhi, 2000

3.Gordon, R.A, and L.R. Klein(Eds.)(1965), Readings in Business cycles, Irwin, Homewood.

4..Hall, R.e. and J.B. Taylor (19860, Macroeconomics, W.W. Norton, New Yark.

5.Hicks, J.R. (1974), The crisis in Keynesian Economics, Oxford University Press, NewDelhi.

6.Rakshit, M. (19980, Studies in the Macroeconomics of Developing Countries, Oxford University press, New Delhi.

7.Rao, V.K.R.V. (1983), India's National Income: 1950 to 1980, Sage Publications, New Delhi.

8.Shapiro, E. (1996), Macroeconomic Analysis, Galgotia Publications, New Delhi.

9.Samuelson and Nordhaus, *"Economics",* Tata McGraw-Hill Pub., Co., Ltd., New Delhi, 2002.

M.A. ECONOMICS - FIRST SEMESTER

104 PUBLIC ECONOMICS

Module I: Nature, Scope and Principles of Public Finance:

Meaning, Importance and Scope of Public Finance –Objectives of Public Finance – Functions of Modern State – Classical, Keynes and Musgrave views on the Theory of the Public Finance – Principle of Maximum Social Advantage -.

Module II: Public Revenue and Taxation:

Sources of Public Revenue: Taxes –Direct and Indirect Taxes – Merits and Demerits of Direct and Indirect Taxes — Canons of Taxation - Characteristics of a Good Tax -Single and Multiple Taxation — Ability to Pay Theory – Incidence and Effects of Taxation – Trends in Indian Taxation during last Four Decades.

Module III: Public Expenditure and Public Debt:

Role of Public Expenditure in Developing Economies –Causes for the Growth of Public Expenditure – Principles of Public Expenditure - Wagner's Law of Increasing State Activities - Peacock and Wiseman Hypothesis - Effects of Public Expenditure – Public Expenditure Management – Public Debt: Internal and External Debt – Causes of Public Debt - –Role of Public Debt in Developing Countries – Effects of Public Debt - Public Debt Management – Public Debt in India.

Module IV: Federal Finance and Budgets:

Centre-State Financial Relations in India –Finance Commission – Functions of Finance Commission -Recommendations of 14th Finance Commission – Budget – Types of Budgets – Analysis of the Union Budget (Latest) – Trends in Revenue and Expenditures of the Government of India – Analysis of A.P. State Budget (Latest) – Trends in Revenue and Expenditures in Government of Andhra Pradesh – Deficit Budget –Types of Deficit Budget – Causes and Problems of Deficit Budget – FRBM Act -2005.

References:

1. Musgrave, Richard A. and Musgrave Peggy B, *Public Finance in Theory and Practice,* Mc Graw-Hill, 5th Edu. 1989.
2. Stiglitz, Joseph E, Economics of the public Sector, (2nd Edition), W.W. Norton & Co., New York, 1988.
3. Harvey, Rosen, *Public Finance* (Second Edition), IRWIN, Homewood, 1988.
4. Atkinson, A. B and Stiglitz, J.E., *Lectures on Public Economics*, McGraw-Hill, New York, 1980.
5. Myles, Garesth D, *Public Economics*, Cambridge University Press, 1995.
6. Boadway Robin W Wildasin David E, *Public Sector Economics*, (2nd Edition), Little Brown, Boston, 1984.
7. Musgrave, Richard A & Shoup. Carl S (Ed.) *Classics in the theory of Public Finance*, Macmillan, 1962.
8. Musgrave Richard A, *Fiscal Systems*, Yale University Press, New Haven and London,
9. Tyagi, B.P. *Public Finance,* Jai Prakash Nath Publications, Meerut, U.P.
10. Ahuja, H.L., *Modern Economics,* S.Chand&Company Ltd, New Delhi.
11. Dewtt, K.K, *Modern Economic Theory,* S.Chand & Company Ltd, New Delhi.
12. Sundaram, K.P.M and Andley, K.K, *Public Finance* (Theory and Practice), S.Chand&Company Ltd, New Delhi.

M.A. ECONOMICS - FIRST SEMESTER

105 MATHEMATICAL METHODS IN ECONOMICS

Module I: Elementary Algebra:

Simple fractions and factors – solution of linear and quadratic equations –Solution of Simultaneous equations –Concept of a Function - Types of Functions; Exponential, logarithmic, Polynomial and Homogenous Functions –Geometrical presentation of a Function –Demand and Supply Functions –Determination of Equilibrium Price and Quantity.

Module II: Introduction to Economics:

Slopes and limits –Concept of a Derivative –Rules of Differentiation – Second order Derivatives –Maxima, Minima and point of inflexion of a function (One Independent Variable) –Partial and total differentiation. Concept of Integration –Rules of Integration Area Between the Two curves.

Module III: Economics Application:

Marginal and average concept of costs – Revenue and Profit functions –Maximum and Minimum concept of a firm under percept competition – Elasticity of Demand and Supply functions Types of elasticity of Demand relationship Between TR, MR, AR and ed – Euler's theorem –Consumer's Surplus and Producer's Surplus.

Module IV: Matrices and Determinants:

Concept of a Matrix –Types of Matrices –Simple Operations on Matrices. Determinants and their Basic Properties. Rank of a Matrix – minors and co-factors –Inverse of a matrix – Solution of Simultaneous Equations –Cramer's rule.

References:

1. Allen, R.G.D.(1957), *'Mathematical Economics'*, St.Martin's London.
2. Allen, R.G.D.(1972), *Mathematical Analysis for Economist*, Macmillan press and ELBS, London.
3. D.Bose, *'An Introduction to mathematical Economics',* (Himalaya Publishing House), HYD.
4. Caroline Dinwiddie, *Elementary Mathematics for Economists,* Oxford University Press, Nairobi, Kenya, 1993.
5. Taro Yamane: *'Mathematics for Economist' (An elementary survey)*, 2nd Edition Prentice Hall Of India, New Delhi -1.
6. B.C. Mehatha and G.K. Madnani: *'Mathematics for Economist',* Sultan Chand&Sons, New Delhi.
7. D.R Agarwal: *'Quantitative Method,* (Mathematics and Statistics), Vrinda Publications Pvt. Ltd, Delhi -1.
8. Chaing, A.C(1986),: *'Fundamental methods of Mathematical Economics',* Mc.Graw Hill, New York.

M.A. ECONOMICS - SECOND SEMESTER

201 INTERNATIONAL ECONOMICS

Module -I: Theories of Trade:

Classical theory – Adam Smith, Ricardo, Heberler, J.S. Mill – Modern Theory- Heckscher-Ohilin, Stopler-Samulson, Factor Price Equalization theorem, Rybczynski

Module -II: Trade Policy and Theory of Trade Interventions:

Gains from trade and their distribution; Concepts of terms trade their uses and limitations; Hypothesis of secular deterioration of terms of trade: Trade an engine of Economic growth. The theory of interventions -Tariff – Quotas and non-tariff barriers, Economic effects of Tariffs Vs Quotas

Module -III: Balance of Payments and The Foreign Exchange:

Structure of Balance Of Payments – Disequilibrium in BOP, measures to correct it- Traditional, Absorption and Monetary Approaches for adjustment in the Balance of Payments - Foreign Trade Multiplier – Basis of forex market/fundamentals- Determination Of Foreign Exchange, Theories of Foreign Exchange Rate.

Module -IV: Global Institutions:

The Bretton Woods System – IMF and World Bank- Collapse of BrettonWood System - WTO – Issues at the recent WTO Ministerial Conferences –International Development Association (IDA) – International Finance Corporation (IFC)

Reading List:

1. Bhagwati, J.(ed) (1969): *International Trade*: Selected Readings.
2. Carbaugh (2008): *International Economics*.
3. Chacholiades, M.(1978): *International Trade: Theory and Policy.*
4. Haberler, G.: *The theory of International Trade*.
5. Heller,R. (1964): *Money, Trade and Economic Growth*.
6. Kenen, peter B (1995): *The International Economy*.
7. Kindle Berger, C.P.(1976): *International Economics*.
8. Meier, G.M.(1986): *International Economic Development*.
9. Sodersten, B.(1986) *International Economics,*
10. Sodersten, B and Geoffrey Read, (1994): *International Economics.*
11. J.E.Meade *The Theory of Economic Policy* vol.1 The balance of payments.
12. Pramit Chaudhary *Aspects of Indian Economic Development*.
13. American economic Readings in the theory of International Trade association.
14. Chitale, V.P. *India and the Euro- Currency Markets*.
15. I.M.F. *The Monetary Approach to the BOP*.
16. I.M.F. The role of exchange rates in the adjustment of International payments.

M.A. ECONOMICS - SECOND SEMESTER

202. MONETARY ECONOMICS

Module -I: DEMAND AND SUPPLY OF MONEY:

The Classical View- Neo-classical view-Fishers Quantity Theory of Money – Keynes's liquidity preference approach to demand for money - Post Keynesian theories of demand for money - Baumol and Friedman – Concept of Money Supply – RBI approach to Money supply – High Power Money -Money Multiplier and Determinants of Supply of Money.

Module -II: INFLATION:

Meaning of Inflation, Theories of Inflation, Demand pull or Monetary theory of inflation; Cost Push Inflation; Demand pull Vs Cost push inflation, Inflationary gap Stagflation, The Phillips Curve; The Relationship between Unemployment and Inflation Tobin's modified Phillips Curve: Causes of inflation; Effects of inflation; Measures to Control Inflation.

Module -III: BANKING

Definition and stages of development of Indian Banking- Structure of Indian banking –functions of Commercial banks, NABARD-Role of Regional Rural Bank in rural credit, Structure and Growth of Co-operative Societies-their share in total credit-adequacy and problems - Non-Banking Financial Institutions-its regulation by RBI-Financial inclusion

Module –IV: MONETARY POLICY:

Central Bank – Monetary Policy of India, since Independence – Role and Functioning of the Reserve Bank of India. –quantitative and qualitative instruments of credit control – Priority sector lending – Debt recovery management -Banking ombudsman scheme – Banking Sector Reforms – Chakravarthy Committee Report – Narasimham Committee Report.

References:

1. Dillard: The Theory of a Monetary Economy in Post- Keynesian Economics (Ed.) by K. Kurihara.
2. Friedman (Ed.): The Quantity Theory of Money- A Restatement in Studies in The Quantity Theory of Money.
3. G. Ackley: Macro Economic Theory.
4. Gibson and Kaufman: Readings in Monetary Theory.
5. Gupta, S.B.: Monetary Economics (1983): Chand and Co.,
6. Gupta, S.B.: Monetary Planning for India Oxford University Press, 1979.
7. H.G. Johnson: Essays in Monetary Economics.
8. Hicks, J.R.: ''Mr. Keynes and the classical A Suggested Interpretation'', Econometrics April, 1937.
9. J.R.Hicks: Critical Essays in Monetary Theory.
10. Laidler: Demand for Money.
11. Patinkin: Money Interest and Prices.
12. Patinkin, Don: Money Interest and Prices.
13. Stephen, Rousseaus: Monetary Theory.
14. Tobin: Portfolio Selection in Hahn and Breeheing in Theory of Interest Rates, pp. 3-15.

M.A. ECONOMICS - SECOND SEMESTER

204 -INDIAN ECONOMY

Module – I: Structure of the Indian Economy:

Basic Characteristics of the Indian Economy –Components and Construction of Human development Index –Human Development in India –Size and Growth Rate of Population in India – Causes of the Rapid Growth of Population and Remedies for population Explosion - Sex and Age Composition of Population –Trends in Birth and Death Rates –Trends in Rural and Urban Population – National Population Policy -2000 - National Income Estimates in India – Limitations of National Income Estimation in India - Trends and Structural Changes in National Income in India – Trends in Saving and Investment Pattern in India .

Module – II: Poverty, Employment and Unemployment in India:

Concept of Poverty –Types of Poverty –Measurement of Poverty – Trends in Poverty –Causes and problems of poverty – Strategy of Poverty Alleviation –Poverty Alleviation programmes in India– Structure of Employment in India – Labour Force, Sectoral and Occupational Structure – Unemployment in India – Types of Unemployment in India - Measurement of Unemployment – Causes and Problems of Unemployment in India - Government policy for removing Unemployment – Major Employment Programmes in India with special reference to MGNREGP.

Module – III: Indian Planning and Nithi Aayogh:

Overview of the Objectives and Development Strategy of Indian Planning from First to Twelfth Five Year Plan – Achievements and Failures of Planning in India – **Nithi Aayogh** - Role, Performance and Problems of Public Sector in India –Role and Problems of Private Sector in India - Economic Reforms in India.

Module – IV: Indian Monetary and Fiscal Policies

Objectives of Monetary Policy in India - Monetary Policy of Reserve Bank of India- Credit Control Policy of RBI - Monetary Policy in the Post Reform Period- Objectives of Fiscal Policy in India – Fiscal Imbalance and Deficit Finance - Fiscal Responsibility in India- Fiscal Responsibility and Budget Management (FRBM) Act - Fiscal Reforms in India.

References:

1. Datt, Ruddra and K.M.M. Sundaram (Current Edition) Indian Economy S.Chand & Co., New Delhi.
2. Misra and Puri(Current Edn.) *Indian Economy*, Himalaya Publishing House, New Delhi.
3. Ahluwalia I.J. and IMD Litte (Ed) (1999) *India's Economic Reforms and Development*, Oxford University Press, New Delhi.
4. Bardhan, P.K. (1999), *The Political Economy of Development in India,* Oxford University Press, New Delhi.
5. Bramhananda, P.R. and V.R.Panchamucki (Eds) (1987) *The Development Process of Indian Economy* – Himalaya Publishing House, New Delhi.
6. Government of India, Economic Survey (Various Years).
7. Government of India ,Planning Commission Reports (Various Plans)

M.A. ECONOMICS - SECOND SEMESTER

205 STATISTICAL METHODS IN ECONOMICS

Module I Central tendency: Measures of Central tendency- Dispersion – Skewness- Kurtosis

Module II: Correlation and Regression:

Definition –Types of Correlation –Methods of Correlation; Scatter diagram, Graphic Method, Karl Pearson's method, Spearman's Rank Correlation- Regression analysis – Method of the Least Squares – Regression Equations –Regression Lines – Standard Error of estimate –Properties of Regression coefficients.

Module III: Probability and Sampling Theory:

Definitions of Probability – Approaches of Probability –Addition and multiplication Theorems of Probability – Conditional Probability. Basic concepts of Sampling - Probability and Non –Probability sampling Methods – Sampling and Non-Sampling Errors – Remedial measures –Merits and limitations of Sampling –Need for Sampling – Census V/s Sample.

Module IV: Tests of Hypothesis:

Tests of Hypothesis- Formulation of Statistical Hypothesis –Null and Alternative Hypothesis- Normal curve – level of significance – Critical region – Confidence Intervals - One-tail and Two-tail tests –Type-I and Type-II errors -Large and small Sample Tests **t-** test) - Testing of differences between means, standard deviations, proportions and Correlation Coefficient - X^2- test.

Reference:

1. Gupta, D.B: *Fundamentals of Statistics*, Himalaya Publications, HYD.
2. Gupta, S.P: *Introduction to Statistical Methods*, Sultan Chand and Sons, New Delhi.
3. Gupta, S.B: *Fundamentals of Statistics*, Himalaya Publications,HYD.
4. John E.Freund: *Mathematical Statistics*, Prentice-Hall of India Pvt.Ltd.New Delhi.
5. Medhi, J: Statistical Methods – *An Introductory Text*, New Age International (P) Ltd. New Delhi.
6. Gupta, S.C: *Fundamentals of Statistics*, Himalaya Publications, Hyderabad.
7. Gupta, S.C, & Kapoor, V.K: *Fundamentals of Mathematical, Statistics*. Sultan Chand and Sons, Publications 23, Daryagang, New Delhi.
8. Hary Frank&Steven,C, Althoen; *'Statistics- Concepts and Applications*, Camebridge University Press, Cambridge.

M.A. ECONOMICS - THIRD SEMESTER

301 ECONOMETRIC METHODS

UNIT – I: FUNDAMENTALS OF ECONOMETRICS:

Nature, and scope of Econometrics – Definitions – Objectives – Uses and Limitations. Variables: Dependant, Independent, exogenous, endogenous, Predetermined, Discretionary and Non-discretionary exogenous variables. Relation between Econometrics, Mathematical Economics and Statistics. Types of data: Time Series data – Cross section data – Pooled data with suitable examples.

UNIT – II: GENERAL LINEAR MODEL:

Single equation linear modal-Assumptions and properties of OLS- Multiple regression model – Estimation and Interpretation of Autocorrelation: Causes of Autocorrelation –Coefficient of Autocorrelation – The first order Autoregressive scheme – Effects of Autocorrelation – Detection of Autocorrelation –Remedial Measure. Multicolinearity: Reasons – Consequences – Detection of Multicolinearity – Remedial measures. Heteroscedasticity- Reasons – Consequences – Tests – Remedial measures..

UNIT – III PROBLEAMS IN REGRESSION MODEL :

Dummy variables: Uses – Features – Dummy dependant variables. Lags: Uses of lags in Economics – Reasons – Autoregressive model – Distributed lags models. Alman's approach–Koyck approach – Adaptive Expectation model – Partial Adjustment model.

UNIT – IVSIMULTANEOUS EQUATION MODEL:

Simultaneous Equations: Definition – Bias – Consequences. Identification: Rules of Identification – Reduced form. Estimation Methods: Indirect Least Squares (ILS) – Two Stage Least Squares (2SLS)

References:

1. Gujarati. D.N. (2007) Basic Econometrics, (4th Edn.) Mc Graw Hill, New Delhi .
2. Intrilligator, M.D. (1978) Economics Methods, Techniques and Applications Prentice Hall, New York.
3. Johnston, J. (1991) Econometrics, Mc Graw Hill, London.
4. Koutsoyiannis A (2001) Theory of Econometrics Palglave, New York.
5. Krishna K.L (1997) Econometric Applications in India, Oxford University Press, New Delhi.
6. Theli H, (1981) Introduction to Econometrics, Prentice Hall, New Delhi.
7. Madanani, G.M.K. (1994), Introduction to Economics, Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi.
8. Mehatha B.C & Kranti Kapoor (2010) Fundamentals of Econometrics, Himalaya Publishing House, Mumbai.
9. Shyamala, Navadeep Kuar and Arul Pragrasam. T (2010) A text book of Econometrics, Vishal Publishing Co; Jalandhar.
10. Pindyck, S.Robert, Rubinfeld L.Daniel :(1984) Econometric models and Economic Forecasts, Mc Graw Hill, New Delhi.

M.A. ECONOMICS – THIRD SEMESTER

302 FINANCIAL MARKETS AND INSTITUTIONS

I. FINANCIAL SYSTEM:

Evolutions of financial system – Structure of Financial System – Functions of Financial System – Financial System and Economic development.

II. MONEY MARKET:

Features of Money Market –Instruments of Money Market: Call Money Market Treasury Bills Market – Commercials Bills Market – Market for Commercials papers –Certificate of Deposits –Money market intermediataries: Discount and Finance House of India (DFHI) -Securities Trading Corporation of India (STCI) Deficiencies and Recent developments in Indian Money Market.

III. CAPITAL MARKET:

Industrial Securities Market: Primary and Secondary Markets- Governments Securities Market and Long Term Loans Market – Objectives, Functions and Regulation of Securities and Exchange Board of India (SEBI) – Stock Exchange Over the Counter Exchange of India (OTCEI) – Functions and Bombay Stock Exchange(BSE) – National Stock Exchange (NSE) – Reforms in Capital Market.

IV. FINANCIAL INSTITUTIONS:

Functions and performance of Industrial Finance Corporation of India (IFCI) Industrial Development Bank of India (IDBI) – Industrial Credit and Investment Corporation of India (ICICI) – Small Industrial Development Bank of India (SIDBI) – State Financial Corporation(SFCs) – Functions and Performance of Life Insurance Corporation (LIC) –General Insurance Corporation (GIC) and Unit Trust of India (UTI).Mutual Funds

***REFERENCES*:**

1. Dougall, Herberte, Capital markets and institutions, Prentice Hall of India, New Delhi.
2. Hazel.J.Johnson, Financial Institutions and Markets, MC Graw Hill, London.
3. Hendrik.S.Houthakker,The Economics of Financial Markets, Oxford University Press, New Delhi.
4. H.R.Machiraju.International Financial Markets and India,Wheeler Publishing Company, NewDelhi.
5. L.M.Bhole,Financial Institutions and Markets,Tata Mc Graw Hill,New Delhi
6. M.Y.Khan,Indian Financial Systems, Tata Mc Graw Hill,New Delhi.
7. M.Y.Khan and P.K.Jain ,Financial Management , Tata Mc Graw Hill,New
8. O.P.Chalwla,Money and Securities Market, NIBH,Pune.
9. Peter.S.Rose,Money and Capital Markets: Financial Institutions and Instruments, Tata Mc Graw Hill, London
10. R.B.I.Bulletins, Mumbai.
11. S.C.Kucchal, Corporation Finance, Chaitanya Publishing, Allahabad.
12. S.L.N.Sinha, Capital Markets in India, Vora & Co, Bombay.
13. Vasant Desai, Indian Financial Systems ,Himalaya Publishing House, Bombay.
14. V. A.Avadhani, Indian Capital Market, Himalaya Publishing House,Bombay.
15. A.Avadhani, Investment Management, Himalaya Publishing House, Mumbai.
16. V.K.Bhalla, Investment Management , S,Chand and Company, New Delhi.

M.A. ECONOMICS - THIRD SEMESTER

303 INDUSTRIAL ECONOMICS

Module I: INDUSTRIAL DEVELOPMENT IN INDIA.

Role of Industrialization - Factors Promoting Industrialisation- Trends in Industrial Production in India - Industrial Development in India during the Planning period - Industrial Pattern and changes during the Plans- Problems of Industrial Development in India - Causes and Consequences of Industrial Sickness in India - Remedial Measures to Prevent Sickness – Special Economic Zones (SEZs) in India.

Module II: INDUSTRIAL LOCATION

Location, Localization and Planned Location – Weber's Theory of Location – Primary Causes (Regional Factors)- Secondary Causes (Agglomerative and Deglomerative Factors) Sargant Florence's Theory of Location - Factors Influencing Location - Balanced Regional Development of Industries - Need for Balanced Regional Development of industries in India.

Module III: LARGE SCALE INDUSTRIES AND MICRO, SMALL, MEDIUM ENTERPRISES IN INDIA

Role of Large Scale Industries in India – Problems of Large Scale Industries in India and its Remedial Measures - Major Large Scale Industries in India- Textile Industry - Sugar Industry - Cement Industry - Iron & Steel Industry - Paper Industry- Role and Performance of Micro Small Medium Enterprises (MSME) in India - Problems of MSME in India and its Remedial Measures.

Module IV: INDUSTRIAL FINANCE AND POLICIES

Sources of Industrial Finance – Types of Industrial Finance – Industrial Finance Corporation of India (IFCI) – State Financial Corporations (SFCs) – National Industrial Development Corporation (NIDC) – Industrial Development Bank of India (IDBI)– Small Industries Development Bank of India (SIDBI)- Industrial Policies 1948, 1956, 1977, 1980 – New Industrial Policy 1991 - Disinvestment Policy in Public Sector Enterprises.

Reference:

1. Ahulwalia, I.J.: Industrial Growth in India, Oxford University Press, New Delhi. 1985.
2. Barthwal, R.R.: Industrial Economics, Wiley Eastern Ltd., New Delhi.
3. Cherunilam , F.: Industrial Economics : Indian Perspective [3rd Edition] , Himalaya Publishing House, Mumbai,1999.
4. Desai, B.: Indistrial Economy in India [3rd Edition], Himalaya Publishing House, Mumbai,1999.
5. Gangadhara Rao, M.Heggade Ogeyar, D., Yadapadithya: Industrial Economy : Trends Problems and Prospects,Part II, Kanishka Publishing House, New Delhi.
6. Datt, Ruddra and K.M.M. Sundaram (Current Edition) Indian Economy S.Chand & Co.,
7. Misra and Puri(Current Edn.) *Indian Economy*, Himalaya Publishing House, New Delhi.
8. Sivayya, K.V. and Das,V.B.M: Indian Industrial Economy, S.Chand&Co. Ltd. New Delhi.
9. Sharma,A.K.: Industrial Economics, Anmol Publications Pvt. Lmt. New Delhi.

M.A. ECONOMICS- THIRD SEMESTER

304 HEALTH ECONOMICS

MODULE: 1 Introductory Health Economics

Health Economics- Nature and scope of health economics, fields of health economics- Determinants of Health Status- Role of Health in Economic Development – Characteristics of health services-health care problems.

MODULE: 2 The National and International Health Scenario and Resource allocation:

Organization of health care delivery in India- General Issues concerning health care delivery in India- Health indicators such as infant mortality, life expectancy at birth, death rate, cause specific morbidity and mortality rates etc- Sources of health statistics usefulness and limitations- Resource allocation problems in private and government hospitals- Resource allocation problems facing a private practitioner- The problem of multiple services of a hospital- Pricing of these services and the choice of the mix of services-The demand for health services and the role of the Physician.

