REGULATIONS - 2013

DEPARTMENT OF
COMPUTER SCIENCE AND ENGINEERING

CURRICULUM AND SYLLABI OF
M.C.A – MASTER OF COMPUTER APPLICATIONS
### REGULATIONS - 2013
Curriculum and Syllabi of Full Time
M.C.A. – Master of Computer Applications

#### SEMESTER - I

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MCC11 COMPUTER ORGANIZATION L T P C 3 0 0 3

OBJECTIVES

- To study the Digital fundamentals.
- To understand the concepts and issues of Computer Organization.
- To learn the basics of Memory and Processor design.
- To describe the Interrupts and I/O interfaces.

UNIT I DIGITAL FUNDAMENTALS 9

UNIT II COMBINATIONAL AND SEQUENTIAL CIRCUITS 9

UNIT III BASIC STRUCTURE OF COMPUTERS 9
Functional units – Basic operational concepts – Bus structures – Performance and Metrics – Instruction and Instruction sequencing – Addressing modes – Instruction Set: ARM Processor – ALU design – Fixed point and Floating point operation.

UNIT IV PROCESSOR DESIGN 9

UNIT V MEMORY AND I/O SYSTEM 9

TOTAL: 45

TEXT BOOKS

REFERENCES
MCC12 PROBLEM SOLVING AND C PROGRAMMING

OBJECTIVES

• To learn and analyze problems and formulate algorithms.
• To learn the fundamentals of C.
• To understand the usage of arrays, functions and structures.
• To study the importance of pointers and files.

UNIT I INTRODUCTION TO PROGRAMMING


UNIT II C PROGRAMMING BASICS


UNIT III ARRAYS AND FUNCTIONS

Arrays – One dimensional and two dimensional arrays - String – String operations – String Arrays – Functions – Call by value – Call by reference – Recursion.

UNIT IV STRUCTURES AND UNIONS


UNIT V POINTERS AND FILE MANIPULATION


TOTAL: 45

TEXT BOOKS


REFERENCES

MCC13 DATABASE MANAGEMENT SYSTEMS

OBJECTIVES
• To understand the basics of Database Management System.
• To use Standard Query Language.
• To understand normalization techniques.
• To understand importance of backup and recovery techniques.

UNIT I INTRODUCTION

UNIT II SQL, PROGRAMMING AND TRIGGERS

UNIT III NORMAL FORMS, STORAGE AND FILE STRUCTURE

UNIT IV HASHING, QUERY PROCESSING AND TRANSACTION

UNIT V CONCURRENCY CONTROL AND RECOVERY SYSTEM

TOTAL : 45

TEXT BOOK

REFERENCES
MCC14          DATA STRUCTURES                  L T P C
                              3 0 0 3

OBJECTIVES

• To learn about the basic linear data structures, their implementations and applications.
• To make the students to study about non linear data structures.
• To learn about various sorting types and its efficiency.
• To make the students to learn about hashing techniques.

UNIT I          LINEAR DATA STRUCTURES                     9
Elementary Data Structures – ADT – List ADT: Array based Implementation – Doubly and Circularly
Linked Lists – Cursor based Linked List – Applications of List – The stack ADT: Model –

UNIT II         TREE STRUCTURES AND BALANCED TREES                       9
Trees - Preliminaries – implementation of Tree – Tree Traversals – Binary tree Implementation –
Expression Tree – The Search Tree ADT – Binary Search Tree Operations – AVL tree – Splay tree – B-

UNIT III        GRAPH                                                                   9
Graph - Representation of Graphs – Bi-connectiv ity – Topological sort – Graph Traversal: Breadth-
First Traversal – Depth-First Traversal – Shortest path Algorithms: Minimum Spanning Tree – Prim's
and Kruskal's Algorithms – Applications of Graph.

UNIT IV         SORTING                 9
Sorting – Lower Bound for Simple Sorting Algorithms – Internal and External Sorting: Bubble Sort –
Insertion Sort – Shell Sort – Merge Sort – Heap Sort – Quick Sort – Bucket Sort – Radix Sort –
Distribution Sort – Shuffle Sort.

UNIT V         HASHING AND SET                       9
Hashing: Hash function – Open hashing – Closed hashing – Double hashing – Extendible hashing -
Rehashing. The Disjoint set ADT: Equivalence Relations – Dynamic Equivalence Problem – Smart
Union Algorithms – Path compression – Applications of Set.

TOTAL: 45

TEXT BOOK

REFERENCES
   2013.
MCC15        MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE            L T P C
                                                      3 1 0 4

OBJECTIVES

• To learn about the basic linear algebra concepts.
• To understand the relations and logics of computer science.
• To make the students to understand the basics of network theory using graph.

