YOGI VEMANA UNIVERSITY COLLEGE :: KADAPA
DEPARTMENT OF COMPUTER SCIENCE (M.Sc)
Scheme of Examination for I, II, III, & IV Semesters
<u>Name of the Course: Computer Science</u>
*(*With Effect From Under CBCS 2018-2019)

Paper Code	Title of the Paper		No. of Credits	Marks		Total Marks
				Internal	External	
SEMESTER I						
15091	Discrete Mathematical Structures		4	25	75	100
15092	Object Oriented Programming through JAVA		4	25	75	100
15093	Data Base Management Systems		4	25	75	100
15094	Principles of Programming Languages		4	25	75	100
15095	Data Structures		4	25	75	100
15091P	Object Oriented Programming through JAVA Laboratory		4		100	100
15092P	Data Base Management Systems Laboratory		4		100	100
SEMESTER II						
25091	Advanced JAVA Programming		4	25	75	100
25092	Computer Networks		4	25	75	100
25093	Web technologies		4	25	75	100
25094	Software Engineering		4	25	75	100
25095	Artificial intelligence		4	25	75	100
*25096-I	**Non-Core: Introduction to Computers and MS Office**			25	75	**100**
25091P	Advanced JAVA Programming		4		100	100
25092P	Web technologies Laboratory		4		100	100
SEMESTER III						
35091	Dot Net Programming		4	25	75	100
35092	Data Warehousing & Data Mining		4	25	75	100
35093	Cryptography & Network Security		4	25	75	100
Elective-I: 35094	A	Grid Computing	4	25	75	100
	B	Machine Learning				
	C	Distributed System				
	D	Management Information System				
Elective-II: 35095	A	Digital Image Processing	4	25	75	100
	B	Mobile Computing				
	C	Cloud Computing				
	D	Enterprise Application Integration				
*35096-II	**Non Core: Internet and World Wide Web**			25	75	**100**
35091P	Dot Net Programming Laboratory		4		100	100
35092D	Mini Project		4		100	100
The Student has to choose one from each of the Elective I and Elective II						
SEMESTER IV						
45091S	Seminar in Project Work		2	50		50
45092D	Major Project Work		10	50	150	250
	Viva-Voce				50	

Course Total Marks: 2400 (Core Papers)

Semester- I   Theory: 500 Marks, Practical 200 Marks (28 Credits)
Semester- II   Theory: 500 Marks, Practical 200 Marks (28 Credits)
Semester- III   Theory: 500 Marks, Practical 200 Marks (28 Credits)
Semester- IV   Seminar: 50 Marks, Major Project Work: 200 Marks,
                 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.

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 Communicationsǁ, Addison-Wesley, Second Edition, 2009.

2. Raj Kamal, —Mobile Computingǁ, Oxford University Press, 2007, ISBN: 0195686772

REFERENCE BOOK:

1. ASOKE K TALUKDER, HASAN AHMED, ROOPA R YAVAGAL, —Mobile Computing, Technology Applications and Service Creationǁ Second Edition, Mc Graw Hill.

2. UWE Hansmann, Lother Merk, Martin S. Nocklous, Thomas Stober, —Principles of Mobile Computing,ǁ 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

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.

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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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