MODULE: 3 Financing of Health Services:

A review of per capita private and public expenditure on health services- - An analysis of the sources of (public) finance for health- The need for a general health insurance- the need for a special health insurance for the poor, disabled, and the aged Financing and Delivery of healthcare services in India-Health care financing reforms in India.

MODULE: 4 Nutrition and Health: Indian Experience

Nutrition and Health-Nutritional Status in India-Determinants of Nutritional Status-consequences of nutritional deficiencies-changes in morbidity pattern and trends immortality rates-Development Policies, health strategy and role of non-health system-Health Care Delivery of Mother and Child- Health for All and Health Policy in India

READING LIST

1. Dasgupta, P.S. and G.M. heal (1958), Economic theory and exhatable resources, Cambridge University Press, Cambridge.
2. Chopra, K. and S.C Gulati (2000), Migration and Management of Common property resources: A Study in Western India, Sage, New Delhi.
3. Padmanabhan, C.B. (1984), Financial Management in Education Select books, New Delhi.
4. Wood hall, M. (1992), Cost- Benefits Analysis in Educational Planning, UNESCO, Paris.
5. Panchamukhi, P.R. (1980), Economics of Health: a Trend Report in ICSSR A Survey of Research in Economics, Vol.VI, Infrastructure, Allied, New Delhi.
6. Berman P. and M.E. Khan (1993), Paying for India's Health care, Sage Publications, New Delhi.
7. Baru, R.V. (1998), Private Health-care in India: Social Characteristics and Trends, Sage Publications, New Delhi.
8. Government of India, National Health Policy, New Delhi.
9. World Bank (1993), The World Development Report, 1993: Investing in Health, Oxford University Press, New York.
10. Krishna Kumar, T. and K.K.Rao (1987) Financing of Health Services in India.

M.A. ECONOMICS - FOURTH SEMESTER

401 AGRICULTURAL ECONOMICS

Module I: Agriculture and Economic Development

Nature and Scope of Agricultural Economics – interdependence between Agriculture and Industry – Traditional and Modern Agriculture – Role of Agriculture in Economic Development –Agricultural development, Poverty and environment

Module II: Agricultural Production & Productivity

Economics of Agricultural Production – Resource use efficiency; factor combination and resource substitution inter regional variation in growth of output and productivity; cropping pattern shifts; farm planning, budgeting, and programming; Resource use efficiency in traditional agriculture; Technical change, labor absorption and gender issues in agricultural services.

Module III: Agricultural Marketing and Prices:

Marketing and State Policy; Agricultural markets and marketing efficiency- Regulated markets; marketed and marketable surplus; Behaviour of agricultural Prices- State policy with respect to agricultural marketing; warehousing; prices; Taxation and Crop Insurance; Terms of Trade between agricultural and non agricultural prices; Need for State intervention; Objectives of agricultural price policy- instruments and evaluation.

Module IV: Agriculture and Globalization:

Food Security and Poverty reduction- International trade in agricultural commodities- Role of World Trade Organization,; Issues in Liberalization of domestic and International trade in agriculture – Impact of WTO on Indian agriculture.

Reading List:

1. R. N. Soni (2010): *Leading Issues in Agricultural Economics*, Vishal Publishing Co., New Delhi.
2. Ruddar Datt & KPM Sundaram (2010): *India Economy*, Deep & Deep Publications, New Delhi.
3. Bhaduri, A (1984): *The Economic Structure of Backward Agriculture*, Macmillan, New Delhi.
4. Bhalla, G.S (1994): *Economic Liberalization and Indian Agriculture*, Institute for Studies in Industrial Development, New Delhi.
5. Bilgrami, S.A.R. (1996): *Agricultural Economics*, Himalaya Publishing House, New Delhi.
6. Dantwala, M.L. etal (1991): *Indian Agricultural Development Independence*, Oxford & IBH, New Delhi.
7. Government of India (1976): Report of the National Commission on Agriculture, New Delhi.
8. Gulati, A and T. Kelly (1999): *Trade liberalization and Indian Agriculture*, Oxford University Press, New Delhi.

M.A. ECONOMICSS- FOURTH SEMESTER

402 ENIVORNMENTAL ECONOMICS

UNIT 1: **Environmental Economics – An Introduction**

Definition scope and importance – need for public awareness National Resources Renewable and non renewable resources- National Resources and associated problems Forest resources water, mineral Food Energy – Land Resources.

UNIT 2: Conservation of Resources

Equitable use of resources for sustainable Development
Conservation and preservation – Man's impact on resources – Adverse effects on resources – Conservation awareness – Methods of conservation – Material substitution – Product life extension – Recycling – Optimum recycling – Waste reduction.

UNIT 3: **ENVIRONMENTAL POLLUTION**

Definition – causes, Effects and Control measures of air, water, soil noise , Marine, Thermal, Newcluar hazards- Deisaster Management floods, Earth,quakes, cyclones and land slides- Types of pollution and economic effects of pollution: Air Pollution, water pollution, Soil Pollution, Noise pollution. Solid Waste Management: Types of Solid waste, Factors affecting the solid waste generation, Impact of solid wastes, Recycling and reuse population and urbanization: Its Impact on Environment and Helth: .

UNIT 4: **GLOBAL ENVIRONMENTAL ISSUES**

Global Environmental Issues like Climate Change, Acid Rain, Global warming,ozone layer detection Watershed management, watershed approach for sustainable development. Role of Information Technology in Environment and Human Health.

References

1. Resources and Environmental economics:. Author: A.C.Fisher ,Cambridge university press
2. Sustainable Development and Environment : Author: A.K. De, N.C. Gupta
   Publication: Cosmo Publications
3. Text Book of Environmental Science &Technology :Dr. M. Anji Reddy : B.S. Publication
4. Environmental Studies: : Manoj Tiwari :Publication: J.K. International publishing house Pvt. Ltd.
5. Environmental Education for Conservation and Development: Berberet.G and DeshBhandu , Dehradun Natraja Publishers.

6.A Text book of Environmental Science: Dr. B. R. Ambedkar Open University, Hyderabad.

M.A. ECONOMICS- FOURTH SEMESTER
404 ELECTIVE-II ANDHRA PRADESH ECONOMY

Module I: LAND REFORMS IN A.P.

Land reforms Act in AP – Abolition of Intermediataries, Tenancy reforms, Land Ceiling Acts, Escheats Act, A.P. Assigned Land Act, A.P. Urban Land Act, Land grabbing control Act, Computerization of land records – Problems and Recommendations of Koneru Rangarao Committee.

Module II: REGIONAL DISPARTIES IN A.P. ECONOMY

Structure of A.P. Economy – Its sectoral and regional distribution of income and Employment . Magnitude of poverty (rural and urban) and Illiteracy – Causes and measures initiated to ameliorate them. Demographic features in A.P – Sex ratio, MMR, IMR, Density, Age composition- . Social, Political and Economic Empowerment of Women.

Module III: PLANNING IN A.P.

Five plans of A.P. – Objectives, outlays of public sector plans. Aims, objectives and resources allocation pattern in the recent five year plan. Current Budget policy – Tax structure: Direct and Indirect taxes, allocation for different sectors,. Public debt of AP

Module IV: SECTORAL ECONOMY

Agricultural sector- Green revolution, changes in Agri- Technology- Public Distribution System in A.P. – Procurement price, Administered price and Support price, Growth and Structure of industries in AP: Weakens and problems. Service sector of AP, with special reference to Transport and Communications, Tourism and Information technology

References:

1. R.S.Rao, Fifty years of A.P. 1956 – 2006, CDR and communications, Himayat Nagar, Hydarebad.
2. V.H.Rao, A.P. at fifty, CDR and communications, Himayat Nagar, Hyderabad.
3. C.H. Hanumantha Rao and Mahendra Dev, A.P. development, Economic Reforms and Challenges ahead, CESS, Begumpet, Hyderabad.
4. Y.V.Krishna Rao and S.Subramanyam, Development of A.P. 1956 – 2001 – A Study of Regional disparities, NER Research Central, Vishalandhra Publishers, Hyderabad.
5. Statistical Abstract of A.P.
6. Socio – Economic Survey of A.P., Govt. of A.P.
7. Govt. of A.P., Human development Report, A.P. CESS, Begumpet.
8. J.C.Dhingra, Indian Economy: Environmental policy, Sulthan Chand, New Delhi.
9. Dutt and Sundaram: Indian Economy, Sulthan Chand, New Delhi.
10. Economics Survey, Ministry of Finance, New Delhi.

M.A. ECONOMICS - FOURTH SEMESTER

405 ECONOMICS OF EDUCATION

Module 1: Conceptual Issues in Economics of Education

Meaning, Scope and Importance of Economics of Education – Education and Economic Development – Education and Human Resource Development - The Concept of Human Capital – Education as Consumption and Investment – Education as Private and Social Investment – Demand for Education – Benefits of Education.

Module 11: Educational Planning and Approaches to Educational Planning

Meaning, Need and Importance of Educational Planning – Different Approaches to Educational Planning – Social Demands Approach – Rate of Return Approach – Manpower Requirements Approach – Educational Planning in India – Problems of India's Educational Planning and Suggestions for Improving It.

Module 111: Costs and Financing of Education

Concept of Cost of Education – Components of Costs of Education - Types of Educational Costs – Direct (Money) and Indirect (Opportunity) Costs - Public (Social Costs), Private Costs – Recurring and Non-Recurring (Capital) Costs – Unit Cost of Education and Its Importance – Measurement of Unit Cost in Education and Its Problems – Cost Effectiveness in Education – Measurement of Cost Effectiveness – Nature, Scope and Principles of Educational Finance - Sources of Finance for Education – Role of Central, State and Local Bodies in Educational Financing - Public Expenditure on Education in India.

Module IV: Contemporary Economic Issues of Education in India

Equity and Inequality in Education in India and Its Problems and Remedial Measures – Quality and Efficiency of Education – Factors Determining Quality and Efficiency of Education – Causes and Remedial Measures for Poor Quality of Education in India — Wastage of Education – Types of Wastage of Education – Causes and Problems of Wastage of Education in India – Remedial Measures for Reducing the Wastage in India – Globalisation and Its Impact on Indian Education.

References

Balsara, M. (1996) New Education policy and Development Challenge, Kanishka Publishers, New Delhi.

Blaug. M (1972) An Introduction to the Economics of Education, London: Penguin Books, London.

Blaug, M. (ed) (1968). Economics of Education- Selected Readings. Vol. 1 and 2, Penguin Books, London.

Cohn, E. and Gesker (1990) T. G. The Economics of Education, Oxford Press.

Heggade, O. D. (1992) Economics of Education, Himalaya Publishing House, Mumbai.

Majumdar, T. (1983) Investment in Education and Social Choice, Cambridge University Press, Cambridge.

Muzammil, M. (1989) Financing of Education, Himalaya Publishing House, New Delhi.

Naik J.P. (1965) Educational planning in India, Allied Publishers, Bombay.

Natarajan S. (1990) Introduction to Economics of Education, Sterling Publications, New Delhi.

Panchamukhi P. R. (ed) (1989) Economics of Educational Finance, Himalaya publishing House, Bombay.

Tilak J. B. G. (1992) Educational Planning at Grassroots, Ashish publishing House, New Delhi.

YOGI VEMANA UNIVERSITY

Vemanapuram, KADAPA – 516005

M.A. (ENGLISH) SYLLABUS (CBCS) With effect from 2018-2020

Course No. English	Course Title	No. of Hours	No. of. Credits	Univ. Exam. Duration (Hrs)	Univ. Exam	Internal Assessment	Max. Marks
FIRST SEMESTER							
ENG11011	Poetry- I	4	4	3	75	25	100
ENG 11012	Drama –I	4	4	3	75	25	100
ENG 11013	Fiction – I	4	4	3	75	25	100
ENG 11014	Prose – I	4	4	3	75	25	100
ENG 11015	English Language	4	4	3	75	25	100
	Total	20	20	-	375	125	500
SECOND SEMESTER							
ENG :21011	Poetry- II	4	4	3	75	25	100
ENG :21012	Drama –II	4	4	3	75	25	100
ENG :21013	Fiction – II	4	4	3	75	25	100
ENG :21014	Prose – II	4	4	3	75	25	100
ENG :21015	English Language Teaching	4	4	3	75	25	100
NON-CORE-21016	Functional English	4	4	3	75	25	100
	Total:	24	24	--	450	150	600
THIRD SEMESTER							
ENG :31011	Indian English Literature-I	4	4	3	75	25	100
ENG :31012	American Literature-I	4	4	3	75	25	100
ENG :31013	New Literatures in English-I	4	4	3	75	25	100
ENG :31014	Literary Criticism-I	4	4	3	75	25	100
ENG :31015	Elective – I : Short Story Elective – II : Communicative English	4	4	3	75	25	100
31016	Essential Communication Skills in English (Non-Core)	4	4	3	75	25	100
	Total:	24	24	--	450	150	600
FOURTH SEMESTER							
ENG: 41011	Indian English Literature-II	4	4	3	75	25	100
ENG: 41012	American Literature-II	4	4	3	75	25	100
ENG: 41013	New Literatures in Eng. -II	4	4	3	75	25	100
ENG: 41014	Literary Criticism-II	4	4	3	75	25	100
ENG: 41015	Elective – I – Subaltern Literature Elective – II – Diasporic Writings	4	4	3	75	25	100
	Total:	20	20	--	375	125	500

31015 - Elective I (Core)

(B) : SHORT STORY

BACKGROUND: Tale - Fable - Story - Novelette. Types of Stories: Detective-Social-Allegorical-Magic - Realism. Aspects of the short story: story - plot - characters - narrative techniques - unities - Tone - Setting - dialogue - telling and showing - structure - style.

UNIT-I:

(A) Edgar Allan poe : 1. The Tell Tale Heart
2. The Raven

(B) O. Henry : 1. The Gift of Magi
2. The Last Leaf

UNIT-II:

(A) Anton Chekov : 1. On Marriage

(B) Guy De Mauppasant : 1. The Necklace
2. Vendetta

UNIT-III:

(A) Oscar Wilde : 1. The Selfish Giant
2. The Happy Prince

(B)Washington Irving : 1. Rip Van Winkle
2. Disiree's Baby

Unit-IV:

(A) Chinua Achebe : 1. Civil Peace
: 2. The Voter

(B) Katherine Mansfield : 1.The Dolls House.
: 2. A Cup of Tea.

Unit: V

(A). Mulk Raj Anand : 1. The Thief
2. The Liar.

(B): R.K.Narayan : 1. Father's Help
2. The Blind Dog

****

1. Prof G. Gulam Tariq :

2. Prof. P. Padma :

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Yogi Vemana University
Kadapa -516005

3. Dr. N. Ankanna :

4. Dr. J. Mercy Vijetha :

5. Dr. RV. Jayanth Kasyap :

41015: ELECTIVE - I

SUBALTERN LITERATURE

UNIT – I

Background Study: Cultural Reflections, Social Realism in the Regional Literatures, Feminist Concerns, Marginal Literatures.

UNIT – 2- Poetry:

Yogi Vemana	-	A True and Rare Genius (Select Poems)
Sikhamani	-	He is the "Filthy" Human Being
Vimala	-	Kitchen

UNIT – 3- Drama:

Rashid Jahan	–	Aurat (Woman)
Neena Mehta	–	Brides are not for Burning

UNIT – 4 – Fiction:

Shiva Shankar Pilai	-	Chemmeen
Mahaswetha Devi	-	Water (Short Story)

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1. Prof G. Gulam Tariq :
2. Prof. P. Padma :
3. Dr. J. Mercy Vijetha :
4. Dr. N. Ankanna :
5. Dr. RV. Jayanth Kasyap :

Prof. P. PADMA
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Department of Genetics and Genomics
Semester-II

25122: ENERGY METABOLISM

Unit I

Bioenergetics: Thermodynamic principles – Chemical equilibria; free energy, enthalpy (H), entropy (S). Free energy change in biological transformations in living systems; High energy compounds. Phosphoryl group transfer and calculation of phosphorylation potential. oxidation- reduction reactions. Electron transfer reactions in mitochondria. ATP synthesis and regulation of ATP producing pathways. Regulation of oxidative phosphorylation. Utilization of oxygen by oxygenases, Superoxide dismutase and catalase.

Unit II

Broad outlines of metabolism. Metabolism of carbohydrates: Glycolysis: Preparative and payoff phases of Glycolysis, Regulation of glycolysis, Fermentation: the anaerobic fate of pyruvate, Metabolism of hexoses other than glucose: fructose, galactose and mannose, Citric acid cycle: pyruvate dehydrogenase complex, metabolic sources of acetyl CoA, reactions and regulation of citric acid cycle, Amphibolic nature of citric acid cycle.

Unit III

Uronic acid pathway, metabolism of amino sugars, glycogen metabolism: glycogen synthesis and break down, Regulation of glycogen synthesis and breakdown. Other pathways of carbohydrate metabolism: Gluconeogenesis and maintenance of blood glucose levels, glyoxylate cycle. Pentose phosphate pathway of glucose oxidation, Disorders of carbohydrate metabolism – Glycogen, galactose, Fructose.

Unit IV

Overview of amino acid catabolism, Biosynthesis and degradation of fatty acids (Saturated and unsaturated), energy yield and regulation, Biosynthesis of triacyl glycerols, and membrane phospholipids. Biosynthesis and degradation of cholesterol and its regulation. Metabolism of lipoproteins and Ketone bodies.

Recommended Books:

1.LEHNINGER (2017)Prniciples of Biochemistry, 7thedition, NELSON &COX (Worth) Publ.

2.Principles of Biochemistry, White. A, Handler, P and Smith.

3.David E. Metzler and Carol M. Metzler (2001). Biochemistry-The chemical reactions of living cells- Vol1&2.(2nd edition).Harcourt/Academic press, NewYork.

4. Biochemistry, Lubert Stryer.

5.Review of physiological chemistry, 16th edition, Harold A.Harper.

6.Text of Biochemistry, West and Todd.

7.Outlines of Biochemistry, Conn and Stummf.

8.Metabolic pathways –Greenberg.

9.Biochemistry, 2 nd Edition, G.Zubay.

Department of Genetics and Genomics
Semester-II

IInd SEMESTER PRACTICALS

25121-25122: Microbial Genetics & ENERGY METABOLISM

1. Bacterial growth curve
2. Isolation of mutants by gradient plate technique
3. Isolation of mutants by replica plate technique
4. UV survival ,curve
5. Isolation of mutations in bacteria by physical agents
6. Isolation of mutations in bacteria by chemical agents
7. Bacterial conjugation
8. Bacterial transformation
9. Isolation and estimation of glycogen/starch
10. Extraction and assay of extracellular enzymes from fungal source.
11. Factors influencing enzyme activity: pH, substrate concentration and Temperature.

25123-25124: MOLECULAR BIOLOGY & EVOLUTION AND POPULATION GENETICS

1. Setting of molecular biology laboratory creating of ribonuclease free environment in the laboratory.
2. Quantification of DNA and RNA by UV-spectrophotometer.
3. Isolation of total DNA from *E.coli* cells.
4. Isolation of total DNA from Plant leaf tissue
5. Isolation of total RNA from plant leaf tissue
6. Isolation of plasmid DNA from *E.coli* cells.
7. Agarose gel electrophoresis analysis of nucleic acids

Department of Genetics and Genomics
Semester-II
25125: Non Core 1: Basics in Genetics

UNIT I

An over view on biological organization (eg. human); Introduction, role and functions of different cell components- carbohydrates, lipids, proteins, and nucleic acids generalized structure of DNA and RNA, types and role of RNA molecules; DNA as genetic material; Introduction to enzymes and hormones.

UNIT II

Structure and functions of cells: Bacterial cell – cell wall, membrane, cytoplasm, arrangement of DNA; Plant and animal cells- variation, cell membrane, cell wall, endoplasmic reticulum, golgi complex, mitochondria, plastids, nucleus.

UNIT III

Chromosome- generalized classification, structure and organization of eukaryotic chromosome; chromosome number, euchromatin, heterochromatin, telomere, centromere, homologous and non-homologous chromosomes; Cell cycle and its importance, Mitosis – prophase, metaphase, anaphase, telophase, and cytokinesis; Meiosis-generalized mechanism; diploid (body cells), haploid (sperm and egg) and stem cells.

UNIT IV

Mile stones in genetics, Inheritance and its importance, terminology: genotype, phenotype, self- fertilization, cross-fertilization, true-breeding strain, P,F1 and F2 generations, monohybrid crosses, reciprocal crosses, allele, Mendelian experiments of inheritance-, principles of dominance, segregation and independent assortment; a generalized over view of non-mendelian inheritance.

Recommended books

1. Principles of Genetics 2006; SnustadSimmons
2. Introduction to Genomics 2012; ArthurM.Lesk
3. iGenetics 2006; PeterJ.Russell

Department of Genetics and Genomics

Semester-III

35121: EPIGENETICS

UNIT-I

Introduction, DNA methylation-De Novo methylation, Maintenance methylation and DNA methylation and transcriptional silencing; DNA methylation in prokaryotes and eukaryotes; Histone modifications and Histone code- Acetylation, Methylation, Phosphorylation, Ubiquitinylation and ADP-Ribosylation and Sumoylation; Non-coding RNA (ncRNA)- MicroRNA biogenesis and function, Small interfering RNA biogenesis and function and Epigenetic regulation by ncRNA.

UNIT-II

Epigenetic regulation of gene and genome expression- Heterochromatin spreading and position effect variegation, Transvection, Paramutaion, Imprinting and X-chromosome inactivation; Epigenomics in Cancer- Epigenetic features of a normal cell, DNA Hypomethylation in tumours, inactivation of tumor suppressor genes, Histone modifications of cancer cells, Epigenetic factors and miRNA epigenetics in cancer management, epigenetic therapy of cancer;

UNIT III

Epigenetics and its genetic syndromes: Introduction, Chromatin remodeling- X-Linked Thalassemia Mental Retardation syndrome, CHARGE syndrome, Cockayne syndrome (CSB), ICF syndrome, Rett syndrome, CLS syndrome and FSHD. Epigenetics and Immunity: Introduction, Epigenetics in immune differentiation and the immune response, Epigenetics in Autoimmunity, Epigenetic changes in other Autoimmune disorders

UNIT IV

Analysis of gene-specific DNA methylation : Introduction, principles of DNA methylation analysis, characteristics of individual techniques-Southern blot hybridization, Bisulfite sequencing, Combined Bisulfite restriction analysis (COBRA), Methylation-specific PCR (MSP), Real-Time MSP, pyrosequencing andMethyLight.

Methods for Assessing genome-wide DNA methylation : Introduction, Restriction Landmark genomic scanning (RLGS), Methylation sensitive restriction finger printing (MSRF), Methylated CpG island amplification coupled microarray (MCAM)

Reference Books:

1. Epigenomics by Anne C.Ferguson Smith(2009)
2. Epigenetics and diseases by Susan M.Gasser, En Li(2011)
3. Epigenetics in Biology and Medicine by NanelEsteller(2009)
4. Handbook of Epigenetics-The new molecular and medical genetics by TrygveTollefsbol (2011)
5. Epigenetics in Cancer-The new England journal of medicine by Manel Esteller(2008)
6. Advanced Molecular Biology by Twyman(1999)

Department of Genetics and Genomics

Semester-III

35122: GENETIC ENGINEERING

Unit – I

Introduction to Genetic engineering; **Tools for genetic engineering**: **Enzymes** - Restriction nucleases (exo- and endonuclease), *Restriction endonuclease*: Nomenclature, classification, cleavage pattern and applications; *Enzymes in modification*- Polynucleotide phosphorylase, DNase (DnaseI, DNaseII, Exonuclease III and Mung bean nuclease), Phosphatases, Methylases, Ligases, Polynucleotide kinase and RNase.Oligonucleotides- primers, linkers and adaptors; **Vectors for cloning**- types, plasmid and phage vectors, cosmids, phagemids, BAC & YAC.

Unit – II

PCR for gene amplification and detection: PCR principle and mechanism, Enzymes of PCR-Taq polymerase, Reverse Transcriptase, factors affecting PCR, different types of PCR (RT-PCR, nested PCR, Multiplex PCR and real time PCR) and their applications, **Probes**: Oligonucleotide, DNA and RNA probes, methods for radioactive and non-radioactive labeling; **Strategies for molecular cloning**: Choice of vector for cloning, preparation of DNA molecules for cloning, ligation, transformation into bacterial cells, screening and identification of positive clones.