UNIT I        MATRIX ALGEBRA                              12

UNIT II       SETS, RELATIONS AND FUNCTIONS               12

UNIT III      MATHEMATICAL LOGIC                         12

UNIT IV       FORMAL LANGUAGES                          12

UNIT V        GRAPH THEORY                              12
Graph – Special types of graphs – Sub graph – Graph isomorphism – Euler graph – Hamiltonian graph.

TOTAL: 60

TEXT BOOKS


REFERENCES

**MCC16 C AND DATA STRUCTURES LABORATORY**

**OBJECTIVES**
- To implement various operations on linear data structures.
- To perform the various tree traversals in binary tree.
- To implement various internal and external sorting techniques.
- To implement shortest path algorithms using Floyd’s algorithm and Warshall’s algorithm.
- To implement minimum spanning tree of graph using Prim’s algorithm and Kruskals algorithm.

**List of Experiments:**
1. Write a program to perform the following operations on single linked list:
   - i) Creation
   - ii) Insertion
   - iii) Deletion
   - iv) Reversal
   - v) Sorting
   - vi) Traversal

2. a) Write a program that uses functions to perform the following operations on Double linked list:
   - i) Creation
   - ii) Insertion
   - iii) Deletion
   - iv) Traversal

   b) Write a program to create and traverse a circular single linked list

3. a) Write a program to create a stack using array and linked list and perform the following operations:
   - i) push
   - ii) pop
   - iii) display

   b) Write a program to create a queue using array and linked list and perform the following operations:
   - i) insert
   - ii) delete
   - iii) display

4. Write a program to perform the following stack applications:
   - i) Convert infix expression into postfix expression
   - ii) Evaluation of postfix expression

5. Write the program to perform the following traversal in Binary tree
   - i) Inorder traversal
   - ii) Preorder traversal
   - iii) Postorder traversal

6. Write a program to perform the following operations in Binary Search Tree (BST):
   - i) Creation
   - ii) Insertion
   - iii) Deletion
   - iv) Traversal

7. Write a program that implement the following sorting techniques:
   - i) Bubble sort
   - ii) Insertion sort
   - iii) Selection sort

8. Write a program that implement the following sorting techniques:
   - i) Quick sort
   - ii) Merge sort
   - iii) Heap sort

9. Write a program to perform following Traversal in Graph
   - i) Breadth First Search
   - ii) Depth first search

10. Write a program to find out the shortest path between every vertex in Graph using the following algorithms
    - i) Floyd’s algorithm
    - ii) Warshall’s algorithm

11. Write a program to find out the shortest path in Graph using the following algorithms
    - i) Prim’s algorithm
    - ii) Kruskal’s Algorithm

12. Write a program to implement Huffman’s Algorithm.

**Required Software:** C/C++
MCC17 DATABASE MANAGEMENT SYSTEMS LABORATORY L T P C 0 0 3 2

OBJECTIVES

- To implement the Basic Queries.
- To implement the SQL program.
- To implement the GUI program.

List of Experiments

1. Execute DDL commands for tables like Bank Management System.
2. Execute DML commands for table for Student Processing System.
3. Execute and manipulate the views for Bank Management System.
4. Apply different joins like equi-join and outer join by relating two or more tables in Payroll processing system.
5. Manipulate student processing system using SET operations and Aggregate functions.
6. Execute Built-in functions for Characters, Numbers and Date.
7. Write basic PL/SQL programming for the following:
   a) Write a programme to find the factorial of a number.
   b) Find odd and even numbers from 100 to 1000.
   c) Write a program to input 2 numbers if the 1st no > 2nd no then swap it, else if 1st no < 2nd no doubles it else multiply 10 with both numbers?
   d) Write a program to input 2 numbers and an operator, and display the result.
   e) Print multiplication table from 1 to a given Number.
8. Do Advanced PL/SQL programming using
   a) Cursors   b) Procedures   c) Triggers
9. Create Forms, Menus and Report for
   a) Payroll Processing System
   b) Bank Management System
   c) Library Management System

Required Software: Oracle, Visual Basic.
MCC21 OBJECT ORIENTED PROGRAMMING    L T P C
                                           3 1 0 4

OBJECTIVES
- To understand the fundamentals of OOP’s Concepts.
- To understand the C++ Concepts.
- To understand the file operations in C++.

UNIT I FUNDAMENTALS 10

UNIT II FUNCTIONS, CONSTRUCTORS AND DESTRUCTORS 15

UNIT III INHERITANCE AND POLYMORPHISM 15
Need of Inheritance - public, private, and protected derivations – Access control. Types of inheritance: Single inheritance, Multilevel inheritance, Multiple inheritance, Hierarchical inheritance and Hybrid inheritance – Virtual base classes – Constructors in derived class. Pointers – Pointers to Objects – this Pointer – Pointers to derived classes - Virtual and Pure Virtual Functions – Virtual Constructors and Destructors.