Unit-III

Libraries: Construction and screening of cDNA and genomic DNA libraries; **DNA sequencing**-Chemical method of Maxam and Gilbert, Sanger's dideoxy chain termination and automated sequencing; **Site-directed mutagenesis**: Oligonucleotide directed mutagenesis, site-directed mutagenesis by means of the PCR and importance of site-directed mutagenesis;

Unit – IV

Gene expression: Construction of vectors for expression- choice of promoter, ribosome binding sites, transcription terminator, fusion protein tags, purification tags, protease cleavage sites and reporter genes; Over expression of heterologous protein in bacterial, purification and detection and analysis of recombinant protein. Vaccines-Types of vaccines, subunit vaccines, peptide vaccine, vector vaccines. **Gene therapy**- Ex vivo and In vivo gene therapy methods; Applications of genetic engineering.

Recommended books:

1) Principles of Gene Manipulation and genomics: An Introduction to genetic engineering. 2007, by Primrose andTwyman
2) Fundamental Molecular Biology.2007, by Lizabeth A.Allison. Blackwellpublishing.
3) Molecular Biology of the gene by Watson et al.,5thEdition,2004,Addison WesleyLongman.
4) The foundations of Biochemistry by Lehninger,4thEdition
5) Principles of Genetics by Snustad,Simmons, 4thEdition,2006
6) Instant notes in Molecular Biology by P.C.Turner et al.Viva BooksPvt.Ltd.
7) Advanced Molecular Biology by A Concise reference.1998, by R.M.Twyman. Viva BookPvt.Ltd.
8) Molecular Biology by David Fdreifelder,1995 NarosaPubl.House.
9) Molecular Cell Biology by Lodish et al., 2003, Scientific American books, W.H.Freeman andCompany.
10) Genes VI by Lewin,1997,Oxford UniversityPress.
11) NPTEL-IIT and IISc material(BioTechnology)

Department of Genetics and Genomics
Semester-III
35123: Applied Biotechnology

Unit I

Definition, scope and importance of Biotechnology. **Plant tissue culture**-Basic structure and growth of plant, terms used in tissue culture, plasticity and totipotency; Culture types-Callus, Cell-suspension cultures, Protoplasts, Root cultures, Shoot tip and meristem culture, Embryo culture, Microspore culture; Plant regeneration-somatic embryogenesis and organogenesis. **Animal tissue culture**-History and development of animal tissue culture, conditions and media for animal cell culture, cultured cell biology and its characterization, primary cell culture, cell lines, subculture, stem cell cultures, scale up of animal cell subculture: scale up in suspension and monolayer. Applications of plant and animal cell cultures

Unit II

Gene transfer methods: Physical methods-Electrophoration, microinjection and particle bombardment; chemical methods-Liposomes, receptor mediated gene transfer; Biological methods- Viral vectors, bacteria (Ti plasmid of *Agrobacterium tumefaciencs*). **Transgenic plants**: insect,virus and herbicides resistant plants. **Transgenic animals**: production of transgenic mice and its applications in medicine, cloning livestock by nuclear transfer (sheep-Dolly), transgenic bird and fish. Determining eukaryotic gene function: by gene elimination, in vitro mutagenesis, knockout mice, RNA interference.

Unit III

Role of biotechnology in conservation of biodiversity: Bioremediation, Phytoremediation, Biofertilizers, Biopesticides, Biofuels, Biosafety, Bioethics, Biopiracy, Patents, Environmental risk assessment of genetically modified crops.

Unit IV

Nanobiotechnology : Introduction to nanoparticles : nanofibres, nanoplates, nanotubes, nano carpets and its uses. **Imaging nanostructures**: Scaning tunneling microscope (STM) and Atomic force microscope (AFM), **Nanomedicine:** Drug delivery, nanoparticles in cancer therapy, antimicrobial nanoparticles - assembly of nanocrystals by microorganisms, nano particles in detection of viruses, Biomedical nanodevices, Denaturation of DNA by gold nanoparticles. **Biological effects of nanoparticles**: Toxicity, triggering an adverse immune response.

Reference books:

1) Biotechnology-applying the genetic revolution by David P.Clark& Nanette J.Pazdernik, (2009)Accademic press Elsevier
2) Principles of Gene Manipulation and genomics: An Introduction to genetic engineering . 2007, by Primrose andTwyman
3) Fundamental Molecular Biology.2007, by LizabethA.Allison. Blackwellpublishing.
4) Principles of Genetics by Snustad,Simmons, 4th Edition,2006 5)iGenetics*A molecular approach* by Peter J.Russell.2nd Ed.2006.
6) Culture of Animal Cells: A Manual of Basic Technique and Specialized by R. Ian Freshney (2005)
7) Plant tussue culture: Theory and practice a revised edition by S.S.Bhojwani, M.K.Razdan (1996)Elsevier
8) Plant tissue culture:techniques and experiments by Roberta H.Smith (2000)
9) Introduction to plant tissue culture by M.K.Razdan(2003)
10) Essentials of Nanotechnology: Jeremy Ramsden& Ventus publishing (2009):ISBN 978-87-7681-418-2.
11) Nanobiotechnology (2014) one central press Ltd.UK, Prof. David Andrw Phoenix, Prof.Waqar Ahmed,978-1-1910086-02-5.

Department of Genetics and Genomics
Semester - III
35124: Biostats and Computers

UNIT-I

Population, sample, variables, classification and Tabulation of date, Diagrams & graphs, frequency distribution, skewness, kurtosis, central tendency, Average, mean, median, mode, Dispersion, Measures of dispersion, Standard deviation, coefficient of Poisson, Normal distribution, standard error.

UNIT-II

Hypothesis testing, Null hypothesis, Type-I & Type-II errors, level of significance, Decision about Null hypothesis (HO), Students 't' test-applications, chi-square fest, Application Analysis of Variance (ANOVA)- F test- Applications Correlation, Types-Applications, Regression- Applications.

UNIT – III

A). Introduction to windows: Desktop files and folders; simple operations like creation, deletion, moving, copying files or folders using window explorer. Searching files and folders and other simple operations. **Word processing:** creating, saving and opening documents. Typing, navigating, selecting, editing and sorting, checking spelling and grammar formatting – changing appearance of page – importing graphics, working with tables, documentsprinting.
B). Excel Basics: Touring the Excel Program Window, Touring the Workbook Window, Entering and editing Data in cells, Excel Formulas and Functions, Entering a formula in to a Worksheet Cell, Using the Chart wizard, Understanding Data Series and Data Categories, Picking a chart type, Adding and editing Titles, Legends and Datalabels.

UNIT – IV

A). Basics of power point: Creating a power point presentation, Entering and formatting the text on slides, Creating a table slide, Ways of viewing and working on slides, Inserting, deleting, rearranging and copyingslides.

B). Internet Basics: Introduction, Evolution of Internet, Basic Internet Terms, Getting Connected to Internet, Internet Applications. Electronic Mail: An Introduction, How E-Mail Works, Searching the Web (Search Engines), Language of Internet, Internet andViruses.

Reference books:

1. The Complete Reference Office 2000: Stephen L.Nelson: TATA McGRAW-HILL EDITION 2002.ISBN0-07-463768-1.
2. Introduction to computer science: ITL Education Solutions Ltd.ISBN978-81-317-0436-3
3. Peter Norton's Introduction to computers: II edition Tata MC Graw HillPublication

IIIrd SEMESTER PRACTICALS

35121-35122: EPIGENETICS and GENETIC ENGINEERING

1. Determination of type of nucleic acid by nucleases
2. Restriction digestion of plasmid DNA
3. Ligation of inset with Plasmid DNA
4. Polymerase chain reaction(PCR)
5. Preparation of *E.coli* competent cells for transformation
6. Transformation of Plasmid DNA into competent cells
7. Screening and confirmation of recombinant clone
8. Over-expression of recombinant proteins in *E. coli* system
9. Purification and confirmation of recombinant proteins
10. Sothern blotting (Capillary and diffusion methods)
11. Solving the black board problems
12. Restriction digestion and comparison of methylated and unmethylated DNA by agarose gel

35123-35124: Applied Biotechnology & Biostats and Computers

1. Preparation of media and sterilization of glassware for plant tissue culture
2. Anthere culture
3. Shoot tip culture
4. Leaf culture
5. Preparation of media and sterilization of glassware for animal cell culture
6. Primary cell culture preparation of Chick embryo
7. Trypsinization of the cells
8. Counting and checking the viability of the cells
9. Subculture of the primary cells
10. Viability checking of embrocated chick egg
11. Frequency tables and bandiagrams
12. Normal distribution Z-test
13. Calculation of standard deviation, 20.χ^2 test calculation
14. Student t-test for measuring significance between sample and population test
15. Correlation between two parameters
16. Prepare a resume in MS-word
17. Prepare a visiting card in MS-word
18. Create a chart for students marks in excel
19. Prepare a presentation using MS-power point
20. spotters

Department of Genetics and Genomics
IIIrd SEMESTER
35125: Inherited diseases of Humans
(Non Core paper-2)

UNIT I

Reasons for genetic disorders, syndromes: Chromosome mutations - Chromosome rearrangement-duplication, deletions, inversion and translocation; aneuploidy and polyploidy; Gene mutations- Base substitution, base insertion and base deletion, transposable elements in humans (SINEs and LINEs).

UNIT II

Genetic basis of syndromes and disorders: Introduction, Monogenic disorders- Cystic fibrosis, Huntington's disease, Hemophilia, Neurofibromatosis, sickle cell disease and thalassemias; chromosome disorders- cri-du-chat syndrome, Down syndrome; Inborn errors of metabolism- Albinism, Alkaptonuria, cystinuria and pentosuria; DNA repair defects- Xerodermpigmentosum; and multifactorial disorders – diabetes, coronary artery disease and congenital malformation.

UNIT III

Cancer genetics: Definition, types, relationship of the cell cycle to cancer, cancer and programmed cell death, genetic basis for cancer, oncogenes, tumor suppressor genes, role of environmental factors in cancer and genetic pathways to cancer. An overview of epigenetic modifications for cancer

UNIT IV

Diagnosis, Genetic counseling and treatment: Prenatal diagnosis- Ultrasonography and fetal echocardiography, Maternal serum screening, Amniocentesis and chorionic villus sampling; Genetic testing for common mutations - protein truncation test, Single stranded conformation polymorphism test and full resequencing of the gene. Genetic counseling- introduction, psychotherapeutic counseling, genetic susceptibility and treatment of genetic diseases.

Reference books:

1. Principles of Genetics 2007: Gardner, Simmons, Snustad; Wiley IndiaEdition
2. Human Genetics 2010: Gardner andDavies;
3. Elements of Medical Genetics, Emery's.

Department of Genetics and Genomics
Semester-IV

45121: Structural Genomics

UNIT I

Introduction to Genomics: Definitions, Classification based on system attributes, relationships to other scientific disciplines and types of organisms studied, Historical Perspective of Genomics, Genome sizes, Organization of genome of viruses, prokaryotes, eukaryotes, telomers, tandomly repeated sequences, DNA transposons, retro transposans, organelle DNA. Mapping in prokaryotes by Transformation, Mapping in prokaryotes by Tranduction, Mapping in prokaryotes by Conjugation.

UNIT II

Genetic linkage mapping: DNA markers:-RFLP, AFLP, RAPD, SSRs, SNPs, CAPS, SCAR markers; Construction of the genetic linkage maps:- human, plants, Map based cloning- Mutant Mapping, LOD score, MAPMAKER.
Quantitative genetics: Two locus control, Three locus control, Study of polygenic traits, Effect of environment on QTLs, heritability and description of continuous variation of wheat kernel color and human skin color, Cloning QTLS.
Physical mapping: Cytogenetic maps of chromosomal banding, STS, FISH, restriction maps, radiation hybrid mapping (RH), clone contig maps.

UNIT III

Whole genome sequencing: DNA sequencing strategies,clone-by-clone approach, whole genome shotgun sequencing, assembly and finishing genome sequencing, Next generation sequencing and applications, Human genome project.
Sequence databases: Nucleotide sequence databases, protein sequence databases, protein structural databases, literature databases; Genomic databases- UCSC, NCBI Map viewer, ENSEMBL; data files and formats.

UNIT IV

Predictive methods using DNA sequences: Gene prediction methods and programs, promoter characterization and prediction, strategies and considerations.
Sequence comparison: Sequence alignment- pair wise sequence alignment, multiple sequence alignment and their importance.
Phylogenetic analysis: Background terminology and basics, tree construction and importance, common software
Protein structure prediction: How protein structures are determined, Secondary structure prediction; Visualizing proteins; Three-dimensional structure of protein-Homology modeling, threading or Ab initio method, protein structure evaluation and protein structure comparison

Reference books:

Genetics-A molecular approach by peter J.Russel (2006), 2nd ed.

1. Genomes3 by T.A.Brown(2007)
2. Principles of Gene manipulation & Genomics by S.B.Primrose&R.M.Twyman, 7th ed, (2007)
3. Microbial functional genomics by Jizhgahov, Dorothea K.Thompson Ying xu, James M.Tiedje
4. Bioinformatics-Apractical guide to the analysis of Genes and proteins, by Andreas D.Baxevanis, B.F.Francis Ouellette,3rd.Bioinformatics-Tools and applications by David Edwards, Jason strajich and David Hansen(2009)

Department of Genetics and Genomics
Semester-IV
45122: Functional Genomics

Unit I

Functional genomics: Concepts and applications, Forward genetics and Reverse genetics approaches, Loss of function, Gain of function.

Mutagenesis as Functional Genomics Tool: T-DNA insertional mutagenesis, Transposon-based mutagenesis (*Ac/Ds*), Activation tagging, Enhancer trapping, GAL4 mediated over expression, Floxing, Viral mediated transfection.

Genome wide mutation screening: TILLING (Targeted Induced Local Lesion IN Genome) - principle and experimental approach, ECO-TILLING; **DEALING** (Detecting Adducts Local Lesion IN Genome) - principle, experimental approach; Site directed Mutagenesis.

Unit II

DNA Microarray Technology: Introduction, Types of Microarrays and Advantages, Experimental design- Concepts, principles, Probe design, target preparation, Hybridization and Detection, Specificity, sensitivity, reproducibility, and Data Analysis; **RNA silencing:** Antisense RNA technology, RNAi and Si RNA; **SAGE for transcript profiling-** principle, methodology and applications; Molecular analysis of gene expression (RT-PCR)., **CRISPR (CRISPR/Cas9)-** Mechanism and applications.

Unit III

Functional proteomics: Gene functions through protein interactions: Identification of Protein–Ligand Interactions. **Yeast Two-Hybrid Selection System:** Analysis of genome-wide protein–protein interactions in organisms, Use of M13, T7 Phage to Detect Protein–Ligand Interactions, Combining yeast two-hybrid and phage display data, Detecting Interactions with Protein Fragment Complementation Assays.

Mass Spectrometry for Protein–Protein Interaction Mapping: Overview, Identification of substrates for E. coli GroEL, Studying the transcriptome and proteome of *Escherichia coli* and *Saccharomyces cerevisiae.*

Unit IV

Protein microarrays: overview, principle, limitations; **Protein microarray-** Manufacturing technology, solid supports, different formats, experimental approach and detection, peptidomics; Microarray for protein-carbohydrate interaction (phage display technology); protein domain microarray; protein biochips; Antibody microarray; protein microarray for drug discovery.

References:

1.Protein Microarrays, edited by Mark schena, Jones and Bartlet pblisher, 2005.
2.Microbial Functional Genomics, Jizhong Zhou, Dorothea K. Thompson, Ying Xu, James M. Tiedje, A John Wiley & Sons, Inc., Publication, 2004.
3.Microarrays for an Integratiul J. But. Kho and Atte, Published in India by Ane Books, 2003.
4.Gene Cloning and DNA analysis An Introduction, Sixth Edition, T. A. Brown, Wiley-Blackwell publications, A John Wiley & Sons, Inc., Publication, 2010.

Department of Genetics and Genomics
Semester-IV
45123: Immunology and Immunogenetics

Unit I

Basic concepts in Immunology: Innate immunity and Adaptive immunity. Cells of the immune system - B cells, T cells, NK cells, phagocytes, inflammatory cells, antigen presenting cells, organs of immune system - primary, secondary and tertiary lymphoid organs. Immunohematology: blood groups, blood transfusion and Rh-incompatibility.

Unit II

Antigens - nature, types, factors influencing antigenecity, haptens, adjuvants and superantigens. Antibodies - structure, types, classes and functions. Antigen – antibody interactions:Monoclonal antibodies: production and applications; Immunological techniques: Flocculation, Precipitation, immunodiffusion, Agglutination, Phagocytosis, Opsonization, complement fixation,Neutralization, ELISA.

Unit III

Immune Response: Kinetics of the antibody/ humoral immune response, cell mediated immune response. Recognition of antigen: MHC - Types, Antigen processing and presentation, activation and differentiation of B cells and T cells. Effector mechanisms: Cytokines, CTL, NK cell mechanism of cytolysis and ADCC. Complement activation pathways: Classical, alternate and lectin pathway. Hypersensitivity, Autoimmunity, Regulation of immune response. Vaccines, Immunization: Passive and active immunization, WHO recommended Immunization Schedule.

Unit IV

Immunogenetics: Organization, rearrangement and expression of Ig genes. Generation of antibody diversity, Inherited and acquired immunodeficiency diseases: Recessive gene defects, X- linked lymphoproliferative syndrom, SCID, Type 1 diabetes mellitus, mutiple sclerosis, Inflammatory bowl disease, Rheumatoid arthritis, Chronic lymphocytic leukemia, haemophilia, sickle cell anaemia, erythroblastosis fetalis, AIDS.

Reference books:

1. Essentials of Immunology - Ian Roitt - Blackwell ScinentificPublications
2. Fundamentals of immunology - William C. Boyed (WileyToppan).
3. Introduction to Immunology - John W.Kinball.
4. Fundamentals of Immunology - Otto S. View and others.
5. Immunology - D.M.Wier.
5. Immunology - Jains Kubay, (2007) 7th Edition, W H Frecman& Com. NewYork.
7. Cellular and Molecular Immunology 3rd ed. Abul K. Abbas Andrew K.Lichtman Jordan S.Pober
8. Immunebiology: The immune system in health and disease. Charles A Janeway and others.

Department of Genetics and Genomics
Semester-IV
45124: PATHOGENOMICS

UNIT I

Principles and vocabulary of epidemiology, common epidemic diseases in humans (agent, sources, and reservoir),Stages of disease progression, infectious disease transmission-Direct host –to-host, indirect host-to-host transmission; Natural Host resistance, Harmful microbial interactions with humans: entry, colonization and growth, virulence, virulence factors and toxins; Host risk factors in infection: age, stress and diet, compromised host. **New diagnostics** Advanced molecular diagnostic methods for detection of microbial infections: PCR, SNP, FISH, flow-cytometry, Microarray.

UNIT II

Emerging and reemerging infectious diseases- Chikungunya, Swine flu (H1N1)-history, symptoms, viral replication, genetic variability, diagnosis, prevention.

HIV pathogenesis-gene-therapy: Overview of HIV pathogenesis: structure and genome, replication, target-cell depletion and apoptosis, genetic variability; Bioinformatic analysis of HIV. Ribozyme as gene therapeutic agents for HIV/AIDS: Ribozyme design and in vitro efficacy, in vivo efficacy-animal models.

UNIT III

Genomics of the *Mycobacterium tuberculosis* and BCG vaccines: *Mycobacterium* pathogenesis-tuberculosis, information from complete genome sequencing of *Mycobacterium tuberculosis*, strain-to –strain variability with *M.tuberculosis*spp., genomic analysis of *M.bovis* BCG vaccines;

HPV pathogenesis-microarray technology: Application of microarray technology in understanding HPV pathogenesis, Tissue-culture systems for studying HPV, alternation of cellular gene expression during latent infection by HPV.

UNIT IV

Patho Genomics-applications:Search for new antibiotics: Need for novel antibiotics, genomic technologies in antibacterial research, targeting the resistance mechanism, extremely narrow-spectrum drugs, strategies for reducing virulence, gene therapy; **Recombinant Vaccines**: Polyvalent vaccine, Subunit Vaccines, DNA Vaccines.Reverse vaccinology:MenB vaccine approach by reverse vaccinology.

Reference books:

1.Pathogenomics impact on human health by Kares Joy Schaw (2002)
2.Pathogenomics-Genome analysis of pathogenomic microbes by Jory Hacker, Ulrich Dobrindt(2006)
3.Encyclopedia of genetics, genomics, proteomics and bioinformatics by Lynn B.Jorde et al.,
4. Brock biology of Microorganisms. Pearson International Edition. By Madigan, Martinko, Dunlap and Clark.

5. Molecular Diagnostics For the Clinical Laboratorian SECOND EDITION Edited by William B. Coleman Gregory J. TsongalisHumana Press 2006.

Department of Genetics and Genomics
Semester-IV
45121-45124 (SFIP) Practicals of Genomics and Immunology

1. Nucleotide and amino acid sequence based practical's using online public databases and offline bioinformatics software tools
2. Work with Mega5
3. Work with Bio-edit
4. Primer designing oligo6/online tools
5. Computer based protein structure prediction experiments
6. DNA sequence based Phylogenetic tree construction and analysis
7. Protein sequence based Phylogenetic tree construction and analysis
8. Mapmaker
9. RFLP
10. QTL Cartographer
11. COBRA
12. Solving the black board problems
15. Separation of serum and plasma from whole blood.
16. Separation of immunoglobulins
17. Trypan blue exclusion test of Lymphocyte viability
18. Isolation of peripheral blood lymphocytes by Ficoll- Hypaque gradient.
19. Different routes of immunization(Rat/Rabbit)
20. Dissection and identification of thymus, spleen and lymphnodes.
21. Cell counting by Hemocytometer (WBC andRBC).
22. Quantitative precipitation test:
    a. Redial immunodiffusion.
    b. Ouchterloney double diffusion.
23. Immunoelecrophoresis
24. VDRL test for syphilis
25. Widal test for typhoid
26. Determination of A,B,O and Rh grouping & Rh typing by Agglutination.
27. HBs Ag test
28. HCG test
29. Enzyme Linked Immunosorbent Assay (ELISA) / Tridot test.
30. Characterization of proteins and analysis of their functions.
31. TILLING
32. Spotters

Department of Genetics and Genomics
IIIrd SEMESTER
35125: Inherited diseases of Humans
(Non Core paper-2)

UNIT I

Reasons for genetic disorders, syndromes: Chromosome mutations - Chromosome rearrangement-duplication, deletions, inversion and translocation; aneuploidy and polyploidy; Gene mutations- Base substitution, base insertion and base deletion, transposable elements in humans (SINEs and LINEs).

UNIT II

Genetic basis of syndromes and disorders: Introduction, Monogenic disorders- Cystic fibrosis, Huntington's disease, Hemophilia, Neurofibromatosis, sickle cell disease and thalassemias; chromosome disorders- cri-du-chat syndrome, Down syndrome; Inborn errors of metabolism- Albinism, Alkaptonuria, cystinuria and pentosuria; DNA repair defects- Xerodermpigmentosum; and multifactorial disorders – diabetes, coronary artery disease and congenital malformation.

UNIT III

Cancer genetics: Definition, types, relationship of the cell cycle to cancer, cancer and programmed cell death, genetic basis for cancer, oncogenes, tumor suppressor genes, role of environmental factors in cancer and genetic pathways to cancer. An overview of epigenetic modifications for cancer

UNIT IV

Diagnosis, Genetic counseling and treatment: Prenatal diagnosis- Ultrasonography and fetal echocardiography, Maternal serum screening, Amniocentesis and chorionic villus sampling; Genetic testing for common mutations - protein truncation test, Single stranded conformation polymorphism test and full resequencing of the gene. Genetic counseling- introduction, psychotherapeutic counseling, genetic susceptibility and treatment of genetic diseases.

Reference books:

1. Principles of Genetics 2007: Gardner, Simmons, Snustad; Wiley IndiaEdition
2. Human Genetics 2010: Gardner andDavies;
3. Elements of Medical Genetics, Emery's.

Department of Genetics and Genomics
Semester-IV

45121: Structural Genomics

UNIT I

Introduction to Genomics: Definitions, Classification based on system attributes, relationships to other scientific disciplines and types of organisms studied, Historical Perspective of Genomics, Genome sizes, Organization of genome of viruses, prokaryotes, eukaryotes, telomers, tandomly repeated sequences, DNA transposons, retro transposans, organelle DNA. Mapping in prokaryotes by Transformation, Mapping in prokaryotes by Tranduction, Mapping in prokaryotes by Conjugation.

UNIT II

Genetic linkage mapping: DNA markers:-RFLP, AFLP, RAPD, SSRs, SNPs, CAPS, SCAR markers; Construction of the genetic linkage maps:- human, plants, Map based cloning- Mutant Mapping, LOD score, MAPMAKER.
Quantitative genetics: Two locus control, Three locus control, Study of polygenic traits, Effect of environment on QTLs, heritability and description of continuous variation of wheat kernel color and human skin color, Cloning QTLS.
Physical mapping: Cytogenetic maps of chromosomal banding, STS, FISH, restriction maps, radiation hybrid mapping (RH), clone contig maps.

UNIT III

Whole genome sequencing: DNA sequencing strategies,clone-by-clone approach, whole genome shotgun sequencing, assembly and finishing genome sequencing, Next generation sequencing and applications, Human genome project.
Sequence databases: Nucleotide sequence databases, protein sequence databases, protein structural databases, literature databases; Genomic databases- UCSC, NCBI Map viewer, ENSEMBL; data files and formats.

UNIT IV

Predictive methods using DNA sequences: Gene prediction methods and programs, promoter characterization and prediction, strategies and considerations.
Sequence comparison: Sequence alignment- pair wise sequence alignment, multiple sequence alignment and their importance.
Phylogenetic analysis: Background terminology and basics, tree construction and importance, common software
Protein structure prediction: How protein structures are determined, Secondary structure prediction; Visualizing proteins; Three-dimensional structure of protein-Homology modeling, threading or Ab initio method, protein structure evaluation and protein structure comparison

Reference books:

Genetics-A molecular approach by peter J.Russel (2006), 2nd ed.

1. Genomes3 by T.A.Brown(2007)
2. Principles of Gene manipulation & Genomics by S.B.Primrose&R.M.Twyman, 7th ed, (2007)
3. Microbial functional genomics by Jizhgahov, Dorothea K.Thompson Ying xu, James M.Tiedje
4. Bioinformatics-Apractical guide to the analysis of Genes and proteins, by Andreas D.Baxevanis, B.F.Francis Ouellette,3rd.Bioinformatics-Tools and applications by David Edwards, Jason strajich and David Hansen(2009)

M.Sc. Geology Revised Syllabus June 2018-19 on wards

I Semester

Code	Paper	Title
15041	Paper I	Geomorphology & Atmospheric Sciences
15042	Paper II	Crystallography, Mineralogy & Optical Mineralogy
15043	Paper III	Paleontology & Stratigraphy
15044	Paper IV	Indian Geology & Field Geology
15041P	Practical I	Crystallography, Mineralogy and Optical mineralogy
15042P	Practical II	Stratigraphy, Paleontology, Field Reports

II Semester

25041	Paper I	Statistics & Computer Applications
25042	Paper II	Structural Geology & Geotectonics
25043	Paper III	Igneous & Metamorphic Petrology
25044	Paper IV	Sedimentology and Marine Geology
25045	Non-Core	Introduction to Earth Resources
25041P	Practical I	Petrology
25042P	Practical II	Statistics, Computer Applications and Structural Geology

III Semester

35041	Paper I	Economic Geology , Mineral Economics & Gemology
35042	Paper II	Energy Resources
35043	Paper III	Remote Sensing & GIS
35044	Paper IV	Geochemistry
35045	Non-Core	Essentials of Remote Sensing and GIS Fundamentals
35041P	Practical I	Economic Minerals and Geochemistry
35042P	Practical II	Remote Sensing & GIS

IV Semester

45041	Paper I	Mineral Exploration, Mining and Ore beneficiation
45042	Paper II	Hydrogeology & Watershed management
45043	Paper III	Engineering Geology & Natural Hazards
45044	Paper IV	Environmental Geology
45041P	Practical I	Geoinformatic Applications in Mineral exploration, Hydrogeology and Engineering Geology
45042P	Practical II	Project Work

- Week end Field Trips for both Previous and Final year Students
- Study Tour for 10 to 14 days for both Previous and Final Year Students

M.Sc. Geology Choice Based Credit System

25045 – Introduction to Earth Resources

Unit I

Introduction to Earth – Dynamics of Earth, the interior of the Earth – Rocks –Genesis and Types Igneous , Sedimentary and Metamorphic Rocks.

Unit II

Minerals – Definition – Mineralogy and description of Common Rock forming minerals – Industrial minerals – Cement industry, Glass industry, Ceramic industry, Fertilizer industry, Steel Industry.

Unit III

Fuel Minerals – Mineralogy, origin, distribution of Coal – Petroleum and Natural gas – Origin – Inorganic and organic theories – Reservoir rocks – Atomic minerals – Association, occurrence and distribution of Atomic minerals.

Unit IV

Water resources – Hydrological cycle – precipitation, runoff, infiltration and evapotranspiration, Subsurface and vertical distribution of groundwater – Occurrence of groundwater, classification of aquifers, springs and wells.

Reference Books

1. Introduction to Sedimentology – Sengupta, S.M.
2. The petrography of Igneous and Metamorphic rocks in India – S.C.Chatterjee.
3. Metamorphic Petrology- B. Bhaskara Rao
4 Economic Mineral Deposits – Bateman, A.M. and Jenson, M.C.
5 Indian Mineral Resources- Krishna Swamy

M.Sc. Geology Choice Based Credit System

35045 – Essentials of Remote Sensing and GIS Fundamentals

Unit I

Introduction of Remote Sensing – Types of sensors and scanners – Satellite data acquisition systems – Platforms – Airborne an Space borne sensors – Passive and Active sensors – Digital Image Processing – Introduction and Basic concepts.

Unit II

Geographical Information System (GIS) – Introduction – Components of GIS – Data structures in GIS – Raster and Vector data structures – Types of data – Points, lines and Polygons – Data conversion – Raster to Vector and vector to raster.

Unit III

Stages of Mineral Exploration – Methods of choosing target area – Criteria for accepting or rejectin the target area – Guides to ore search – straigraphic, lithological, geomorphological, structural guides, Rock alteration and Geobotanical guides in mineral exploration.

Unit IV

Remote Sensing Applications in Environment Assessment– Visual interpretation of satellite image for forest cover mapping, Density assessment – Google maps.

Reference Books

1.Remote Sensing Principles and interpretations – Sabins, F.F.Jr.
2.Remote Sensing and Image Interpretation - Lillisand, T.., and Kiefer, P.W.
3.Remote Sensing Geology – R.P. Gupta.
4. Indian Mineral Resources- Krishna Swamy

YOGI VEMANA UNIVERSITY

Vemanapuram, KADAPA – 516003

M.A. (History & Archaeology) SYLLABUS (CBCS) with effect from 2018-2019

Course No. History & Archaeology	Course Title	No. of Hours	No. of. Credits	Univ. Exam. Duration (Hrs)	Univ. Exam	Internal Assessment	Max. Marks
FIRST SEMESTER							
11081	History of Ancient India from Earliest times to A.D.750.	4	4	3	75	25	100
11082	History of Ancient Andhra from earliest Times to A.D.1323	4	4	3	75	25	100
11083	Introduction to Archaeology	4	4	3	75	25	100
11084	History of Medieval India from A.D.1206 to A.D.1526	4	4	3	75	25	100
11085	Principles of Tourism and Travel Management	4	4	3	75	25	100
	Total	20	20	-	375	125	500
SECOND SEMESTER							
21081	History of Ancient India from A.D.750 to A.D.1206.	4	4	3	75	25	100
21082	Archaeological Cultures	4	4	3	75	25	100
21083	History of South India from A.D.1323 to A.D.1670	4	4	3	75	25	100
21084	History of Modern World A.D.1453-A.D.1964	4	4	3	75	25	100
21085	History of Medieval India, A.D.1526 to A.D.1707.	4	4	3	75	25	100
NON-CORE-21086	History of India upto A.D.1947	4	4	3	75	25	100
	Total:	24	24	--	450	150	600
THIRD SEMESTER							
31081	Economic History of India, A.D.1857-A.D.1947	4	4	3	75	25	100
31082	History of Modern India, A.D.1757-A.D.1947	4	4	3	75	25	100
31083	Art History of India	4	4	3	75	25	100
31084	Tourism and Museology	4	4	3	75	25	100

31085	Rayalaseema Through the Ages	4	4	3	75	25	100
31086	World History A.D.1453 to A.D.1964 (Non-Core)	4	4	3	75	25	100
	Total:	24	24	--	450	150	600
	FOURTH SEMESTER						
41081	History of Indian Architecture	4	4	3	75	25	100
41082	History of Modern Andhra, A.D.1757-A.D.2014.	4	4	3	75	25	100
41083	Epigraphy and Numismatics	4	4	3	75	25	100
41084	Historical Method	4	4	3	75	25	100
41085	Elective – I – Women in Modern India Elective – II – Non-Brahmin Movement Elective- III-Communalism in Modern India Elective –IV-Christian Missionaries in Rayalaseema Elective –V-Land Mark Archaeological Sites in Rayalaseema Elective-VI- Important Tourist Destinations in Rayalaseema	4 - - - - -	4 - - - - -	3 - - - - -	75 - - - - -	25 - - - - -	100 - - - - -
	Total:	20	20	--	375	125	500

Paper –IV: HISTORY OF MODERN WORLD from A.D.1453 to 1964 A.D

Unit I- Geographical Discoveries-Renaissance and Reformation-Emergence of Nation States-French Revolution-Napoleon Bonaparte.

Unit II- Industrial Revolution-Rise of Democratic Movements in Italy and Germany-Imperialism in Africa and Asia.

Unit III - Russian Revolution-First World War-League of Nations-Revolutions in China and Japan.

Unit IV- World between two World Wars: Washington Conferences, Das Plan, Young Plan and Geneva Conferences-Second World War-United Nations Organisations-Cold War.

Suggested Readings

Gordon A.Craig, *Europe Since 1815,* The Dryden Press, Illinois, 1973 (1961).

Chris Harman, *A People's History of the World,* Orient Longman, 2007 (1999).

Jawaharlal Nehru, *Glimpses of World History,* Oxford University Press,1997 (1934-35).

C.D.M.Ketelbey, *A History of Modern Times From 1789,* Oxford University Press, 1992 (1929).

E.H.Carr, *International Relations between Two World Wars, 1919-1939.*

A.J.P.Taylor, *The Struggle for Mastery in Europe, 1848-1918.*

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II SEMESTER (Non-Core)

Paper VI – History of India up to 1947

Unit I: Pre-History – Indus Valley Civilization – Vedic Culture – Jainism & Buddhism – Mauryan Empire – Gupta Empire.

Unit II: Delhi Sultanate – Mughal Empire – Maratha Kingdom-Sivaji.

Unit III: Beginning of European Companies – British conquest of India – Company Rule – 1857 Revolt – Socio-Cultural Awakening.

Unit IV: Freedom Struggle – INC – Vandemataram Movement – Home Rule League – Non-Cooperation Movement – Civil Disobedience Movement – Round Table Conferences and Communal Award – Cripps Mission – Quit India Movement – Indian National Army – Achievement of Freedom – Partition of India.

Suggested Reading

1. A.L. Basham, *The Wonder That Was India*.
2. Romila Thapar, *Early India*.
3. K.A. Nilakanta Sastry, *The History of South India*.
4. Satish Chandra, *Medieval Indian History*.
5. Bipan Chandra, *India's Struggle for Independence*.
6. P.R. Rao, *History of Modern Andhra.*

MBT 204: BIOSTATISTICS, RESEARCH METHODOLOGY AND BIOINFORMATICS

UNIT – I (20 hrs)

Measures of Central tendency - mean (arithmetic, harmonic and geometric) median and mode; Correlation, Co-efficient, Simple linear regression; basic idea of Significance Test, hypothesis tests, levels of significance, Student 't', 'Chi' square and goodness of fit.

Analysis of co–variance: introduction, procedure, t-Test for multiple comparisons. Line fitting through graph points, standard curves, MLR. Construction of histograms and interpretation.

UNIT – II (15 hrs)

Research methodology- Characteristics of research-definition, steps in research process, selection of research problem, literature survey, hypothesis, ability to construct, presentation and interpretation of research data, preparation of abstract/technical report/manuscript for publication in scientific journals.

Project writing skills – preparation of research proposal for grants, Background analysis of problem, proposed goal, objectives, targets, implementation of plan and annual budget for project proposal. National and international funding agencies for life sciences research.

UNIT – III (18 hrs)

Introduction to computers - Components of Computer System, Central Processing Unit (CPU), VDU, Keyboard and Mouse, Other input/output Devices, Computer Memory, Concepts of Hardware and Software; Concept of Computing, Data and Information; Applications of IECT; Connecting keyboard, mouse, monitor and printer to CPU and checking power supply Types of operating systems – DOS, UNIX and Windows.

Basics of presentation software - Creating Presentation; Preparation and Presentation of Slides; Slide Show (Word, Excel and PPT). Basic of Computer networks; LAN, MAN, WAN; Concept of Internet and its applications in biology, special software for microbiological approach.

UNIT – IV (22 hrs)

Bioinformatics: Definition, scope and relevance of bioinformatics, databases, visualization tools, genomics, proteomics, molecular mining, molecular modeling, Drug designing, gene therapy, structure and functional relationship of biomolecules.

Sequence analysis: Concepts, importance and alignment methods (pair wise and multiple sequence alignments). Methods of structure prediction for known and unknown folds. Applications of bioinformatics - *Ab initio* methods for determining proteins structure, *In silico* Analysis.

COURSE STRUCTURE AND EXAMINATION SCHEME for M.Sc. (Physics)

Semester	Course code	Title of the Course	No. of credits	No. of hours per week	Max. Marks 100		Total
					Internal Assess-ment	End Exams	
SEMESTER I	PHY 15101	Classical Mechanics and Theory of Relativity	04	04	25	75	100
	PHY 15102	Atomic and Molecular Physics	04	04	25	75	100
	PHY 15103	Solid State Physics	04	04	25	75	100
	PHY 15104	Analog and Digital Electronics	04	04	25	75	100
	PHY 15105	Practical - I (General)	04	12		100	100
	PHY 15106	Practical-II (Electronics)	04	12		100	100
SEMESTER II	PHY 15201	Statistical Mechanics	04	04	25	75	100
	PHY 15202	Electromagnetic Theory, Lasers and Modern Optics	04	04	25	75	100
	PHY 15203	Mathematical Physics	04	04	25	75	100
	PHY15204	Computational Methods and Programming	04	04	25	75	100
	PHY 15205	Practical - I (General)	04	12		100	100
	PHY 15206	Practical-II (Computer Lab.)	04	12		100	100
	PHY 15207	***Non-Core: Frontiers of Physics***	04	04	25	75	100
SEMESTER III	PHY15301	Quantum Mechanics – I	04	04	25	75	100
	PHY15 302	Nuclear and Particle Physics	04	04	25	75	100
	PHY 15303	Physics of Semiconductor Devices	04	04	25	75	100
	PHY 15304 **Special Paper 1**	(A) Condensed Matter Physics (CMP)-I: Physics of Crystalline Materials (B) Electronics-I : Advanced Electronics	04	04	25	75	100
	PHY 15305	Practical - I (General)	04	12		100	100
	PHY 15306	Practical-II (CMP/Electronics)	04	12		100	100
	PHY 15307	***Non-Core: Advanced analytical Instruments***	04	04	25	75	100
SEMESTER IV	PHY15401	Quantum Mechanics – II	04	04	25	75	100
	PHY15 402	Analytical Techniques	04	04	25	75	100
	PHY 15403 **Elective***	(A) AtmosphericPhysics (B) Applied Spectroscopy (C) Vacuum and Thin Film Physics (D) Photonics	04	04	25	75	100
	PHY 15404 **Special Paper 2**	(A) Condensed Matter Physics (CMP)-II: (B) Electronics II: Communication Systems	04	04	25	75	100
	PHY 15405	Practical - I (Elective)	04	12		100	100
	PHY 15406	Practical-II (CMP/Electronics)	04	12		100	100
Total for CorePapers			**96**	**160**	**400**	**2000**	**2400**
Total for Non-CorePapers			**08**	**08**	**50**	**150**	**200**

NON-CORE COURSES
(FOR THE STUDENTS OF OTHER DEPARTMENTS)

COURSE CODE	TITLE
PHY 15207	Analytical Methods
PHY 15307	Remote Sensing and Applications

Note: The Department will offer both External Elective Courses depending on the student's strength opted for that course, which will be intimated at the beginning of the semester.

Specialization Paper

PHYS 15304 B: ELECTRONICS-I: Advanced Electronics

UNIT I – 8086 Microprocessors and its Architecture

8086 Microprocessor Architecture, memory paging. **Addressing modes**: Data addressing modes, program-memory addressing modes, and Stack- memory addressing modes.

Instruction Set: Data movement instructions, Arithmetic and Logic instructions, Program control instructions, Assembler details, Data conversions

UNIT II – Advanced Microprocessors

80386 Architecture – Addressing modes – Instruction sets - 80486 Architecture – Addressing modes – Instruction sets - 80586 Architecture – Addressing modes – Instruction sets – Pentium and Pentium pro basics

Unit - III: Assembler and Assembler Programs

Basic idea – PIC 16 series instruction set and ALU – Assemblers and Assembler format – creating simple programs – Adopting a development environment – Building structured programs – Flow control : Branching and Subroutines – Generating time delays and intervals – Logical instruction – Arithmetic instructions.

Unit - IV: 8051 Microcontroller and PIC 16F873A

Introduction of microcontroller 8051, Internal Architecture, Instruction set, addressing modes, PIC 16F87XA Timer 0 and Timer 1 – 16F87XA Timer 2, Comparator and PR2 register – capture/Compare/PWM (CCP) Module – Pulse width modulation – ADC module.

Interface: LED displays – Liquid crystal displays –Sensors –Actuators.

Books for Study

1. The Intel Microprocessors 8086/80-88,80186/80188.80286,80386, Pentium and Pentium pro processor architecture, programming and interfacing by B. B. Brey 4/e, PHI,1999
2. Microprocessors and interfacing, Programming and hardware by Douglas V. Hall, 2/e McGraw Hill International Edition, 1992.
3. The 80x86 IBM PC and Compatible computer (Volumes I &II) by Muhammad Ali Mazidi and Janice Gillespie Mazidi, 2/e, Prentice-Hall Inc.,1998.
4. Soft ware, Hard ware and applications by Walter A. Tribel and Avatar Singh, PHI, 1995.
5. Microcomputer systems: The 8086/8088 Family Architecture Programming and Design by Yu Cheng Lin and Glenn A. Gibson, PHI 1992.
6. Designing Embedded Systems with PIC Microcontrollers: Principles and Applications by Tim Wilmshurst, First Edition, 2007, Newnes – Elsevier – Publishers.

Reference Books:

1. Microcontrollers: Theory and Applications by Ajay V. Deshmukh, , Tata Mc Graw-Hill, New Delhi, 2005.
2. Designing with PIC Microcontrollers by John B. Peatman, Pearson Education,Inc.,1998.
3. The 8051 Microcontroller and Embedded systems, by Mahammad Ali Mazidi and Janice Gillispie Mazidi, Pearson Education Asia, Pvt. Ltd., 2000.

YOGI VEMANA UNIVERSITY

DEPARTMENT OF POLITICAL SCIENCE & PUBLIC ADMINISTRATION

Common Course for M.A. POLITICAL SCIENCE &PUBLIC ADMINISTRATION

COURSE STRUCTURE (Revised in 2018-2019)

SEMESTER-I

S.No	Paper code	Title of the Paper	Theory Marks	Internal Assessment	Total Marks
1.	101	APPROACHES TO THE STUDY OF POLITICAL SCIENCE	75	25	100
2.	102	COMPARATIVE POLITICS	75	25	100
3.	103	PUBLIC POLICY	75	25	100
4.	104	Urban Governance	75	25	100
5.	105	ADMINISTRATIVE THEORIES	75	25	100

SEMESTER-II

S.No	Paper code	Title of the Paper	Theory Marks	Internal Assessment	Total Marks
1.	201	INDIAN POLITICAL PROCESSES	75	25	100
2.	202	POLITICAL SOCIOLOGY	75	25	100
3.	203	POLITICS IN ANDHRA PRADESH	75	25	100
4.	204	COMPARATIVE LOCAL GOVERNMENTS	75	25	100
5.	205	INDIAN STATE AND ADMINISTRATION	75	25	100
6.	206	**NON-CORE PAPER**: INDIAN AMINISTRATION	75	25	100

SEMESTER-III

S.No	Paper code	Title of the Paper	Theory Marks	Internal Assessment	Total Marks
1.	301	HUMAN RESOURSE MANAGEMENT	75	25	100
2.	302	FINANCIAL ADMINISTRATION	75	25	100
3.	303	INTERNATIONAL RELATIONS	75	25	100
4.	304	RURAL GOVERNANCE	75	25	100
5.	305	RESEARCH METHODOLOGY	75	25	100
6.	306	**NON-CORE PAPER**: POLITICAL THOUGHT OF Dr.B.R.AMBEDKAR	75	25	100

SEMESTER-IV

S.No	Paper code	Title of the Paper	Theory Marks	Internal Assessment	Total Marks
1.	401	ORGANIZATIONAL BEHAVIOUR	75	25	100
2.	402	INDUSTRIAL RELATIONS	75	25	100
3.	403	PUBLIC RELATIONS	75	25	100
4.	404	MANAGEMENT TECHNIQUES	75	25	100
5.	405	(Elective Papers) (a) GOOD GOVERNANCE AND INFORMATION TECHNOLOGY (b) Human Rights in India (c) Social Welfare administration (d) Disaster Management (e) Office Management	75	25	100

YOGI VEMANA UNIVERSITY

DEPARTMENT OF POLITICAL SCIENCE & PUBLIC ADMINISTRATION

Common Course for M.A. Political Science and Public Administration

FIRST SEMESTER SYLLABUS

Revised in 2018-2019

CORE –104: URBAN GOVERNANCE

UNIT - I

a) Meaning, Nature and Scope of Local Government.

b) Issues and Problems of Urbanization and Remedies.

UNIT - II

a) Structure and Functions of Urban Local Government.

b) Finances of Urban Local Government in India.

UNIT - III

a) Structure and Functions of Urban Development Authorities in A.P.

b) 74th Nagar Palika Constitutional Amendment Act, 1992.

UNIT - IV

a) Role of Political Parties in Urban Development

b) Problems of Autonomy and State Control, Urban – Challenges

Selected Readings:

1. S.R. Maheswari, Local Government in India.
2. S.K. Sharma and V.N. Chamla, Municipal Administration in India.
3. 74th Constitution Amendment act 1992.
4. A.P. Municipalities Act 74th constitution Andhra Act (Conformity Legislation 1994)
5. Avasthi (Ed) Municipal Administration in India.
6. T.N. Chatuvedi (Ed) Local Government
7. M.A. Muttalib (Ed) Theory and Practice of Local Government
8. M.A. Hussain, Urban Politics in India.
9. Abhijit Datta (Ed) Theory and Practice of Local Government.
10. United Nations Local Government Personnel System
11. Report of the Rural – Urban Relationship Committee 1966 (Khosal Committee Report)
12. National Commission or Urbanization 198 (Charles Corea Committee Report).

YOGI VEMANA UNIVERSITY

DEPARTMENT OF POLITICAL SCIENCE & PUBLIC ADMINISTRATION

Common Course for M.A. Political Science and Public Administration

II SEMESTER SYLLABUS

Revised in 2018-2019

CORE – 204:COMPARATIVE LOCAL GOVERNMENTS

Unit – I

a) Local Government: Meaning Nature, Scope and Significance

b) Decentralization and devolution - hurdles for Decentralization, Concept Democratic Decentralization

Unit –II English Local Governments

a) Local Government in England Evolution and recent Trends.

b) The Mayor of the greater London council, Powers and functions

Unit – III American Local Government

a) Local Government in USA – Evolution and recent trends.

b)

b) Weak Mayor and Strong Mayor – Patterns

Unit – IV Indian Local Government.

a) Local Government in India – Evolution and recent trends – 73rd and 74th Constitutional Amendments

b) Issues in Local governance – U.K.,U.S.A. India

Selected Readings:

1. Herman Finer, English Local Government.
2. Mard John & Finer S.E., Local government in England & Wales.
3. Peter Richards, The New Local Government System
4. Lord Radcliffe, English Local Government reforms.
5. M.A. Muttalib (ed). Theory and Practice of Local Government.
6. S.R. Nigam, Local Governments in the West.
7. S.R. Maheswari, Local Government in India.
8. Robjan, W.A. Great Cities f the World.
9. Aldufu H.F. American Local Government and Administration.
10. Fisher M.J., & Bi, Hop, American Local Government.

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DEPARTMENT OF POLITICAL SCIENCE & PUBLIC ADMINISTRATION

Common Course for M.A. Political Science and Public Administration

THIRD SEMESTER SYLLABUS

Non-Core Paper: Political Thought of Dr. B.R.Ambedkar
Revised in 2018-2019

Objectives: This course aims at training the students to study one political thinker in depth. It also expects students to know the anti-caste thinking on Indian context. The course is also expected to relate the thinking of Dr. B.R. Ambedkar to contemporary problems.