UNIT IV I/O FORMATTING AND FILE HANDLING 9

UNIT V TEMPLATES 11
Drawbacks of Macros - Function Templates – Function Templates with Multiple / Two Generic Arguments – Overloading of Template Function – Member Function Templates – Class Templates – Class Template with Multiple Arguments – Exception Handling.

L : 45 T : 15 TOTAL : 60

TEXT BOOKS

REFERENCES
MCC22 DESIGN AND ANALYSIS OF ALGORITHMS

OBJECTIVES

• To study about the fundamentals of problem solving and algorithm analysis.
• To understand the problem using Divide and conquer methods and Greedy technique.
• To learn about Dynamic programming techniques to solve Knapsack problem.
• To study about N Queens problem, sum of subset problem using Backtracking method.
• To learn about approximation algorithm for NP-hard and NP-complete problems.

UNIT I INTRODUCTION

UNIT II DIVIDE AND CONQUER METHOD AND GREEDY METHOD

UNIT III DYNAMIC PROGRAMMING

UNIT IV BACKTRACKING AND BRANCH AND BOUND

UNIT V NP-HARD AND NP-COMPLETE PROBLEMS

L: 45 T: 15 TOTAL: 60

TEXT BOOKS

REFERENCES
MCC23       SYSTEM SOFTWARE                        L T P C
3 0 0 3

OBJECTIVES
- To discuss the machine architecture of SIC & SIC/XE.
- To elaborate the functionality of an assembler, loader and linker with necessary data structures.
- To differentiate between machine dependent and machine independent assembler features.
- To design assemblers, loaders, linkers and text editors.
- To describe the functionality of macro processors.

UNIT I  INTRODUCTION                                    9
Introduction – System software and machine architecture – The Simplified Instructional Computer (SIC) – Machine Architectures (SIC and SIC/XE) – Data and Instruction Formats – Addressing Modes – Instruction sets – I/O.

UNIT II  ASSEMBLERS                       9

UNIT III  LOADERS AND LINKERS                              9

UNIT IV  MACRO PROCESSORS                    9

UNIT V  TEXT EDITOR AND DEBUGGER                               9

TOTAL: 45

TEXT BOOK

REFERENCE
MCC24 OPERATING SYSTEMS L T P C 3 0 0 3

OBJECTIVES
- Understand how the operating system abstractions can be used in the development of application programs or to build higher level abstractions.
- Understand how the operating system abstractions can be implemented.
- Understand the principles of concurrency and synchronization, and apply them to write correct concurrent programs/software.
- Understand basic resource management techniques and principles and how they can be implemented. These also include issues of performance and fairness objectives, avoiding deadlocks, as well as security and protection.

UNIT I INTRODUCTION 9

UNIT II PROCESS MANAGEMENT 9

UNIT III PROCESS SYNCHRONIZATION AND DEADLOCKS 9

UNIT IV STORAGE MANAGEMENT 9

UNIT V CASE STUDY 9

TOTAL: 45

TEXT BOOK

REFERENCES
MCC25 SOFTWARE ENGINEERING  L T P C  3 0 0 3

OBJECTIVES
- To gain knowledge of basic software engineering methods and practices, and their appropriate application.
- A general understanding of software process models such as the waterfall and evolutionary models.
- An understanding of the role of project management software requirements SRS document, implementation issues, verification and validation reviews, software testing approaches, software evolution, version management and how to ensure good quality software.

UNIT I INTRODUCTION  9

UNIT II SOFTWARE REQUIREMENT SPECIFICATIONS (SRS)  9

UNIT III SOFTWARE DESIGN  9

UNIT IV SOFTWARE TESTING  9

UNIT V SOFTWARE MAINTENANCE  9

TOTAL: 45

TEXT BOOK:

REFERENCES:
MCC26 OBJECT ORIENTED PROGRAMMING LABORATORY L T P C 0 0 3 2

OBJECTIVES

- To implement the basic concepts of C++.
- To implement the polymorphism and template concepts.
- To implement the file operations.