Unit I

1. Indian Society: Socio, Political Perspectives
2. Critique of Indian Nationalism

Unit II

3. Interpretation and critique of Caste System
4. Interpretation of Buddhism

Unit III

5. Constitutional Democracy
6. Reservation Policy

Unit IV

7. Theorizing Dalit Movement
8. The Emergence of Dalits in Political Power

Selected Readings:

1. Gore M.S. 1993, Socuial context of an Ideology: Political and Social Thought of Dr. Ambedkar, New Delhi, Sege
2. Jafferelot Christophe 2004, Dr. Ambedkar and Untouchability, New Delhi, Permanent Black
3. Kasabe Raosaheb, 1985, Ambedkar ani Marx, Pune, Sugava prakashan
4. Omvedt Gail, 2004, Ambedkar: Towards an Enlightend India, New Delhi, Penguin
5. Omvedt Gail, 2003, 'Buddhism in India' , New Delhi, SAGE
6. Omvedt Gail,1994, 'Dalits and the Democratic Revolution in Colonial India', New Delhi, Sage
7. Rodrigues Valerian, (ed.), 2002, The Essential itings of B.R.Ambedkar, New Delhi, OUP
8. P.Kesava Kumar, 2014, Plitical Philosophy of Ambedkar Kalpaz Publication, New Delhi
9. Badri narayan:2014, Kanshiram, Leader of the Dalits ,London, Pengvin Books India Pot Ltd
10. Surinders J. Jodhkar:2012Caste, New Delhi, Ootid Univertiy Pera
11. B.R. Ambedkar Volumes
12. Valerian Rodrigves, 2008 Dalit-Bahryan Discourse in Muderu India, New Delhi critical event publication
13. Piyasena Dissanayake:2009 Elementary Aspects of Biddeit Political Theory New Delhi, Critical Quest
14. B.R. Ambedkar; 2004 conversion as Emancipatio: Critical Quest publication.
15. Sauda Aruna:2015 Ambedkar Varna Nirmulana-Annihilation of caste (Philosophy of Castedemocracy), Chennai saibonds Print System
16. Rahul Govind: 2018: Ambedkars Lessions, Ambedkars Challenges: Hinduism, Hindutva and the Indian Nation & PW, January 27,2018, Vol, VIII No.4

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DEPARTMENT OF POLITICAL SCIENCE & PUBLIC ADMINISTRATION

Common Course for M.A. Political Science and Public Administration
FOURTH SEMESTER SYLLABUS

Revised in 2018-2019

CORE – 405(a) GOOD GOVERNANCE AND INFORMATION TECHNOLOGY

Unit-I Concepts of Governance

(1) E-Governance - Philosophy of Technology –

Accountability:Social Dimension - Good Governance

(2) IOT- (Internet of Things) - Machine Learning Based Solution - E-Judiciary

Unit-II

(1) Information Revolution: Strategic Restructuring Governance

(2) IT Policies

Unit-III

(1) Data-Governance

(2) Digital Divide

Unit-IV

(1) Issues and Challenges in E - Governance caused by Privacy Threats

(2) Digital Democracy: Digitalizing the Future

Selected Readings:

1. Anthony G. Wilhelm: 2004: Digital Nation towards an inclusive information Society: The MIT press London.
2. Ernert J Wilron III : 2004: The Information Revolution and Developing Countries, MIT Press, London.
3. T.M. Vinod Kumar ed, 2017, E- Governance for smart Cities, Springer Publication
4. T.M. Vinod Kumar ed, 2014, E- Governance for smart Cities, Springer Publication
5. Gilardi, Fabrizio: 2016 Digital Democracy
6. Van Dij K J A GM 2014 Digital Democracy Vision & Reality: Public Administration in the information Age
7. Gil de Zuniga, Homero (ed) 2010 Digital Democracy" Reimaging pathways to Political participation : journal of information Technology X Politics
8. Simon Julie (ed) 2017 Digital Democracy
9. Ashwani Saith, M Vijay Baskar 2005 ICTS and Indian Economic Development
10. M. P Gupta, 2004 Promise of E-Governance operational challenges Tata MC Graw Hill Publishing Company Ltd. New Delhi
11. World Bank: Websites on Governance, E-Governance & Internet etc.
12. Roger Browsword, Eloise Scotford,Karen Yeung: 2016 The Oxford Handbook of Law Regulation and13.Technology: Oxford Publication, London
13. Mohit Bhatta charya 2012 Public Administration : New Issues and Perspectives jawahar Publishers Distributions, New Delhi
14. Francesco Contini Giovan Francesco:2008 ICT and innovation in the Public sector : European studies in the making of E – Government:Palgrave publication
15. Charalambos, Vrasidas,Michalinos zembylas : 2009 ; ICT for Education , Development and Social Justice: Current Perspectives on Applied Information Technologies Information Age Publishing

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DEPARTMENT OF POLITICAL SCIENCE & PUBLIC ADMINISTRATION

FOURTH SEMESTER SYLLABUS (Revised in 2018-2019)

Elective Paper

CORE-405 (b) : HUMAN RIGHTS IN INDIA

Unit - 1

1. Philosophical Foundations of Morality and State.
   (Liberal, Marxist and Humanist Perspective)
2. Human Rights and World order.

Unit - II

1.Fundamental Rights (1st generation rights)
and Cultural Rights (3rd generation rights/munity)
2. Directive Principles of State icy (2nd generation) .

Unit - III

1. Political and Legal
2. Socio-Economic disparities and Terrorism

Unit - IV

1. Complaints, Investigations, Commissions and Judicial Acts
2. Children, Women, Old, Disabled, Professional Victims, Socially and Economically Deprived

BOOKS:

1. H.O. Aggarwal : Human Rights (3rd edition) Central Law Publications, Allahabad, 2000
2. G. Haragopal : Political Economy of Human Rights, Emerging Dimensions (Himalaya Publishing House, New Delhi, 1977)
3. Sir Francis Uallat : An Introduction to the study of Human Rights (Europa Publications, London, 1972)
4. Tim Dunne & Nichlas Press, J. Wheeler : Human Rights in Global Politics (Cambridge University Cambridge, 1999)
5. : Human Rights, The task before US (International Federation of Universal Women, London, 1951)
6. R.V.R. Chandrasekhara Rao : Human Rights for whom? A perspective on Human Rights Discourse in perspectives on Indian Development

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DEPARTMENT OF POLITICAL SCIENCE & PUBLIC ADMINISTRATION

FOURTH SEMESTER SYLLABUS - Revised in 2018-2019

Elective Paper

CORE:405 (c):SOCIAL WELFARE ADMINISTRATION

Unit-I

1. Social Welfare – Concept and Philosophy
2. A Brief History of Welfare and Development

Unit-II

1. Welfare Schemes for Women and Programmes Relating to SC, ST and BCs
2. Social Welfare Constitutional Provisions

Unit-III

1. Social Welfare Policy of the Union and the State Government
2. Central and State Social Welfare Boards

Unit-IV

1. Central Social Welfare Board: Composition Powers and Functions
2. *Role of Non*-Governmental Organizations in Socio-Economic Development and Problems in Implementation of Social Welfare Programmes.

Suggested Readings:

1) Sachdeva, D.R. (2004). Social Welfare Administration (English and Hindi), Kitab Mahal, Allahabad.
2) Davis C.March. (1965). An Introduction to Social Administration, Routledge and Kegan Paul, London.
3) Kulkarni, P.D. (1961). Centre Social Welfare Board, Asia Publishing House, New Delhi.
4) Jaganadhan, V. (1966). Social Welfare Organisation, IIPA, New Delhi.
5) Paul Chowdary, D. (1979). Social Welfare Administration, Atma Ram & Sons, New Delhi.
6) Goel, S.L. and R.K.Jain (1988). Social Welfare Administrational, Deep & Deep, New Delhi.
7) Chaturvedi, T.N. and S.K.Chandra (1980). Social Administration
Development and Change, IIPA, New Delhi.
8) Chowdhary, D.P. (1992). Social Welfare Administration, Atma Ram & Sons, Delhi.
9) Mohinder Singh (ed)(1996). Social Policy and Administration in India, M.D. Publications Pvt.Ltd., New Delhi
10) Surendra Kataria (2002). Social Administration, RBSA Publishers, SMS High Way, Jhaipur

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DEPARTMENT OF POLITICAL SCIENCE & PUBLIC ADMINISTRATION

FOURTH SEMESTER SYLLABUS - Revised in 2018-2019

Elective Paper

CORE-405 (d):DISASTER MANAGEMENT

Unit-I

1. Meaning, Objectives and Importance of Disaster Management.
2. Effectiveness of Disaster Management

Unit-II

1. Tools, Techniques and Theories of Disaster Management
2. Types and Effects of Disaster Management (Drought, Earthquake, Natural Calamities, Rehabilitation, Displacement and Communal Riots).

Unit-III

1. Manmade Disaster – Bhopal Disaster.
2. Safety Provisions at Indian Nuclear Plant, Accidental Explosives and Management of Emergencies.

Unit-IV

1. Risk and Causality Management, Role of Red Cross Society, Armed Forces, Panchayati Raj, NGOs and ICT in Disaster Management.
2. Resource Mobilization and Peoples Participation for Effective Disaster Management

Suggested Readings:

1) Parasuraman: India Disaster Report.
2) Bhattacharya: Environmental Economics.
3) Ram Prakash: Disaster Management.
4) Mollinga : Integrated Water Resource Management
5) Narayana: Disaster Management.
6) NRam Mohan Prakash, (2014) Risk Management and Insurance, Students Helpline Publishers Pvt Ltd, Hyderabad.

YOGI VEMANA UNIVERSITY

DEPARTMENT OF POLITICAL SCIENCE & PUBLIC ADMINISTRATION

FOURTH SEMESTER SYLLABUS - Revised in 2018-2019

Elective Paper

CORE-405(e):OFFICE ADMINISTRATION

Unit-I:

1. Nature, Scope and Importance of Office Management
2. Basic Principles of Office Organization

Unit-II:

1. Office Planning and Lay out of Office Management.
2. Office Equipment and Office Services

Unit-III:

1.Filling System, Record Management, 0ffice Communication and Correspondence
2. Office Supervision , Office Stationary, Training and Staff Welfare

Unit-IV:

1. O & M –Work Study, Work simplification and Work Measurement.
2. Office Management in Government- Some Issues.

Suggested Reading

1) V.SP.Rao &P.S Narayana- TextBook of Office Management,Tata Mc Graw Hill New Delhi,1937
2) J.C.Denyer - Office Organisation & Management, Principle and Practice, S.Chand &Sons, New Delhi, 1990.
3) S.R.Chunwalla - Management R.Srinivasan Principles and Practice.
4) Terry and Franklen - Principles of Management
5) S.L.Goel - Modern Management Techniques
6) H.Koontz & O.Donnel - Essentials of Management
7) Z.K.Quible - Introduction to Administration Office Management
8) S.P.Arora - Office Organization and Management, Vikas Publishing House, New Delhi, 1982.
9) Aswathappa & Shridhara Bhat.K- Office Management
10) George R.Terry - Office Management & Control
11) Jonson and Savage - Administrative Office Management
12) P.N.Reddy and H.P.Appanaich -Office Organisation and Management, Himalaya Publishing House, New Delhi, 1990.
13) B.Sudeer & M Mohan, (2014) Management Information System, Students Helpline Publishers Pvt Ltd, Hyderabad

YOGI VEMANA UNIVERSITY COLLEGE :: KADAPA

DEPARTMENT OF COMPUTER APPLICATIONS (M.C.A)

Name of the Course: Computer Applications

(With Effect From Under CBCS 2018-2019)

Scheme of Examination for I, II, III, IV, V & VI Semesters

Paper Code	Title of the Paper	No. of Credits	Marks		Total Marks
			Internal	External	
SEMESTER I					
13001	Problem Solving and Programming using C	4	25	75	**100**
13002	Data Base Management Systems	4	25	75	**100**
13003	Computer Organization	4	25	75	**100**
13004	Mathematical Foundations for Computer Applications	4	25	75	**100**
13005	Accountancy & Financial Management	4	25	75	**100**
13001P	Programming in C Laboratory	4		100	**100**
13002P	Data Base Management Systems Laboratory	4		100	**100**
13003P	Computer Organization Laboratory	4		100	**100**
SEMESTER II					
23001	Data Structures	4	25	75	**100**
23002	Computer Networks	4	25	75	**100**
23003	Advanced Data Base Management System	4	25	75	**100**
23004	Operating systems	4	25	75	**100**
23005	Probability & Statistics	4	25	75	**100**
23001P	Data Structures Laboratory	4		100	**100**
23002P	Computer Networks & Operating systems Laboratory	4		100	**100**
23003P	Advanced Data Base Management Systems Laboratory	4		100	**100**
SEMESTER III					
33001	Object Oriented Programming through Java	4	25	75	**100**
33002	Software Engineering	4	25	75	**100**
33003	Network Programming	4	25	75	**100**
33004	Optimization Techniques	4	25	75	**100**
33005	Artificial Intelligence	4	25	75	**100**
33001P	Object Oriented Programming through Java Laboratory	4		100	**100**
33002P	Software Engineering Laboratory	4		100	**100**
33003P	Network Programming Laboratory	4		100	**100**
SEMESTER IV					
43001	Web Technologies	4	25	75	**100**
43002	Dot Net Programming	4	25	75	**100**
43003	Advanced Java Programming	4	25	75	**100**
Elective-I 43004	A Formal Language Automata Theory	4	25	75	**100**
	B Information Systems				
	C Machine Learning				
	D Big Data Analytics				
Elective-II 43005	A Human Computer Interaction	4	25	75	**100**
	B Management Information System				
	C Computer Graphics				
	D PHP				
***43006-I**	**Non-Core: Introduction to Computers and MS Office**		25	75	**100**
43001P	Web Technologies Laboratory	4		100	**100**
43002P	Dot Net Programming Laboratory	4		100	**100**

43003P	Advanced Java Programming Laboratory	4		100	**100**
The Student has to choose one from each of the Elective I and Elective II					

SEMESTER V						
53001	Cryptography & Network Security	4	25	75	**100**
53002	Cloud Computing	4	25	75	**100**
53003	Data Warehousing & Data Mining	4	25	75	**100**
Elective-III 53004	A Digital Image Processing	4	25	75	**100**
	B wireless & Ad-hoc Networks				
	C E-Commerce				
	D Grid Computing				
Elective-IV 53005	A Enterprise Application Integration	4	25	75	**100**
	B Distributed Systems				
	C Software Testing				
	D Theory of Computation				
***53006-II**	**Non Core: Internet and World Wide Web**		25	75	**100**
53001P	Cryptography & Network Security Laboratory	4		100	**100**
53002P	Cloud Computing Laboratory	4		100	**100**
53001D	Mini Project	4		100	**100**
Note :1. Every Student must give the Seminar at least two times 2. Seminar will be conducted only by Internal Staff					
The Student has to choose one from each of the Elective III and Elective IV					
SEMESTER VI					
63001S	Seminar Topics from papers published in referred Journals	12	50	-	**50**
63001D	Major Project Work		50	150	**250**
	Viva -Voce			50	
Note: 1. Every Student must give the Seminar at least two times 2. Seminar will be conducted only by Internal Staff					

Course Total Marks: 4300 (Core Papers)
*** 200 (Non- Core)**

Semester- I Theory: 500 Marks, Practical 300 Marks (32 Credits)
Semester- II Theory: 500 Marks, Practical 300 Marks (32 Credits)
Semester- III Theory: 500 Marks, Practical300 Marks (32 Credits)
Semester- IV Theory: 500 Marks, Practical 300 Marks (32 Credits)
Semester- V Theory: 500 Marks, Practical 200 Marks, Mini Project 100 Marks (32 Credits)
Semester-VI Seminar: 50 Marks, Major Project: 200, Viva-Voce 50 Marks (12 Credits)

Examination Pattern: Each Theory Paper consists of Part- A and Part-B. Part-A Consists of eight short Questions, students has to answer five out of eight questions and each question carries 3 marks. Part-B consists of four essay type questions with internal choice from each Unit carrying 15 marks.

Practical Examination Pattern: Final External Laboratory experiment may given by external Practical Examiner, any one of from syllabus and need not be from the list of experiments.

*** Non Core paper marks will not be considered for awarding the grade point and credits, but the candidate should pass since these are part of CBCS**

13004: Mathematical Foundations for Computer Applications

UNIT-I:

MATRIX ALGEBRA **-** Matrices - Rank of a matrix - Solving system of equations - Eigenvalues and Eigenvectors - Cayley - Hamilton theorem - Inverse of a matrix.

UNIT-II:

BASIC SET THEORY **-** Basic definitions - Venn diagrams and set operations - Laws of set theory - Principle of inclusion and exclusion – Partitions - Permutation and combination – Relations - Properties of relations - Matrices of relations - Closure operations on relations - Functions - Injective, subjective and objective functions.

UNIT-III:

MATHEMATICAL LOGIC **-** Propositions and logical operators - Truth table - Propositions generated by a set - Equivalence and implication - Basic laws - Some more connectives - Functionally complete set of connectives - Normal forms - Proofs in propositional calculus - Predicate calculus.

UNIT-IV:

FORMAL LANGUAGES**-**Languages and grammars - Phrase structure grammar - Classification of grammars - Pumping lemma for regular languages - Context free languages. FINITE STATE AUTOMATA**-**Finite state automata - Deterministic finite state automata (DFA) - Non deterministic finite state automata (NFA) - Equivalence of DFA and NFA - Equivalence of NFA and Regular Languages.

TEXT BOOKS:

1. David Makinson, “Sets, Logic and Maths for Computing”, Springer Indian Reprint, 2011.
2. Grimaldi, R.P and Ramana, B.V. "Discrete and Combinatorial Mathematics", 5th Edition, Pearson Education, 2006.

REFERENCE BOOKS:

1. Hopcroft J.E and Ullman,J.D, “Introduction to Automata Theory, Languages and Computation”, Narosa Publishing House, Delhi, 2002.
2. Kenneth H. Rosen, “Discrete Mathematics and Its Applications”, Tata McGraw Hill, 4th Edition, 2002.
3. Sengadir, T. “Discrete Mathematics and Combinatorics" Pearson Education, New Delhi, 2009.
4. Trembley, J.P. and Manohar, R, "Discrete Mathematical Structures with Applications to Computer Science", Tata McGraw Hill, New Delhi, 2007.
5. Venkataraman, M.K., “Engineering Mathematics”, 2nd Edition, Volume-II, National Publishing Company, 1989.

13003P: COMPUTER ORGANIZATION LABORATORY

I. CYCLE : Digital Logic Design Experiments :

1. TTL Characteristics and TTL IC Gates
2. Multiplexers & Decoders
3. Flip-Flops
4. Counters
5. Shift Registers
6. Binary Adders & Subtractors
7. A L U

II . CYCLE: 8085 Assembly Language Programming :

1. 8085 Assembly Language Programming according to theory course microprocessors-I using the following trainers :

Keyboard Monitor o f 8085μP Trainer.

Serial Monitor of 8085μP Trainer with Terminal

8085 Line Assembler of 8085μP Trainer with PC as Terminal

8085 Cross Assembler using In-Circuit Emulator (ICE) with 8085μP Trainer and PC as Terminal

Graded Problems are to be used according to the syllabus of COMPUTER ORGANIZATION

2. PENTIUM CLASS PC ARCHITECTURE FAMILIARIZATION HARDWARE & SOFTWARE PARTS DEMONSTRATION

23003: Advanced Data Base Management Systems

UNIT-I:

The Entity – Relationship Model-Constraints-Entity-Relationship Diagrams, Design Issue-Weak Entity Sets-Database Design for Banking Enterprise- The Unified a Modeling Temporal Data- User Interfaces and Tools-Triggers-Authorization in SQL.

UNIT-II:

OBJECT- DATABASES AND XML: Object-based databases – Complex data types, structured types and inheritance in SQL, table inheritance, array and multiset types in SQL, object identity and reference types in SQL, implementing O-R features, Persistent programming languages, OO vs OR. XML – Structure of XML, Document Schema, Querying and Transformation, API in XML, XML applications.

UNIT-III:

Query Processing: Measures of Query Cost-Selection Operation-Sorting-Joint Operation-Evaluation of Expressions-Query Optimization: Transformation of Relational Expressions-Estimating Statistics of Expression Results-Choice of Evaluation Plans.

UNIT-IV:

Transactions: Transaction concept, Transaction State-Implementation of Atomicity and Durability-Concurrent Executions – Serializability - Recoverability - Implementation of Isolation - Testing for Serializability, Concurrency Control: Lock Based Protocols- Timestamp-Based Protocols-Validation-Based Protocols-Multiple Granularity- Multiversion Schemes-Deadlock handling-Insert and Delete Operations-Weak Levels of Consistency-Concurrency in Index Structures,

Recovery System: Failure Classification-Storage Structure-Recovery and Atomicity-Log-Based Recovery-Recovery with Concurrent Transactions-Buffer Management-Failure with lose of Nonvolatile Storage-Advanced Recovery Techniques-Remote Backup Systems.

TEXT BOOKS:

1. Silberschatz A. Korth H F, and Sudarsan S, *Database System Concepts*, 5th edition, McGraw-Hill 2002. (Chapters 1to 4, 6 to 10 and 13 to 17)

REFERENCE BOOKS:

1. Date C J, *An Introduciton to Database Systems, 7th edition, Pearson Educaiton, 2000.*

2. Elmasri R, and Navathe S B, *Fundamentals of Database Systems,* 4th edition, Pearson Education, 2004.

3. Ramakrishnan R, and Gehrke J, *Database Management Systems, 2nd edition, McGraw-Hill, 2000.*

4. *Mannino M V, Database Application Development and Design,* McGraw-Hill, 2001.

23003P: Advanced Data Base Management Systems Laboratory

1. Write a PL/SQL Block for demonstrating the GOTO statement
2. Write the PL/SQL Block for generating the prime numbers & also counting the no. of prime number using procedure concept.
3. Write a PL/SQL Block for calculating area & Perimeter of a rectangle.
4. Write a PL/SQL Block to find out Factorial of a given number using functions.
5. Write a PL/SQL program for illustrating the stored procedures
6. Write a PL/SQL Block for illustrating implicit cursors.
7. Write a PL/SQL Block for demonstrating explicit cursors.
8. Write a Trigger on insert before operation with suitable relation.
9. Write a Trigger on update operation before with suitable relation
10. Write a PL/SQL Block for illustrating the pre-defined exceptions.
11. Write a PL/SQL Block for demonstrating user defined exceptions.
12. write a PL/SQL block for illustrating the creation and usage of a package specification & package body.

33004: Optimization Techniques

UNIT – I

Linear Programming Problem: Introduction – Mathematical Formulation of the Problem Linear Programming Problem Graphical Solution: Some Exceptional Cases – General Linear Programming Problem – Canonical and Standard Forms of LPP. Simplex Method**:** The Computational Procedure of Simplex Method, Big-M Method, Two-Phase method, and some simple problems.

Duality in Linear Programming: Formulating a Dual Problem – Primal – Dual Pair in Matrix Form – Duality and Simplex Method – Dual Simplex Method – Degeneracy and Some related problems

UNIT – II

Transportation Problem: Introduction – General Transportation Problem – The Transportation Table – Duality in Transportation Problem – Loops in Transportation Tables – LP Formulation of the Transportation Problem – Solution of a Transportation Problem – Finding an Initial Basic Feasible Solution – Testing for Optimality – Degeneracy in Transportation Problem – Transportation Algorithm (MODI Method), Unbalanced Transportation Problem.

Assignment Problem: Introduction – Mathematical Formulation of the Problem – The Assignment Method – Special Cases in Assignment Problems – The Traveling Salesman Problem

UNIT – III

Sequencing Problem**:** Introduction – Problem of Sequencing – Basic Terms Used in Sequencing – Processing n Jobs through Two Machines - Processing n Jobs through K Machines - Processing 2 Jobs through K Machines

Games and Strategies**:** Introduction – Two – Person Zero – Sum Games – Some Basic Terms – The Maximin – MiniMax Principle – Games without Saddle Points – Mixed Strategies – Graphic Solution of 2 X n and m X 2 Games – Dominance Property – Arithmetic Method For n X n Games – General Solution of m X n Rectangular Games

UNIT – IV

Network Scheduling by PERT / CPM: Introduction – Network and Basic Components – Rules of Network Construction – Critical Path Method, PERT, Probability Considerations in PERT, PERT Calculations – Distinction between PERT and CPM, Some Samples Problems

TEXT BOOK:

1. Operations Research by – Kranti Swarup, Gupta, Manmohan – Sultan Chand & Sons, New Delhi, 2003 (11th Edition)

REFERENCE BOOKS:

1. Hiller F.S. &Liberman G.J.: Introduction to OperationsResearch 2nd Edn.:- Holand Day Inc. London, 1974

2. Tara H.A.: Operation Research, 3rd Edn.- McMillan Publishing Company, 1982

3. Beightler C.S. & Phillips D.T.: Foundations of Optimization,- Prentice Hall, 1979

4. McMillan claude Jr.: Mathematical Programming, 2nd Edn.- Wiley Series, 1979

5. Gillett B.G.: Introduction to Operation Research - A Computer oriented Algorithmic approach- McGrow Hill Book Comp., 1976

6. N.S. Kambo: Mathematical Programming Techniques

PRACTICALS

33001P: Object Oriented Programming Through JAVA Laboratory

1. Programs to illustrate constructors.
2. Programs to illustrate Overloading & Overriding methods in JAVA.
3. Programs Illustrate the Implementation of Various forms of Inheritance. (Ex. Single, Hierarchical, Multilevel inheritance...)
4. Program which illustrates the implementation of multiple Inheritance using interfaces in JAVA.
5. Program to illustrate the implementation of abstract class.
6. Programs to illustrate Exception handling
7. Programs to create packages in Java.
8. Program to Create Multiple Threads in Java.
9. Program to Implement Producer/Consumer problem using synchronization.
10. Program to Write Applets to draw the various polygons.
11. Create and Manipulate Labels, Lists, Text Fields, Text Areas & Panels
12. Handling Mouse Events & Keyboard Events.
13. Using Layout Managers.
14. Create & Manipulate the Following Text Areas, Canvas, Scroll bars, Frames, Menus, Dialog Boxes.
15. Programs, which illustrate the manipulation of strings.
    a. Ex. 1. Sorting an array of Strings.
       2. Frequency count of words & Characters in a text.
16. Programs, which illustrate the use of Streams.
17. Java Program that reads on file name from the user and displays the contents of file.
18. Write an applet that displays a simple message.
19. Write an applet that computes the payment of a loan based on the amount of the loan, the interest rate and the number of months. It takes one parameter from the browser: Monthly rate; if true, the interest rate is per month; Otherwise the interest rate is annual.
20. Write a Java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the + - X % operations. Add a text field to display the result.
21. Write a Java program for handling mouse events.
22. Write a Java program for creating multiple threads
23. Write a Java program that correctly implements producer consumer problem using the concept of inter thread communication.
24. Write a Java program that lets users create Pie charts. Design your own user interface (with AWT)
25. Write a Java program that allows the user to draw lines, rectangles and ovals.
26. Write a Java program that illustrates how run time polymorphism is achieved.

43004A: Formal Language Automata Theory

UNIT 1:

Fundamentals : Strings, Alphabet, Language, Operations, Finite state machine, definitions, finite automaton model, acceptance of strings, and languages, deterministic finite automaton and non deterministic finite automaton, transition diagrams and Language recognizers.

Finite Automata : NFA with € transitions - Significance, acceptance of languages. Conversions and Equivalence : Equivalence between NFA with and without € transitions, NFA to DFA conversion, minimisation of FSM, equivalence between two FSM's, Finite Automata with output- Moore and Melay machines.

UNIT 2:

Regular Languages : Regular sets, regular expressions, identity rules, Constructing finite Automata for a given regular expressions, Conversion of Finite Automata to Regular expressions. Pumping lemma of regular sets, closure properties of regular sets (proofs not required).

Grammar Formalism : Regular grammars-right linear and left linear grammars, equivalence between

regular linear grammar and FA, inter conversion, Context free grammar, derivation trees, sentential forms.

Right most and leftmost derivation of strings.

UNIT 3:

Context Free Grammars : Ambiguity in context free grammars. Minimisation of Context Free Grammars. Chomsky normal form, Greiback normal form, Pumping Lemma for Context Free Languages. Enumeration of properties of CFL (proofs omitted).

Push Down Automata : Push down automata, definition, model, acceptance of CFL, Acceptance by final state and acceptance by empty state and its equivalence. Equivalence of CFL and PDA, interconversion. (Proofs not required). Introduction to DCFL and DPDA.

UNIT 4:

Turing Machine : Turing Machine, definition, model, design of TM, Computable functions.

TEXT BOOKS:

1. "Introduction to Automata Theory Languages and Computation" Hopcroft H.E. and Ullman J. D.Pearson Education
2. Introduction to Theory of Computation –Sipser 2nd edition Thomson

REFERENCE BOOKS:

1. Introduction to Computer Theory, Daniel I.A. Cohen, John Wiley.
2. Introduction to languages and the Theory of Computation ,John C Martin, TMH
3. "Elements of Theory of Computation" Lewis H.P. & Papadimition C.H. Pearson /PHI.

4 Theory of Computer Science – Automata languages and computation -Mishra and Chandrashekaran, 2nd edition, PHI

43004B: Information Systems

UNIT I

Overview of System analysis and design: Development life cycle, Requirements determination, Logical design, Physical design, Program design, Risk and feasibility analysis, SRS, prototyping

UNIT II

Information requirement analysis: Process modelling with physical and logical data flow diagrams, Data modelling with entity relationship diagrams, Addition modelling method, Developing proposal: feasibility studies, cost benefit analysis.

UNIT III

System design: Process descriptions, Input/output controls, object modelling, Database design, and User Interface design, Documentation

UNIT IV

Introduction to - Project management, scheduling, measurement of quality and productivity, ISO and capability maturity models, Strategic planning, system audit. Quality assurance: reviews, walkthroughs, and inspection.

REFERENCE BOOKS:

1. Analysis & Design of Information Systems, Senn,MH.
2. Information Systems :Analysis & Design, Ram Bansal 'Vigyacharya',New Age International
3. Analysis, Design of Information System,Rajaraman, PHI
4. System Analysis & Design, Parthasarathi,EPH
5. System Analysis, Design & MIS, EXCEL BOOKS
6. Analysis, Design & implementation of Information Systems, Sharma, VIKAS
7. System Analysis & Design Hand Book, V.K. Jain, Wiley Dreamtech

43004C: Machine Learning

UNIT - I

Introduction - Well-posed learning problems, designing a learning system Perspectives and issues in machine learning

Concept learning and the general to specific ordering – Introduction, A concept learning task, concept learning as search, Find-S: Finding a Maximally Specific Hypothesis, Version Spaces and the Candidate Elimination algorithm, Remarks on Version Spaces and Candidate Elimination, Inductive Bias.

Decision Tree Learning – Introduction, Decision Tree Representation, Appropriate Problems for Decision Tree Learning, The Basic Decision Tree Learning Algorithm Hypothesis Space Search in Decision Tree Learning, Inductive Bias in Decision Tree Learning, Issues in Decision Tree Learning. **UNIT - II**

Artificial Neural Networks Introduction, Neural Network Representation, Appropriate Problems for Neural Network Learning, Perceptions, Multilayer Networks and the Back propagation Algorithm. Discussion on the Back Propagation Algorithm, An illustrative Example: Face Recognition **Evaluation Hypotheses** – Motivation, Estimation Hypothesis Accuracy, Basics of Sampling Theory, A General Approach for Deriving Confidence Intervals, Difference in Error of Two Hypotheses, Comparing Learning Algorithms.

UNIT - III

Bayesian learning - Introduction, Bayes Theorem, Bayes Theorem and Concept Learning Maximum Likelihood and Least Squared Error Hypotheses, Maximum Likelihood Hypotheses for Predicting Probabilities, Minimum Description Length Principle , Bayes Optimal Classifier, Gibs Algorithm, Naïve Bayes Classifier, An Example: Learning to Classify Text, Bayesian Belief Networks, EM Algorithm. **Computational Learning Theory –** Introduction, Probably Learning an Approximately Correct Hypothesis, Sample Complexity for Finite Hypothesis Space, Sample Complexity for Infinite Hypothesis Spaces, The Mistake Bound Model of Learning.

Instance-Based Learning – Introduction, k-Nearest Neighbor Learning, Locally Weighted Regression, Radial Basis Functions, Case-Based Reasoning, Remarks on Lazy and Eager Learning.

UNIT - IV

Pattern Comparison Techniques, Temporal patterns, Dynamic Time Warping Methods, Clustering, Codebook Generation, Vector Quantization

Pattern Classification: Introduction to HMMS, Training and Testing of Discrete Hidden Markov Models and Continuous Hidden Markov Models, Viterbi Algorithm, Different Case Studies in Speech recognition and Image Processing

Analytical Learning – Introduction, Learning with Perfect Domain Theories: PROLOG-EBG Remarks on Explanation-Based Learning, Explanation-Based Learning of Search Control Knowledge, Using Prior Knowledge to Alter the Search Objective, Using Prior Knowledge to Augment Search Operations.

Combining Inductive and Analytical Learning – Motivation, Inductive-Analytical Approaches to Learning, Using Prior Knowledge to Initialize the Hypothesis.

TEXT BOOKS:

1. Machine Learning – Tom M. Mitchell, MGH

2. Fundamentals of Speech Recognition By Lawrence Rabiner and Biing – Hwang Juang.

REFERENCE BOOKS:

1. Machine Learning : An Algorithmic Perspective, Stephen Marsland, Taylor & Francis

53004B: Wireless & Ad-hoc Networks

UNIT-I:

Introduction: Introduction to Wireless Networks, Various Generations of Wireless Networks, Virtual Private Networks- Wireless Data Services, Common Channel Signaling, Various Networks for Connecting to the Internet, Blue tooth Technology, Wifi-WiMax- Radio Propagation mechanism , Pathloss Modeling and Signal Coverage

UNIT-II:

Wireless Adhoc Networks: Basics of Wireless Networks, Infrastructured Versus Infrastructureless Networks – Properties of Wireless, AD hoc Networks, Types of Ad Hoc Networks, Challenges in AD Hoc Networks – Applications of Wireless AD Hoc Networks

UNIT-III:

Routing Protcols for Ad Hoc Networks:Introduction-Proactive Routing Protocols- Reactive Routing protocols-Hybrid Routing Protocols-QoS Metrics-Energy impact issues in Routing.

UNIT-IV:

Mobile Ad Hoc Networks (MANETs): Overview, Properties of A MANET, Spectrum of MANET Applications, Routing and Various Routing Algorithms. Other Wireless Technologies**:** Introduction, IEEE 802.15.4 and Zigbee, General Architecture, Physical Layer, MAC layer, Zigbee, WiMAX and IEEE 802.16, Layers and Architecture, Physical Layer, OFDM Physical layer.

TEXT BOOKS:

1. Principles of Wireless Networks , Kaveth Pahlavan, K. Prasanth Krishnamurthy, Pearson Publications, Asia, 2002
2. Mobile Cellular Communications, G.Sasibhusan Rao, “”, Pearson Publications.

REFERENCES BOOKS:

1. Guide to Wireless Ad Hoc Networks: Series: Computer Communications and Networks, Misra, Sudip; Woungang, saac; Misra, Subhas Chandra, 2009, Springer

53004D: Grid Computing

UNIT I

Introduction – Early Grid Activities, Current Grid Activities, an overview of Grid business areas, Grid applications, Grid infrastructure – Grid computing organizations and their roles – Grid computing Anatomy – Grid computing Roadmap

UNIT II

Service-Oriented and ,Web Service Architecture- XML Messages and enveloping – Service message description mechanisms, relationship between web and grid service – Sample use cases that drive OGSA – The OGSA Platform components

UNIT III

A high level introduction to OGSI – Technical details of OGSI specification, Service data concepts - Grid Service: Naming and change Management – OGSA Basic Services: Common Management Model, Service domains, Policy and Security Architecture

UNIT IV

The Grid Computing Toolkits – GLOBUS GT3 Toolkit: Architecture - GLOBUS GT3 Toolkit: Programming Model

TEXTBOOK

1. Joshy Joseph & Craig Fellenstein, “Grid Computing”, Pearson-2004.

REFERENCE

1. Ahmar Abbas, “Grid Computing: A Practical Guide to technology and Applications”, Firewall media – 2006.

53005A: Enterprise Application Integration

UNIT I

Defining EAI : What Is EAI?, Applying Technology, How Did Things Get This Bad?, Chaos Today, Order Tomorrow.

Evolution of Stovepipes: Traditional Systems, Microcomputer Systems, Distributed Systems, Packaged Applications.

Making the Business case for EAI: The Virtual System, E-Business, Types of EAI.

UNIT II

Data-Level EAI: Going for the Data, Data-Level EAI by Example, Database-to-Database EAI, Federated Database EAI.

Consider the Data Source: Relational Data, Object-Oriented, Multidimensional, Other Data Storage Models

Application Interface-Level EAI: Application Interfaces, What's an API?, Interface by Example, Approaching Application Interfaces, The Interface Tradeoff, Packaged Applications, Custom Applications.

UNIT III

Method-Level EAI: Method-Level Example, What's a Process?: Scenarios, Rules, Logic, Data, Objects.

Method Warehousing: Leveraging Frameworks for EAI, Enabling Technology, Sharing Methods to Bind Your Enterprise.

User Interface-Level EAI: Leveraging User Interface-Level EAI, Going to the User Interface.

UNIT IV

The EAI Process—Methodology or Madness?: Applying a Procedure/Methodology, Understanding the Enterprise and Problem Domain, Making Sense of the Data, Making Sense of the Processes, The Common Business Model, Identifying Application Interfaces, Identifying the Business Events, Identifying the Schema and Content Transformation Scenarios, Mapping Information Movement, Applying Technology, Testing, Testing, Testing, Considering Performance, Defining the Value, Creating Maintenance Procedures, Method or Madness?

TEXT BOOKS

1. David S. Linthicum, Enterprise Application Integration, Addison Wesley Information Technologies Series, printed December 2003.

53005C: Software Testing

UNIT-I:

Building a software Testing strategy, software Test Design Techniques, software Testing tools and selection of Test Automation products.

UNIT-II:

Software Testing Life cycle and software testing process, testing Effort estimation and test planning, software test effort estimation technique.

UNIT-III:

Pre-Development testing: requirements and Design phase, Best practices in program phase: UNIT Testing, System Testing and integration testing, case study on acceptance testing.

UNIT-IV:

Implementing and Effective Test Management Process, Building and Effective test organization, performance issues and optimization techniques.

TEXT BOOKS:

1. Renu Rajani and pradeep Oak,, software testing, tata Mc Graw Hill.

Department of Journalism and Communication
Yogi Vemana University
Semester wise Syllabus

Semester -1

Paper Code	Paper Title	No of Credits	Hours per Week		Maximum Marks	
			Theory	Practical	Internal	External
101	History of Mass Media	4	6	-	25	75
102	Communication Theory	4	6	-	25	75
103	Print Journalism	4	6		25	75
104	Telugu Journalism	4	6		25	75
105	Computer Applications for Mass Media	4	3	3	25	75
106 P-1	**Practical -1 –** Print Media Reporting and Editing Skills	2		3		50
106 P-2	**Practical -2** – Translation and Language Skills	2		3		50
TOTAL		**24**	**27**	**9**	**125**	**475**

Semester - 2

Paper Code	Paper Title	No of Credits	Hours per Week		Maximum Marks	
			Theory	Practical	Internal	External
201	Radio Journalism	4	4	-	25	75
202	Television Journalism	4	4	-	25	75
203	Media Laws and Ethics	4	6	-	25	75
204	Media Industry and Management	4	6	-	25	75
205	Science and Environment Communication	4	6	-	25	75
206 P-1	**Practical -1 –** Radio Writing Skills	2		3		50
206 P-2	**Practical -2** – Television Writing skills	2		3		50
Non-Core Paper						
207	Film Studies	4	4	-	25	75
TOTAL (Core and Non- Core)		**28**	**30**	**6**	**150**	**550**

Semester - 3

Paper Code	Paper Title	No of Credits	Hours per Week		Maximum Marks	
			Theory	Practical	Internal	External
301	Photo Journalism	4	4	-	25	75
302	Film Studies	4	4	-	25	75
303	Social Media	4	6	-	25	75
304	Advertising and Brand Management	4	6	-	25	75
305	Corporate Communications	4	6	-	25	75
306 P-1	**Practical -1 –** Film writing Skills	2		3		50
306 P-2	**Practical -2** - Advertising and Public Relations Writing Skills			3		50
Non-Core Paper						
307	Basics in Photography and Videography	4	4	-	25	75
TOTAL		**28**	**30**	**6**	**150**	**550**

Semester - 4

Paper Code	Paper Title	No of Credits	Hours per Week		Maximum Marks	
			Theory	Practical	Internal	External
401	Development Communication	4	6	-	25	75
402	International Media Studies	4	6	-	25	75
403	Gender & Human Rights	4	6		25	
404	Political Communication	4	6		25	75
405	Communication Research Methodology	4	6		25	75
406 P-1	**Practical -1 –** Dissertation	2		3		50
406 P-2	**Practical -2** – Internship Report	2		3		50
TOTAL		**24**	**30**	**6**	**125**	**475**

Semester	No of Credits			No of Hours Per Week			Maximum Marks		
	Core	Non-Core	Total	Lecture	Practical	Total	Internal	External	Total
1	24	-	24	27	9	36	125	475	600
2	24	4	28	30	6	36	150	550	700
3	24	4	28	30	6	36	150	550	700
4	24	-	24	30	6	36	125	475	600
Total	**96**	**8**	**104**	**117**	**27**	**144**	**550**	**2050**	**2600**

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Semester -1
Paper – 104 – Telugu Journalism

Unit-I:
Brief History and Development of Telugu Press - Contribution of Telugu Press to freedom struggle and social reform movement - Pioneers of Telugu Press - Kandukuri Veeresalingam, Mutnuri Krishna Rao, Kasinathuni Nageswar Rao Panthulu, Narla Venkateswara Rao and others.

Unit-II:
Post emergency and Contemporary Telugu press - Study of Content and Design of contemporary Telugu newspapers - Trends in Telugu Journalism, Politicization of Telugu Journalism - Magazines in Telugu

Unit-III:
Brief overview of Telugu Radio Stations and Television Channels- Radio Programming in Telugu – 24 Hours news channels in Telugu – T.V. Programming in Telugu Channels

Unit-IV:
Study of language and style – SVO formula – Punctuation, Sentence Structure – Objectivity – Concision - Translation Techniques – Problems of Translation

Reference Books:

Rayaprolu AnandaBhaskar: Journalism Charitra Vikasam
Pothuri Venkateswara Rao: Telugu Patrikalu - Andhrajathi Akshara Sampada
Narla Venkateshwara Rao: Prabhanda Parijatam
Uma Shankar, Joshi & PandurangaRao: Art of Translation
Rachamallu Ramachandra Reddy: Anuvada Samasyalu
Nagasuri Venugopal: Media Nadi

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SEMESTER-2

Paper - 206: Practical -1 - Radio writing skills

The students will be tested for their writing skills for Radio programmes. The candidate needs to write a test for 50 marks in a time of one and half hours. The practical examination shall be conducted by the faculty member drawn from interdisciplinary departments of Yogi Vemana University / from other Universities and marks would be awarded by him along with the concerned faculty member of the Department. Students will be asked to write Script as mentioned below.

- Recording and writing Script writing for 2 minute Radio Ads, Jingles, Spots etc.
- Recording and writing Script for a 15 minute News Feature with headlines & news
- Recording and writing script for 15 minutes Radio Documentary.
- Recording and writing script for Radio Interview
- Recording and writing script for a musical or song based programme / satire etc.

SEMESTER-2

Paper - 206: Practical -2 – Television Writing Skills

The students will be tested for their Television writing skills. The candidate needs to write a test for 50 marks in a time of one and half hours. The practical examination shall be conducted by the faculty member drawn from interdisciplinary departments of Yogi Vemana University / from other Universities and marks would be awarded by him along with the concerned faculty member of the Department. The students will be asked to write Script for Television news, T.V. Feature as mentioned below

- Writing Television News Script, Reporter, Anchor Script, T.V Documentary Script
- Shooting and Editing VOX-POP project on any subject for 2-3 minutes
- Shooting & Editing a news bulletin for 15 – 20 minutes in AV, AVO or AVOSOT formats
- Shooting and Editing an Interview for 10-15 minutes.

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SEMESTER-3

Paper – 301 – Photo Journalism

Unit 1

History of Photojournalism - Difference between a Photographer and Photojournalist -Photography for different media- Newspaper, Magazine, Internet - Importance of visuals in Journalism - Types of Photojournalism – Sports, Travel, Still, Science, War and Wildlife Photojournalism

Unit 2

History of Photography -Types of Digital cameras- Key components of DSLR, Lens elements, Mirror, Viewfinder, Sensor, Resolution, Memory cards – Working of DSLR Camera, Basic Principles, Auto Focus , Light controls - Aperture, Shutter, Exposure, Lenses - Zoom, - Use of Lenses – Lighting Methods - Using of Camera Accessories, Filter, Reflector, Lens hood, Tripod

Unit -3

Picture Composition- Rule of Thirds, Symmetry, Geometry, Shape, – Shot, Classification of shot, Effect of Focal length on Perspective and angle of view, Frame, lens angle, Headroom, Nose room - Photo Captions - Photo Editing

Unit -4

Ethical and Legal Issues- Staging versus Truthfulness- Treating subjects with respect- Privacy - Public interest visuals - Photography in the age of new Digital technology - Photo Magazines, Photo freelancing as a profession.

Reference Books

Parrish, Fred S: Photojournalism: An Introduction
Brill, Betsy: Photo Journalism: The Professionals' Approach
Hoy, Frank P: Photojournalism: The Visual Approach.
McCartney, Susan: Mastering the Basics of Photography
Drew, Helen. The Fundamentals of Photography
Chapnick, Howard: Truth Needs No Ally: Inside Photojournalism

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SEMESTER-3

Paper - 303: Social Media

UNIT 1

Social Media – Definition, Characteristics – Concepts of Web 2.0, User Generated Content – Mainstream Media Vs. Social Media – Globalization and Social Media – Social Media as a tool of communication – Use and misuse of Social media.

UNIT 2

Social Media Types - Social Communities - Text Publishing Tools – Micro-blogging Tools - Photo Publishing Tools - Audio Publishing Tools- Video Publishing Tools - Social Gaming Tools- Really Simple Syndication - Theories of Social media – Revisiting Diffusion of Innovation, Social Exchange, Social Penetration, Social Presence

UNIT 3

Social media and their impact on Radio, TV and Newspapers - Public participation and Social Media; Networked Societies - Credibility of information – Social Media impact on Politics and Culture

UNIT 4

New Media and Society - New media and New Audience - Social Change Communication and New Media - Civil Society and New Media - New media and Popular Culture, New media and Networked Activism

Reference books

Leah A. Lievrouw & Sonia Livingstone: The Handbook of New Media
Albarran and Goff: Understanding the Web
Crispin Thurlow, Laura Lengel: Computer Mediated Communication
Balan K.R.: Conspectus for information & Communication
Ghosh, Avik: Communication Tech. & Human Development
Jones, Steve: Doing Internet Research
Albarran, Allan B,Goof .David H: Understanding the web
Neth, Shyama: Assessing the state of Web Journalism
Syed, M.H: Journalism and Information Technology
Hassan, Robert: The information society
Frank Webster: Theories of Information Society

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SEMESTER-3

Paper – 305 – Corporate Communications

Unit-1

Corporate Communication– Definition - Scope - Functions - Evolution of Corporate Communication in India, Corporate Communication vis-à-vis Public Relations - Professional bodies in PR / Corporate Communication – PRSI, IPRA, Professional code of ethics; PR digital platforms, Use of Social Media, PR Pioneers, P.T. Barnum, Ivy Lee, Rex Harlow, Edward Bernays, Carl Byoir, George Creel, C.V. Narasimha Reddy - Important PR Agencies in India

Unit II

Media Relations- Benefits of media relations, Public Relations and Media, Media Relations tools and techniques – Press Conference, Press Tour. Preparing Press Kits - Writing Press Releases

Unit III

Corporate Reputation Management and Crisis Communication – Corporate Reputation, Image repair theory, Building corporate identity - Crisis Management, Crisis vs. problem, Guidelines for preparedness and planning, Crisis Response Strategy

Unit IV

Various applications of Corporate Communication - Community Relations and CSR, Employee Communication, Investor Relations, Government Relations, Customer Relations, Corporate Communication in Brand Promotion - Corporate Communication and ethics, Legal aspects of Corporate Communication – CSR and Media Originations – Case Studies

Reference Books:

Jethwaney, Jaishri : Corporate Communication – Principles and Practice,
Sachdeva, Iqbal S: Public Relations – Principles and Practices,
Black, Sam: Practical Public Relations
Ries, Al & Reis, Laura: The Fall of Advertising and the Rise of PR.

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SEMESTER-4

MJMC 402: International Media Studies

UNIT 1

Definition, Nature and Scope of International Communication - Characteristics of International Communication - Objectives of International Communication - Types of International News - Channels of International Communication, - International communication and National identity

UNIT 2

United Nations Educational, Scientific and Cultural Organization (UNESCO), New World Information and Communication Order (NWICO), McBride Commission, Non Aligned News Agencies Pool (NAM POOL), International Telecommunication Union (ITU), SAARC and Mass Media - International Press Institute (IPI), Association of Newspapers and News Publishers (WAN-IFRA), International Association for Media and Communication Research (IAMCR), Asian Media Information and Communication Centre (AMIC). International Federation of Journalist (IFJ), International Center for Journalists (ICFJ), World Global Investigative Journalism Network (GIJN), International Consortium of Investigative Journalists (ICIJ)- Watergate Scandal, Pentagon Papers, Paradise Papers, Panama Papers, Reporters Without Borders

UNIT 3

International News Papers - The New York Times, The Wall Street Journal, The Times, The Guardian, and People's Daily. International News Agencies- AP, UPI, Reuter, AFP, IPS, TASS, DPA, Interfax News, Kyodo News, CCTV+ - International Magazines -Time, Forbes, Reader's Digest, Fortune, Vogue, National Geographic, ESPN The Magazine - International Radio Broadcasters, BBC Radio, Voice of America (VOA), Radio Moscow, United Nations Radio, International News networks CGTN, CNN, BBC, RT, CNBC, AL JAZEERA, France 24.

UNIT 4

International Communication Policies and Media Regulation, Media Policy and Globalization, Global Media Trends, Nielsen Holdings, Media companies - Thomson Reuters, Time Warner, CBS Corporation, Cox Media Group, News Corp, Viacom, Walt Disney Company, 21st Century Fox, Media Moguls- Rupert Murdoch, Richard Branson, Stanley Hubbard, Anne Cox

Reference Books

V. S. Gupta: International Communication
H.D. Fischer and J. C. Merril: International Communication
Cees Hamelink: The Politics of World Communication
Nerbert Schiller: National Sovereignty and International Communication
Robertson: Communication and Third World

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SEMESTER-4

Paper– 403- Gender and Human Rights

Unit-1

Human Rights, Concept, Meaning, Evolution- Kinds of Human Rights, Civil and Political rights, Economic, Social and Cultural Rights - Universal Declaration of Human Rights - International Bill of Human Rights, India and the Universal Declaration -Human rights commissions in India - NHRC- SHRC – Human Rights Organizations, Amnesty International, Human Rights Watch, FIDH

Unit-2

Vulnerable Groups and Human rights – Rights of Women, Children - Human Rights and Media, Coverage of Human Rights issues in Newspapers, Television, Films - Human Rights Agenda setting by Media, Framing of Human Rights issues – Reporting Human Rights Reports.

Unit-3

Gender and Communication - Need for the Study - Gender Values - Feminism - Three waves of Feminism - Women and International Communication – WIN News, WINGS, FIRE- Women Communicating Globally – Women's Magazines in India – Women's Organizations in India, IMWF, IAWRT

UNIT-4

Feminist Communication Theories – The Structuralism Paradigm, Muted Group Theory, Stand Point Theory - Conversation Analysis - Critical Discourse Analysis - The Post Structuralism Paradigm, Performance and Positioning Theory, Transgender and Cyborg Theories. - Post Structuralism Discourse Analysis - Transverse Discourse Analysis

Reference Books

Donna Allen, Susan J Kaufman, Ramona, R. Rush: Women transforming Communications
Philip Shaver and Clyde Hendrick: Sex and Gender
Karen Boyle: Media and Violence
Marian Meyers. Engendering Blame: News Coverage of Violence against Women
Pamela Creedon and Judith Cramer: Women in Mass Communication.
Charlotte Krolokke & Anne Scott Sorensen: Gender Communication: Theories and Analyses

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SEMESTER-4

Paper – 404 -Political Communication

Unit 1

Definition of Political communication- Relationship between Politics and Communication – Role of Media in Politics, Public Participation, Public Opinion and Public Policy- Role of media in Democracy - Political journalism in India: Status and dynamics

Unit 2

Political Communication Theories – Agenda Setting - Priming, Framing – Media impact on formation and change of political attitudes – Gate Keeping and regulation of political information - Spiral of Silence and the social nature - Public Relations and Political Communication

Unit 3

Political Messages - Political Advertising- Political Campaigns - Coverage of Political campaigns by Media – Reporting of Pre Polls and Exit Polls – Political Research Organizations in India – Psephology, Important Psephologists in India – Coverage of Elections in Indian Media - Film stars and Politics

Unit 4

Liaison of Media organizations and Political Parties - Political messages in Print and Broadcasting Media - Social Media and Political campaigning – Ethics in Political Communication – Case Studies

Reference books

Brian McNair: Introduction to Political Communication
Eric Louw: Media and Political Process
Peter Gonsalves: Clothing for Liberation
John Corner: Media and Restyling of Politics
ArvindRajgopal: Indian Public Sphere: Readings in Media History, New Delhi
PeterDeSouza and E Sridharan: India's political parties
S P Qurashi: An Undocumented Wonder; The Making of Great Indian election
Arvind Rajgopal: Politics after Television. New Delhi
Asha Sarangi: language and politics in India
Praminda Jacob: Celluloid deities. New Delhi:
Vasanthi : Cut-outs, caste and cinema.
Linda L. K. and H. Christina: Handbook of Political Communication

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SEMESTER-4

Paper – 405 –Communication Research Methodology

UNIT-1

Development of Mass Communication research - Meaning of research, Scientific method – Characteristics – Types of Research – Steps in Research Process – Research areas in Print, Electronic, Advertising, Corporate Communications, Internet and Social Media.

UNIT-2

Basic elements of research – Concepts, Definitions, Types of Variables, Hypothesis – Types of hypothesis, Characteristics of Good Hypothesis, Hypothesis testing - Research designs in Mass Communication, Survey research, Focus Group Method, Experiment, Content analysis, Longitudinal Studies, Historical method –Levels of Measurement –Types of scales- Reliability, Validity

UNIT-3

Sampling in communications Research: Types, Applications and Limitations - Tools of data Collection, Interview, Questionnaire, Schedules, Observation and Case study, Applications and limitations of different methods

UNIT-4

Use of statistics in communication research- Quantitative, Qualitative Research, Descriptive and Inferential Statistics, Parametric and Non-Parametric Statistics - Basic Statistical Tools, Measures of central tendency, Mean, Median and Mode - Measure of Dispersion - Standard deviation, Chi-Square Test, T- Test –Correlation - Data Presentation, Use of graphics in data presentation

Reference Books:

Festinger. L.andKatz. D: Research Methods in the Behavioural Science
Kerlinger.F. N: Foundation of Behavioural Research
Krippendorf. K : Content Analysis. An Introduction to Methodology
Westley Bruce. N and Guido.H: Research Methods in Mass Communication
Mosor and Kalton : Survey Methods in Social Investigation –
Walker. J. T: Using Statistics for Psychological Research
Wilkison and Bhandarkar: Methodology and Techniques of Social Science research
C. R. Kotari: Research Methodology, Methods and Techniques
Pauline: Scientific Social surveys and Research:
Winner & Dominic: Mass Media Research, an introduction.

Prof. D.V.R. Murthy
Member

Prof. B. Balaswamy
Member

B. Nageswara Rao
Member

T. Shyam Swaroop
Member

Prof. P. Padma
Chairperson & Convener

M. Sc. ENVIRONMENTAL SCIENCES

I[st] SEMESTER

SI.NO	Paper Title and Code	No. of credits	Hours per week	Max. Marks:100		Exam time (hrs)
				Internal	External	
1	Ecology and Environment-ENV101	4	4	25	75	3 hrs
2	Environmental Chemistry-ENV102	4	4	25	75	3 hrs
3	Environmental Issues-ENV103	4	4	25	75	3 hrs
4	Energy Resources-ENV104	4	4	25	75	3 hrs
5	Practical – I – ENV105 (1 & 4)	4	9	-	100	3 hrs
6	Practical – II- ENV106 (2 & 3)	4	9	-	100	3 hrs

II SEMESTER

SI.NO	Paper Title and Code	No. of credits	Hours per week	Max. Marks:100		Exam time (hrs)
				Internal	External	
1	Natural Resource Management and Disaster Management-ENV201	4	4	25	75	3 hrs
2	Environmental Pollution -ENV202	4	4	25	75	3 hrs
3	Environmental Microbiology and Toxicology -ENV203	4	4	25	75	3 hrs
4	Occupational health and Industrial safety-ENV204	4	4	25	75	3 hrs
5	Practical – III-ENV205 (1&2)	4	6+1	-	100	3 hrs
6	Practical – IV ENV206 (3&4)	4	6+1	-	100	3 hrs
7	Elective : I Basics in Environmental Science-ENV207	4	4	25	75	3 hrs

III SEMESTER

SI.NO	Paper Title and Code	No. of credits	Hours per week	Max. Marks:100		Exam time (hrs)
				Internal	External	
1	Biodiversity and Conservation-ENV301	4	4	25	75	3 hrs
2	Remote Sensing and Geographical Information System-ENV302	4	4	25	75	3 hrs
3	Environmental Biotechnology-ENV303	4	4	25	75	3 hrs
4	Environmental Engineering-ENV304	4	4	25	75	3 hrs
5	Practical – V-ENV305 (1&2)	4	6+1	-	100	3 hrs
6	Practical – VI-ENV306 (3&4)	4	6+1	-	100	3 hrs
7	Elective : II Climate change and Sustainable development-ENV307	4	4	25	75	3 hrs

IV SEMESTER

SI.NO	Paper Title and Code	No. of credits	Hours per week	Max. Marks:100		Exam time (hrs)
				Internal	External	
1	Environmental Policy and Sustainable Development-ENV401	4	4	25	75	3 hrs
2	Environmental Law, EIA and Audit-ENV402	4	4	25	75	3 hrs
3	Instrumentation and Techniques -ENV403	4	4	25	75	3 hrs
4	Biostatistics and Research Methodology-ENV404	4	4	25	75	3 hrs
5	Practical- VII –ENV405 (1,2,3 &4)	4	9	-	100	3 hrs
6	Project Report & Viva voce- ENV406	4	9	-	100	-
	Total for Core Papers	100	128 (excluding seminar hrs)	400	2000	
	Total for Elective Papers	08	08	50	150	
	Grand Total	108	136(excluding seminar hrs)	400 + 50	2000+150	

ENV- 104
ENERGY RESOURCES

UNIT – I

Basic Concepts of Energy

Energy – Definition – Forms of energy – Kinetic, Potential, Mechanical, Thermal, Electrical, Chemical and Nuclear energy, Energy production and consumption in India

Energy Sources – Conventional and Non – conventional energy sources, Laws of thermodynamics, Carnot cycle.

Firewood – Fossil fuels – Origin – Coal reserves in India – Petroleum and Natural Gas – Reserves in India.

UNIT – II

Conventional energy sources

Conventional energy sources: Energy from fossil fuels, energy from major hydroelectric power, Nuclear Energy – Sources – Nuclear fission and fusion reactions.

Climatic effects of power production.

- Advantages and disadvantages of conventional energy sources.

UNIT – III

Non Conventional Energy sources:

Different Types and Need for non renewable energy sources

Solar power: Importance – Solar collectors – Concentrations – Flat Plate and parabolic Collectors, Solar towers – Non – convective solar pond, Ocean Thermal Energy Conversion (OTEC). Solar Photovoltaic Systems – semi conductors, Solar PV Panel, Solar PV systems and applications.

Wind Energy: Wind Energy Conversion Systems, Application of Wind energy. 3c. Geothermal Energy: Geothermal Resources in India, small hydro resources in India their advantages, Ocean Energy – Tidal energy, Wave energy.

UNIT –IV

Non conventional energy sources: Emerging technologies and Conservation

Biomass energy – Biomass sources, Biofuels and Biogas –Bio ethanol, Biodiesel production Process - Gasification.

Emerging technologies – Fuel cells, Hydrogen energy

Energy conservation through efficiency and sufficiency measures.

Role of Energy Conservation Act, BEE, Energy for sustainable development.

REFERNCES:

1. Encyclopedia of Environmental Sciences – Environmental Energy Resources. Trivedi R. P and Gurudeep Raj (2005).
2. Renewable Energy Resources. Tiwari G. N and Ghosal M. K., (2005) Narosa.
3. Bioenergy. Desai A. V Wiley Eastern Limited, International Development Research Center, Ottawa, Canada.
4. Non-conventional Energy Sources. Rai G. D., (2001) Khanna Publishers.

ENV – 203

ENVIRONMENTAL MICROBIOLOGY AND TOXICOLOGY

UNIT – I

Microbial diversity, Soil microorganisms and their functions, Aeromicroflora, Air borne diseases and allergens, Water borne diseases, Culture media, Types of media, Isolation of pure cultures, Growth curve, Microorganisms as source of food – Single Cell Protein – Fermented foods.

UNIT - II

Introduction to Toxicology, Toxicants, Toxicity, Acute, sub-acute and chronic Dose effect, LD_{50}, LC_{50} and response safe limits, Dose Response relationships, Toxic chemicals in the environment. Biochemical aspects of Arsenic, Cadmium, Lead, Mercury, Carbon monoxide, MIC, Pesticides – Classification, Residual effects, Oceanic pollution by toxic wastes

UNIT – III

Xenobiotics in environment, PCB, Dioxins, Bioindicators, Bioaccumulation, Bioconcentration, Biomagnification, Cell receptors, Cell injury and Apoptosis, Toxicity Testing approaches, Environmental specimen banking

UNIT – IV

Public Health Programmes– Urban and rural health, Sanitation, Case studies with special reference to particular disease-Malarial Control Measure, AIDS, Polio, Chikungunya, Dengue, Cancer, Bacterial, viral and fungal diseases for plants

REFERENCES

1. Leslie collier, Balows Albert and Sussman Max, Topley and Wilson's Microbiology and Microbial infections. Oxford University Press
2. Microbiology, Pelczar MJ Jr, Chan ECS, Krieg NR
3. Introduction to Soil Microbiology, Alexander, M., 1977, 2 ndEdn., Wiley John
4. Introduction to Environmental Toxicology: Impacts of chemicals upon Ecological systems. Landis, Wayne and Hing –ho Yu, Baca Raton, (1995) Lewis Publishers.
5. Environmental Toxicology and Chemistry. Crosby, Donald. G. (1998) Oxford University Press.
6. Ecotoxicology, Schuurmann, G. and Market, G. (1998) A. John Wiley & Sons, Inc.
7. Information Resources in Toxicology: Wexler, Philip et al, (2000) 3rd Ed. Academic press
8. Environmental Biology & Toxicology. Sharma P.D. (1994). Rastogy publications
9. Biotechnology from A to Z 1993. William Bains, IRL Press, Oxford, England PP 358.

ENV204 - OCCUPATIONAL HEALTH AND INDUSTRIAL SAFETY

UNIT-I

Occupation health: Definition and scope. Overview of work place health hazards. Physical, chemical, biological and radiological health hazards. silicosis, asbestosis, pneumoconiosis, siderosis, Byssinosis. Ways to reduce occupational risks.

UNIT-II

Industrial hygiene: Definition, Environmental factors and their effects on Workers health. Hazards at work places. Benefits and goals of industrial hygiene program. Medical facilities in factories, Ventilation and heat stress, Significance of ventilation, Purpose of lighting, Uses of good illumination.

UNIT-III

Personal Protective Equipments (PPEs), Types of PPEs their use care and maintenance. Different air pollutants in Industries, Effect of different gases and particulate matter, acid fumes, smoke, fog on human health.

UNIT-IV

Industrial safety: Importance of Industrial safety, role of safety department, Safety committee and Function principles of safety management, fire prevention, accident prevention, handling of dangerous substances. First aid : Body structure and Functions, Position of causality, the unconscious casualty, fracture and dislocation, Injuries in muscles and joints, Bleeding, Burns, and accidents caused by electricity, Safety activities of the ILO (International Labour Organization) Introduction to OSHAS 18001 and OSHA

REFERENCES:

1.Risk assessment- A Practical Guide, 1993, Institution of Occupational Safety and Health, United Kingdom

2.Industrial safety management By: L.M. Deshmukh Publishers: Tata Megraw Hill ,New Delhi Year: 2006 Edition: First

3. Industrial safety health and environment Management system By: R.K. Jain & Sunil S. Rao Publishers: Khanna Publishers Year: 2008 Edition: Second

4.R.K.Jain and Sunil S.Rao , Industrial Safety , Health and Environment Management Systems, Khanna publishers , New Delhi (2006)

5. Slote.L,Handbook of Occupational Safety and Health, John Willey and Sons, NewYork .

ELECTIVE –I SYLLABUS
SEMESTER -II
ENV-207
BASICS IN ENVIRONMENTAL SCIENCE

Unit –I

Ecosystem: Concept, Structure, functions, food chain, food web, Ecological pyramids, Energy flow in ecosystem, Forest ecosystem, grassland, desert and Aquatic (ponds, rivers, estuaries).

Unit – II

Environment: Importance of environmental studies, Natural resources, Forest, Water, Mineral, energy, land, Acid Rain, Ozone depletion, Urbanization, Eutrophication,

Unit –III

Biodiversity and its conservation, Biogeographical classification of India, India as a megadiversity nation, value of biodiversity, Hotspots of biodiversity, Threats to biodiversity, Habitat loss, man –animal conflicts, endangered and endemic species of India.

Unit IV

Air pollution, water pollution, soil pollution, marine pollution, noise pollution, radioactive pollution, thermal pollution.

REFERENCES:

1. Fundamental and Environmental Ecology, III Edition, Odum, E. P., (1971) Prentice Hall.
2. Living in the Environment – Principles, Connections and Solutions, Tyler Miller Jr. G., (1996) Wadsworth Publishing Co., New York.
3. Ecology and Environment, Sharma P. D., (1994) Rastogi Publications, Meerut.
4. Environmental Science, Daniel D Chiras., (1994) The Benjamin/Cummings Publishing Co. Inc.
5. Environmental Pollution Control Engineering, C. S. Rao, (2006) New age International Publishers.

ENV – 304

ENVIRONMENTAL ENGINEERING

UNIT – I

Design of Pressure Pipes, Pump types, Characteristic curves, General layout of Water Treatment Plant – Aerators – Types, Flash Mixer – Design – Clari–flocculator– Filtration – Rapid sand filter and Pressure sand filter design – chlorine demand, residual chlorine and chlorine dosage, Role of Ozone and UV as a Disinfectant.

UNIT – II

Primary and Secondary Settling Tanks – Activated Sludge Process – Types and modifications – Design of Aeration Tanks and Oxidation Ditch – Diffusers and Mechanical Aerators, Tricking Filters and their Design. Duncan Mara Systems (Waste Stabilization Ponds).

UNIT – III

Sludge Processing and Disposal Methods – Design of Anaerobic Digester and Sludge Drying Bed – Reverse Osmosis – Ion Exchange – Incinerators, Land filling – Composting, Vermicomposting, Fly ash utilization, Case studies: Dyeing, Paper and Pulp, Distillery, Thermal, Tannery.

UNIT – IV

Air Pollution Control - Minimum Stack Height – Plume Rise, Design of Settling Chamber, Cyclones, Fabric filters and Electrostatic Precipitators. Scrubber, Exhaust.

REFERENCES:

1. Introduction to Environmental Engineering and Science. Gilbert M. Masters (2004). Prentice – Hall of India Pvt. Ltd., New Delhi.
2. Wastewater Treatment. Rao M. N. and Datta, A. K (1987). Oxford & IBH Publishing Company Pvt. Ltd., New Delhi.
3. Environmental Engineering. Mackenzie L. Davis and David A. Cornwell (1991). Mc Graw Hill International Editions, New York.
4. Water and Wastewater Technology. Hammer M. J and Hammer Jr. M. J (2001). Prentice – Hall of India Pvt. Ltd., New Delhi.
5. Wastewater Engineering: Treatment and Reuse. Metcalf and Eddy (2003). Tata Mc Graw Hill Publishing Company Ltd., New Delhi.
6. Sewage Disposal and Air Pollution Engineering. Garg. S. K (1990) Khanna Publishers, India.
7. Advances in Industrial Wastewater Treatment. Goel P. K and Sharma K. P (1999). Technoscience Publications, Jaipur, India.
8. Chemistry for Environmental Engineering and Science. Sawyer C. N., Mc Carty P. L., and Parkin, G. F (2003) Tata McGraw – Hill Publishing Company Ltd., New Delhi.
9. Environmental Pollution Control Engineering, C. S. Rao, (2006) New age International Publishers.

ELECTIVE –II SYLLABUS
SEME STER–III
ENV-307 CLIMATE CHANGE AND SUSTAINABLE DEVLEOPMENT

Unit –I
Structure and composition of Atmosphere, Montreal protocol, El –Nino Phenomenon, Monsoon in India, urban heat island, New weather patterns, water resources, Agriculture.

Unit –II
Green house effect: Global warming – major green house gases, sources of green house gases, possible consequences of a green house warming, ozone layer depletion – stratospheric ozone, climate change: effect on organisms and human.

Unit – III
United Nations frame work convention on climate change (UNFCC), clean development mechanism (CDM), Kyoto Protocol, Intergovernmental panel for climate change (IPCC), Overview of Conference of Parties (CoP).

Unit IV
Sustainable development – Concept and key aspects, Sustainable Management of Water Resources, Food security and GMOS. Energy and sustainable development, Conservation of non- conventional energy resources – efficient use of energy,.

REFERENCES:

1. J. T. Hardy (2003) Climate change causes, effects and solutions, John Wiley and sons.
2. Tyler Miller Jr. G. (1996) Living in the environment – principles, connections and solutions, Wadsworth Publishing Co. New York.
3. Critchfield, Howard J., 1998. General Climatology, Prentice Hall Pvt. Ltd. New Delhi, India.

ENV 403: Instrumentation and Techniques

UNIT–I

Centrifugation & Separating techniques: General principles of centrifugation, Types of centrifugation, Microcentrifuge, High speed and Ultracentrifuges, Dialysis, Ultrafiltration, Reverse osmosis- Principles of electrophoresis, Agarose electrophoresis, Polyacrylamide gel electrophoresis, SDS-PAGE, 2D PAGE

UNIT–II

Microscopy and Spectroscopic techniques: Principles and applications of light, Phase contrast, Fluorescence, Scanning and Transmission electron microscopy- Titrimetry- Gravimetry- Colourimetry- Beer-Lambert's Law, UV-VIS Spectrophotometry, NMR Spectroscopy, Atomic absorption spectrophotometer (AAS), Flame photometry, X-Ray diffraction, X-Ray florescence

UNIT–III

Chromatographic techniques: Chromatographic techniques and types, Paper chromatography, Thin layer chromatography, Gas chromatography, Gas liquid chromatography, Ion exchange chromatography, High performance liquid chromatography

UNIT–IV

Radiochemical and Nanomaterial techniques: Radioactivity- Detection and measurement of radioactivity- Radioactive isotopes-Applications of radioisotopes in biological sciences- Autoradiography- Nanotechnology processes, Nano materials, Nanoengineering materials for pollution prevention, Nanotechnology products

REFERENCES:

Marr, L.L. and Cresser, M.S. Environmental chemical analysis, International Text Book Company (pub), New York (1983).

Willard, Merritt, Dean and Settle, Instrumental methods of analysis, CBS Publishers, New Delhi (1986)

Lenore S. Clesceri, Arnold E. Greenberg, Andrew D. Eaton. Standard methods for the examination of water and waste water, APHA, Washington (1998)

Keith Wilson and John Walker, Principles and techniques of practical biochemistry, 5th Edition, Cambridge University Press, (2000)

Gurudeep R Chatwal and Sham K Anand, Instrumental methods of chemical analysis, Himalaya (2005)

Murugesan and Rajakumari, Environmental science and biotechnology- Theory and Practice, MJP Publishers, New Delhi (2005)

Keith Wilson, Kenneth H. Goulding, A biologist guide to principles and techniques of practical biochemistry, 3rd ed., ELBS Series. (2006)

Chatwal and Anand, Instrumental methods of chemical analysis, 5th ed., Himalaya Publications, (2006)

Douglas. A., Skoog & West, Fundamentals of analytical chemistry, 8th ed., Harcourt Publications, (2006)

Jo Anne Shatkin, Nanotechnology: Health and Environmental Risk, CRC press, (2008)

Mao Hong Fan, Chin-Pao Huang, Alan E Bland, Z Honglin Wang, Rachid Sliman, Ian Wright, Environanotechnology, Elsevier, (2010)

ENV – 404

BIO-STATISTICS AND RESEARCH METHODOLOGY

UNIT-I

Fundamentals of Statistics: Collection of data, Classification and Tabulation, diagrammatic representation. Measures of central tendency-Mean, Median, Mode, Normal distribution, Skewness, Kurtosis, Measures of Dispersion – Standard deviation, standard error. Statistical hypothesis, Null hypothesis, level of significance,

UNIT-II

Statistical analysis: Statistical tests-Z, t, Chi-square, Contingency test, One-way analysis of variance, Correlation and Regression. Environmental models-Lotka-voltera model, Guassian air pollution model.

UNIT-III

Scope of research in Environmental Science: Definition of research, Characteristics of research, Code of research ethics, Importance of controls and standards, Steps in research process, Selection of research problem, Objectives, Literature collection.

UNIT-IV

Research data generation and Grants: Design, planning and execution of investigation, Presentation and interpretation of research data, Preparation of research articles and review papers for scientific journals, Research thesis writing, Preparation of research proposal for grants.

REFERENCES:

Statistical Methods. Gupta S. P (1996) Sultan Chand & Sons Publications. New Delhi.

Instrumental Methods of Chemical Analysis, Ewing G. W., (1985) 5th Edition McGraw Hill, U. K.

Fundamentals of Bio-Statistics. Khan I. A and Kanum A (1994) Ukaaz Publication, Hyderabad.

Business Mathematics and Statistics. Vittal R. R (1986) Murgham Publications.

Statistics for people who hate statistics. Neil J Salkind (2000) Sage Publications. Inc. New Delhi.

Introduction to Bio-Statistics. Gurumani (2005) MJP Publications, Chennai.

Kothari, C. R. (1980). Research Methodology: Research and techniques, New Delhi: New Age International Publishers

Leedy, P. D. (1980). Practical Research: Planning and design. Washington: Mc Millan Publishing Co., Inc

Research Methodology-Methods and Techniques. Kothari, C.R., (1989), Wiley Eastern, New Delhi. 16.

Introduction to Research Methodology in Agricultural and Biological Sciences, V.Venkatasubramanian (1999), New Century Book House (P) Ltd., Chennai

Wallinman, N. (2006). Your Research Project: A step-by-step guide for the first-time researcher. London: Sage Publications

Kumar, R. (2011). Research Methodology: a step-by-step guide for beginners (3rd edition). London, UK: TJ International Ltd, Padstow, Corwall.

YOGI VEMANA UNIVERSITY

Vemanapuram, Kadapa – 516 003.

DEPARTMENT OF URDU

M.A. URDU (Syllabus)

Under CBCS Pattern with effect from 2017-18

M.A. Urdu

Semester –I

S. No	Code	Title of the Course	Credit Hrs / Week	No. of Credits	Univ.Exam Duration (Hrs)	IA	SEE	Total Marks
1.	URD 101	Mubadiyat-e- Lisaniyat aur Tareeq-e – Zaban-e- Urdu	4	4	3	25	7S	100
2.	URD 102	Dakniyat	4	4	3	25	75	100
3.	URD 103	Fann-E-Sher Aur Jadeed Asnaf-E-Shairi	4	4	3	25	75	100
4.	URD 104	Hali : Hayat Aur Adabi Khidmat	4	4	3	25	75	100
5.	URD 105	Arabi Aur Farsi : Zaban –O- Adab	4	4	3	25	75	100
		Total :	20	20		125	375	500

Semester –II

S. No	Code	Title of the Course	Credit Hrs / Week	No. of Credits	Uni Exams Duration (HRS)	IA	SEE	Total Marks
1.	URD 201	Rayalaseema ka Sher-o-Adab	4	4	3	25	75	100
2.	URD 202	Classiki Shairi	4	4	3	25	75	100
3.	URD 203	Classiki Nasr	4	4	3	25	75	100
4.	URD 204	Tareekh-E-Adbe Urdu	4	4	3	25	75	100
5.	URD 205	Ghair Afsanavi Adab	4	4	3	25	75	100
6.	Non-Core 206	NON-CORE- COMPUTER APPLICTIONS	4	4	3	25	75	100
			24	**24**		**150**	**450**	**600**

Semester –III

S. No	Code	Title of the Course	Credit Hrs / Week	No. of Credits	Core / Elective	IA	SEE	Total Marks
1	URD 301	Jadeed Nasr	4	4	Core	25	75	100
2	URD 302	Jadeed Nazm	4	4		25	75	100
3	URD 303	Urdu Tanqeed	4	4		25	75	100
4	URD 304	Urdu Afsana	4	4		25	75	100
5	URD **305**	Elective-1 :Sir Syed ka khusoosi mutalea Elective II: Iqbal ka Khusoosi Mutalea	4	4	G E	25	75	100
6	Non Core 306	NON – CORE- COMPUTER APPLICTIONS	4	4		25	75	100
		Total	**24**	**24**	**Total**	**150**	**450**	**600**

Semester –IV

S. No	Code	Title of the Course	Credit Hrs / Week	No. of Credits	Core / Elective	IA	SEE	Total Marks
1	URD 401	Urdu Drama	4	4	Core	25	75	100
2	URD 402	Adabi Tehrikat aur Rujhanat	4	4		25	75	100
3	URD 403	Tanz –o- Mizah	4	4		25	75	100
4	URD 404	Urdu Tarseel o Iblag ke Zaraye	4	4		25	75	100
5	URD 405	Elective- I: Tehqeeq Ka Fann Elective-II : Urdu Tarjume Ka Fann	4	4	G E	25	75	100
		Total	**20**	**20**	**Total**	**125**	**375**	**500**

APPENDIX – A

M.A.URDU

SEMESTER –I

CORE COURSE – 1

URD - 101: ***MUBADIYAT-E-LISANIYAT AUR TAREEQ-E-ZABABN-E-URDU***

UNIT –I : ZABAN KA MUTALEA
- (a) ZABAN KI MAHIYAT
- (b) ZABAN KI KHISMEIN
- (c) ZABAN AUR BOLI

UNIT –II : MUBADIYAT-E- LISANIYAT

- (a) LISANIYAT KI TAREEF
- (b) LISANIYAT KI IFADIYAT
- (c) LISANIYAT KI SHAKHEIN

UNIT – III: HIND ARYAI KI TEEEN (3) MANZILEIN
- (a) AHAD – E – QADEEM
- (b) AHAD – E – WASTA
- (c) AHAD – E – JADEED

UNIT- IV: JADEED ARYAI ZABANON KA IRTEQA AUR URDU ZABAN KE AGAZ KE NAZRIYAT

REFERENCE BOOKS:

1. AAM LISANIYAT – Prof. GYANCHAND JAIN
2. LISANI MUTALIYE - Prof. GYANCHAND JAIN
3. PUNJAB MEIN URDU – **HAFIZ MAH MOOD KHAN SHEERNI**
4. AAB – E – HAYAT – MOHD HUSSAIN AZAD
5. MUQADDAMA – E – ZABAN –E- URDU – Prof. MASOOD HUSSAIN KHAN
6. DASTAN –E- ZABAN –E- URDU – Dr. SHOUKAT SABZWARI

A

CORE COURSE – 2

URD– 102 : DAKNIYAT

UNIT – I : DAKNI ADAB KI TAREEQ

(a) BAHMANI DAUR

(b) AADIL SHAHI AUR QUTUB SHAHI DAUR

(c) UBOORI DAUR – VALI AUR SIRAJ

UNIT –II : MOHD QULI QUTUB SHAH

(a) HAYAT

(b) SHAIRI

(i) GHAZLEIN – 2

(1) PIYA BAAJ PYALA PIYA JAYENA

(2) KHABAR LIYAYA HAI HUD HUD

(ii) NAZMEIN – 2

(1) MUNAJAT

(2) BASANT

UNIT – III : SABRAS BY MULLA WAJHI

(a) MAAKHAZ

(b) USLOOB

(c) TAMSEEL NIGARI

UNIT – IV : MASNAVI-GULSHAN-E-ISHQ BY MULLA NUSRAT

REFERENCE BOOKS:

1. DAKAN MEIN URDU – **NASEERUDDIN HASHMI**
2. TAREEQ – E – ADAB–E- URDU (Vol-I) –Dr. JAMEEL JALIBI
3. SABRAS – Edited by ABDUL HAQ
4. QUTUB MUSHTARI Edited by Prof. M.N. Sayeed.
5. GANJE SHAYGAN (Kuliyate Qasaid) Edited by Dr. Rahi Fidai.

URD - 103 : FANN-E-SHER AUR JADEED ASNAF –E- SHAIRI

UNIT-I : ILM- E- BAYAN AUR ALAMAT NIGARI

1) TASHBIH AUR USKI KHISMEIN
   (a) TASHBIH KHAREEB
   (b) TASHBIH BAEED
   (C) TASHBIB –UL – IZARATH

2) ISTEARA AUR USKI KHISMEIN
   (a) ISTEARA BIT TASREEH
   (b) ISTEARA TABAEYA

3) MAJAZ – E – MURSAL

4) KINAYA AUR USKI KHISMEIN
   (a) KINAYA KHAREEB
   (b) KINAYA BAEED
   (c) TALMEEH
   (d) TAREEZ

UNIT – II: SANAYE –O- BADAYE

(a) TEHTUN NUKHAT
(b) FAUQUN NUKHAT
(c) SANAT – E – WASU – USH – SHAFATAIN
(d) SANAT – E – WASILUSH SHAFATAIN
(e) SANAT – E – ISHTEQAQ
(f) SANAT – E – SHUBA –E- ISHTEQAQ
(a) SANAT – E – EEHAM
(b) SANAT – E – MIRATUN NAZEER
(c) SANAT – E – HUSN –E- TALEEL
(d) SANAT – E – TAZAD
(e) SANAT – E – LAF –O- NASHR
(f) SANAT – E – MUBALIGHA

UNIT – III: ILM –E- UROOZ

(a) SAAT SALIM BAHREIN
(b) ARKAN – E – SEHGANA
(c) TAQTEE KA FANN

UNIT – IV: JADEED AQSAM – E – NAZM

(a) PABAND NAZM
(b) AAZAD NAZM
(c) NAZM – E- MUARRA
(d) NASRI NAZM
(e) DOHA
(f) HYKO
(g) TARAILA
(h) MAHIYA
(i) SONNET

BOOKS RECOMMENDED:

1. TAFHEEM – UL – BALAGHAT –Dr. WAHAB ASHRAFI
2. NAYI NAZM KA SAFAR – Edited by KHALEELUR REHMAN AZAMI
3. AROOZ – KALEEMULLA HUSSAINI
4. NAZM – E- JADEED KI KARWATEIN – Dr. WAZEER AGHA

URD – 104 : HALI - HAYAT AUR ADABI KHIDMAT

UNIT - I : HALI KI HAYAT AUR SHAQSIYAT

UNIT – II: MUSADDAS –E- HALI

UNIT- III: MUQADDAMA –E- SHER –O- SHAIRI

UNIT- IV: HALI KI SAWANEH NIGARI **"**YADGAAR-E-GHALIB**"**

BOOKD RECOMMENDED:

1. HALI BAHAISIYAT – E- SHAIR – SHUJAT ALI SANDELVI
2. HALI MERINAZAR MEIN – KHWAJA GHULA MUS SAYEEDEIN
3. HALI NUMBER
4. HALI KA SIYASI SHAOOR

CORE COURSE – 5

URD – 105 : ARABI AUR FARSI : ZABAN – O – ADAB

UNIT - I : ARABI KA MUALLIM – by ABDUL SATTAR KHAN
1st TEN LESSONS

UNIT – II: QASASUN NABIYEEN QUISSA-E-IBRAHIM ALAIHSALAM ONLY

UNIT– III: CHEHAL SABAQ

UNIT-IV : SAADI : GULISTAN (CHAPTER VIII)

AADAD-E-SOHBAT IBTEDAI KE DAS “PANDA-O-HKIKMAT”

SEMESTER –II

URD 201 : RAYALASEEMA KA SHER O ADAB

UNIT – I: A) Dr. RAHI FIDAI - 2 NAZMEIN
(1) KHUDGHARZI
(2) AIDS

B) Dr. IQBAL KHUSRO QUADRI - 2 NAZMEIN
(1) PARLOUR
(2) DAMAL

UNIT- II: A) DR. KAREEM ROMANI – 2 NAZMEIN
(1) KHAVALTA LAVA
(2) ZEHREELA

B) MUZAFFER SHAHMIRI – 2 GHAZLEIN
(1) WO JO DAMAN CHUDA KE CHALTE HAIN
(2) ZINDAGI KO GUZAAR KAR DEKHO

UNIT–III : A) Dr. WAHEED KAUSAR KE 2 MAZAMEEN
(1) SHAH FILHAAL
(2) YASEER KURNOOLI

B) Dr. QAISI QAMAR NAGARI – 2 GHAZLEIN
(1) KOYI LEADER NEKO KARI MEIN YEKTA
(2) MERE ASHAAR KA MAFHOOM MUJHE

UNIT- IV: YUSUF SAFI – DRAMA **"**KHWAB PATTHER MEIN**"**

REFERENCE BOOKS:

1. TARQEEM BY DR. RAHI FIDAI
2. PYAAS BY Prof. MUZAFFER SHAHMIRI
3. SAUTELI BIWI BY Dr. QAISI QAMAR NAGARI
4. SEEMIYA BY DR. IQBAL KHUSRO QADRI

URD-202 : CLASSIKI SHAIRI

UNIT – I : MASNAVI KA FANN AUR SEHARUL BAYAN
BY MIR HASAN

UNIT– II : MARSIYE KA FANN AUR ANEES KI MARSIYA NIGARI

UNIT–III : MIR KI GHAZAL GOYI

UNIT–IV : GHALIB KI GHAZAL GOYI

REFERENCE BOOKS;

1. URDU MASNAVI KA IRTEQA BY ABDUL KHADER SARVARI.
2. ANEES KE MARSIYE BY SALEHA ABID HUSSAIN.
3. INTEQABE KALAAME MIR BY MAULVI ABDUL HAQ
4. DEEWANE GHALIB MA SHARA BY YUSUF SALEEM CHISHTI.

URD-203 : CLASSIKI NASR

UNIT – I : URDU DASTAN : AGAAZ –O- IRTIQA

UNIT – II : BAGH –O- BAHAR BY MIR AMMAN

UNIT – III: FASANA –E- AJAYEB BY RAJAB ALI BAIG SUROOR

UNIT – IV: ADABI QUTOOT –E- GHALIB BY MIRZA ASKARI

REFERENCE BOOKS:

1.DASTAN SE AFSANE TAK - VIQAR AZEEM

2.URDU DAASTAN : TEHQEEQ –O- TANQEED- QAMAR –UL-HUDA

URD 204 : TAREEK-E-ADBE URDU

UNIT- I : SHUMALI HIND MEIN URDU SHAIRI KA IBTEDAI DAUR

UNIT- II: URDU NASR KA IRTEQA UNNESWEEN SADI TAK.

UNIT-III : DABISTAN-E- DELHI AUR DABISTAN-E- LUCKNOW

UNIT-IV : BEESWEEN SADI MEIN URDU ADAB

URD- 205 : GHAIR AFSANAVI ADAB

UNIT – I : MAKTOOB NIGARI : TAREEF, AGHAZ –O- IRTIQA
MAKTOOBAT – E- RASHEED.

UNIT – II : INSHAIYA : TAREEF, AGHAZ -O- IRTIQA
(1) JHINGER KA JANAZA – KHWAJA HASAN NIZAMI
(2) AAINE MEIN – YOUSUF NAZIM

UNIT – III : KHAKA : TAREEF, AGHAZ -O- IRTIQA
(1) NAZEER AHMED KI KAHANI – FARHATULLAH BAIG
(2) GUDADI KA LAL – MAULVI ABDUL HAQ

UNIT – IV : SAFARNAMA : TAREEF, AGHAZ -O- IRTIQA
CHALTE HO TO CHEEN KO CHALIYE – IBN –E- INSHA

REFERENCE BOOKS:

1. INSHAIYA AUR INSHAIYE BY SYED MOHD HUSMAIN
2. INSHAIYE KE KHAD-O-KHAL BYWAZEER AGHA
3. URDU ADAB MEIN KHAKA NIGARI BY SABIRA SAYEED

NON CORE

206: COMPUTER APPLICATIONS

UNIT : 1

a) Exploring computers and their uses
b) Types of storage Devices
c) Operating System Basics

UNIT: II MS – Word

a) Word Basics
b) Header and Footer
c) Tables
d) Graphics
e) Macros
f) Mail Merge

UNIT: III MS –Excel

a) Excel Basics
b) Formatting
c) Introduction to Functions
d) Excel Charts

UNIT: IV MS – Power Point

a) Power point Basics

APPENDIX – B

SEMESTER –III

URD 301 : JADEED NASR

UNIT - I : JADEED NASR KA AGHAZ O IRTIQA

UNIT- II : IFADAT-E- MEHDI BY NAZAMEEN

FIRST 3 SELECTED ONLY

UNIT –III : UMRA –O- JAN ADA – MIRZA RUSWA

UNIT - IV : GHUBAR –E- QATIR : MAULANA ABUL KALAM AZAD

SELECTED ANY FIVE ONLY.

URD 302 : JADEED NAZM

UNIT – I : MAGHDOOM MOHIDDIN – NAZMEIN

(1) SUBH-E-AZADI
(2) SIPAHI

UNIT –II : NOON MEEM RASHID – NAZMEIN

(1) KHUD KHUSHI
(2) RAQS

UNIT – III: SAHIR LUDHIYANAVI - NAZMEIN

(1) TAJ MAHAL
(2) AYE SHAREEF INSANO

UNIT – IV : AKHTAR –UL- EEMAN - NAZMEIN

(1) EK LADKA
(2) AGAHI

REFERENCE BOOKS:

1. NAYI NAZM KA SAFAR – Edited by KHALEEL –UR – REHMAN AZMI.
2. NAZM –E- JADEED KI KARWATEIN – Dr. WAZEER AGHA
3. KULIYATE SAHIR – SAHIR LUDHIYANAVI

URD 303 : URDU TANQEED

UNIT – I : TANQEED : MAHIYAT – IFADIAT AUR AHMIYAT

UNIT – II : HALI AUR SHIBLI KE TANQEEDI NAZRIYAT

UNIT – III: TASURATI TANQEED AUR NAFSIYATI TANQEED

UNIT – IV : MARXI TANQEED AUR SCIENTIFIC TANQEED

REFERENCE BOOKS:

1. URDU TANQEED KI TAREEQ – MASOOD HUSSAIN
2. ADABI TANQEED – Dr. MOHD. HASAN
3. FANN –E- TANQEED AUR URDU TANQEED NIGARI – **NOORUL HASAN** NAQVI
4. URDU TANQEED HALI SE KALEEM TAK – Dr. IRTEZA KAREEM

URD 304 : URDU AFSANA

UNIT - I : AFSANA : FANN AUR TECHNIQUE

UNIT – II : URDU AFSANA : AAGAZ –O- IRTIQA

UNIT – III: PREMCHAND KA AHAD

(1) SAJJAD HYDER ELDARAM
(2) ALI ABBAS HUSSAINI

UNIT- IV: TARAQQI PASAND AUR JADEED AFSANA

(1) KRISHAN CHANDR – MAHA LAKSHMI KA PUL
(2) MANTO – MAMMAD BHAI
(3) ISMAT CHUGTAYI – CHOWTHI KA JODA
(4) RAJENDRA SINGH BEDI – BHOLA
(5) NAZARA DARMIYAN HAI BY QURATTUL AIN HYDER
(6) AAKHRI AADMI BY INTIZAR HUSSAIN

REFERENCE BOOKS:

1. NAYA AFSANA – VIQAR AZEEM
2. URDU AFSANA RIWAYAT AUR MASAIL – Prof. GOPI CHAND NARANG
3. MUKHTASAR AFSANE KA FANNI TAJZIYA – Dr. FIRDOSE FATIMA

URD 305 ELETIVE –I

SIR SYED KA KHUSOOSI MUTALEA

UNIT I : SIR SYED: HAYAT AUR SHAKSIYAT

UNIT – II : SIR SYED KI ADABI KHIDMAT

UNIT – III: SIR SYED KI TALEEMI KHIIDMAT

UNIT – IV : SIR SYED KE RUFQA

REFERENCE BOOKS:

1. HAYAT –E- JAWEED – HALI
2. SIR SYED AUR ALIGARH TEHREEK – KHALIQ AHMED NIZAMI
3. SIR SYED AUR UNKE NAMVAR RUFQA – SYED ABDULLA.

URD 305 ELECTIVE –II

IQBAL KA KHUSOOSI MUTALEA

UNIT - I : IQBAL : HAYAT AUR SHAKHSIYAT

UNIT – II: IQBAL KA SAFAR – E- EUROPE

UNIT – III : BAL –E- JIBRAIL KI IBTEDAYI PANCH GHAZ LEIN

UNIT – IV: BAL –E- JIBRAIL KI NAZMEIN

(1) ZAUQ – O- SHAUQ
(2) MASJID – E- QARTABA
(3) SAQINAMA

NON – CORE

COMPUTER APPLICATIONS

U NIT: I

a)Telecommunications and Networks
b) The Internet, Internets and Extranets

UNIT: II

a) Internet communication protocols
b) Types of Internet connections

UNIT: III

a) Web Browsers

UNIT: IV

a) Email Concepts

IV – SEMESTER

URD 401 : URDU DRAMA

UNIT - I : DRAMA : FANN AUR TECHNIQUE.

UNIT – II : DRAME KI AQSAAM URDU ME DRAME KI RIWAYAT

UNIT – III : ANARKALI – IMTIYAZ ALI TAJ

UNIT – IV: AGRA BAZAR BY HABEEB TANVEER

REFERENCE BOOKS:

1. URDU DRAME KI TANQEED –O-TAREEQ – ISHRAT REHMANI
2. DRAMA NIGARI KA FANN – Dr. MOHD ASLAM QURESHI
3. URDU DRAME KA IRTIQA – ISHRAT REHMANI

URD 402 : ADABI TEHREEEKAT AUR RUJHANAT

UNIT – I : ALIGARH TEHREEK

UNIT – II: ROOMANI TEHREEK

UNIT – III: TARAQQI PASAND TEHREEK

UNIT – IV: JADEEDIAT

BOOKS RECOMMENDED:

1. ALIGARH TEHREEK ; SAMAJI AUR SIYASI MUTALEA- MAZHAR HUSSAIN
2. URDU MEIN TARAQQI PASAND ADABI TEHREEK - KHALEEL-UR-REHMAN AZAMI
3. JADEEDIAT KI FALSAFIANA ASAS – Dr. SHAMEEM HANAFI
4. JADEEDIAT AUR MA BAAD JADEE DIAT – Prof. GOPI CHAND NARANG
5. .ADABI TEHREEKAT AUR RUJHANAT – ANWAR PASHA

URD 403 : TANZ – O – MIZAH

UNIT - I : TANZ –O- MIZAH : FANN AUR RIWAYAT

UNIT – II : AKBAR ILLAHABADI

UNIT – III : RASHEED AHMED SIDDIQUI

(1) ARHAR KA KHET
(2) CHAR PAYI

UNIT – IV : MUSHTAQ AHMED YOUSUFI

(1) PADIYE GAR BEEMAR
(2) CRICKET

REFERENCE BOOKS:

1. URDU ADAB MEIN TAN –O- MIZAH – WAZEER AGHA
2. TANZIYAT –O- MAZHAKAT – RASHEED AHMED SIDDIQU.

URD 404 : URDU TARSEEL –O-IBLAGH KE ZARAYE

UNIT – I : URDU SAHAFAT-AGAZ-O-IRTIQA

UNIT – II : RADIO

(a) RADIYAI TEHREER : : MAHIYAT, IFADIYAT AUR AHMIYAT
(b) RADIYAI DRAME KA FANN
(c) RADIO AUR URDU

UNIT – III : TELEVISION

(a) SCRIPT NAVEESI
(b) URDU AUR TELEVISION

UNIT – IV : URDU AUR INTERNET

(a) INTERNET
(b) URDU KE WEBSITE.

REFERENCE BOOKS:

1. URDU SAHAFAT KI TAREEQ – IMDAD SABRI
2. IDARIY NAVEESI – MISKEEN ALI HIJA ZI
3. URDU AUR AWAMI ZARAYE IBLAGH – (EDI) MOHD SHAHID HUSSAIN & IZHAR USMAN.
4. IBLAGHIYAT- Dr. MOHD. SHAHID HUSSAIN

URD 405 ELECTIVE- I
TEHQEEQ KA FANN

UNIT - I : TEHQEEQ AUR TEHQEEQ KAAR
- (a) TEHQEEQ KYA HAI
- (b) TEHQEEQ –O- TANQEED KA TALUQ

UNIT – II : TEHQEEQI MAQALA
- (a) MAQALE KI QISMEIN
- (b) MAQALE KI TAREEF
- (c) MAQALE KE AJZA

UNIT – III : MAUZU AUR KHAKA
- (a) KAISA MAUZU MUNASIB HAI
- (b) MAUZU KAISA NA HONA CHAHIYE
- (c) FARD PAR TEHQEEQ KE KHAKE
- (d) ASNAFE ADAB KE KHAKHE

UNIT – IV : MAWAD KI FARAHAMI
- (a) URDU KITA BEIN
- (b) RASAEL
- (c) MAKHTUTAT

REFERENCE BOOKS ;

1. TEHQEEQ KA FANN- GYAN CHAND JAIN

URD 405-ELECTIVE-II

URDU TARJUME KA FANN

UNIT – I : TARJUMA NIGARI - FANN AUR USKI AKHSAAM

UNIT – II : TARJUMA NIGARI - USOOL AUR MASAIL

UNIT - III : URDU MEIN TARJUME KI RIWAYAT AUR AHMIYAT

UNIT – IV : URDU MEIN ADABI TARAJIM

REFERENCE BOOKS:

1. TARJUME KA FANN AUR RIWAYAT EDITED BY PROF. QAMAR RAYEES
2. FANNE TARJUMA NIGARI EDITED BY DR. KHALEEQ ANJUM
3. USOOLE WAZE ISTILAHAAT BY WAHEEDUDDIN SALEEM.