List of Experiments:

1. Write a program to perform a student’s internal mark calculation.
2. Write a program to calculate the area of circle, rectangle and triangle using function overloading.
3. Write a class Square which has a field for side. It must have a constructor to initialize the side. Add methods to the Square class to calculate area and perimeter.
4. Write a class Circle which has a field for radius. It must have a constructor to initialize the radius. Add methods to the Circle class to calculate area and perimeter.
5. Write a class CheckoutCalculator which behaves somewhat like the machine at the checkout counter in supermarkets. This calculator should ask for the number of items for which the total is to be calculated and then allow you to enter the price for every item. After entering all the items it displays all the prices entered and the total amount. (Hint: Here you need to use dynamic memory allocation since you do not know how many items will be there. Use an array to store the prices of items)
6. Write a class Results which stores all the results in an array. Assume that we need to store only the results of a single semester which is four results. Each result will be final marks for a course between 0-100 and is stored in an integer array. Use dynamic memory allocation and the four methods mentioned above. Add separate methods to calculate the total marks for all courses and the average marks. Add a field for student ID.
7. Modify the Circle class which you have written earlier to overload the + operator so that you can add two Circle objects. Adding two Circle object should give another Circle whose radius is the sum of the radius of the two Circle objects.
8. Modify the Rectangle class which you have written earlier to overload the + operator so that you can add two Rectangle objects. Adding two Rectangle objects should give another Rectangle object whose length is the sum of the lengths of the two Rectangle objects and whose breadth is the sum of the breadths of the two Rectangle objects.
9. Write a class Time which represents time. The class should have three fields for hours, minutes and seconds. It should have constructor to initialize the hours, minutes and seconds. A method printTime() to print the current time. Overload the following operators: plus operator (+) (add two time objects based on 24 hour clock) and < (compare two time objects)
10. Modify the Rectangle class which you have written earlier to overload the < (less than) operator so that you can compare two Rectangles as to which is bigger (or smaller). The logic you will use is to compare the areas of the Rectangle objects and decide which is bigger.
11. Modify the Circle class which you have written earlier to overload the > (greater than) operator so that you can compare two Circles as to which is bigger (or smaller). The logic you will use is to compare the radii of the Circle objects and decide which is bigger.

12. Write a program to perform Stack and Queue operations using template.

13. Write a function calculateAverage() which takes four int arguments which are marks for four courses in the semester and returns their average as a float. The calculateAverage() function should take only valid range for marks which is between 0 - 100. If the marks are out of range throw an OutOfRangeException - define this exception as a class.

14. Write a program to perform a bank management system using file.

Required Software: C++
OBJECTIVES

- To develop and analyze the data structures needed for developing an assembler, loader and linker.
- To perform file handling using file manipulation system calls
- To implement process management
- To implement IPC techniques
- To analyze scheduling algorithms and demonstrate page replacement policies

1. Write a C program to create symbol table and intermediate file using the algorithm for pass1 of the two pass assembler.
2. Write a C program to create object file and list file with the output of the previous program using the algorithm for pass2 of the two pass assembler.
3. Write a C program to implement the absolute loader.
4. Write a C program to implement relocating loader.
5. Write a C Program to implement the pass1 of the linking loader.
6. Write a C program to implement the pass2 of the linking loader.
7. Develop a text editor with features like insertion / deletion of a character, word, and sentence.
8. Write a C program to perform file management tasks using file manipulation system calls in UNIX creat( ), open( ), read( ), write( ), close( )
9. Write a C program to create a new process using fork( ). Make the child process to execute a new program using exec( ). Terminate the execution of the child process using exit( ). Make the parent to read the termination status of the child process using wait( ) / waitpid( ).
10. Write a C program to implement IPC using pipe( ).
11. Write a C program to implement IPC using message queue for unrelated process.
12. Write a program to implement the following process scheduling algorithms
    a. First Come First Serve
    b. Shortest Remaining Job First (preemptive & non preemptive)
    c. Round Robin
    d. Priority Scheduling
13. Write a program that demonstrates how two processes can share a variable using semaphore.
14. Write a program to implement producer consumer problem using semaphore.
15. Write a program to demonstrate page replacement policies like
    a. Optimal
    b. Least Recently Used (LRU)
    c. First-In-First-Out

Required Software: LINUX & C
MCC28 COMMUNICATION SKILLS LABORATORY

OBJECTIVES

• To help the learners to improve their communicative skill.
• To facilitate the learners to improve the pronunciation of words with proper stress.
• To help the learners acquire the soft skills and interpersonal skills which will help the students to excel in their workplace.
• To inculcate the habit of reading and to improve the active vocabulary among the learners.
• To enhance the performance of students in placement, interviews and Group discussion.

Unit I 15
1. Vocabulary Building
2. Splitting Syllables
3. Stress and Shift of words and sentences
4. Common errors in Speaking
5. Letter writing
7. Reading Comprehension and Answering Multiple Choice questions and Fill ups.

Unit II 10
1. Listening to audio files and answering questions
2. Planning for an event
3. Extempore Speech - On the spot topics for speech Practice
4. Identifying tonal variations expressing
5. E-Mail writing

Unit III 10
1. Listening to Presentation Skills (GD & Debate)
2. Group Discussion
3. Reading Practice: Dr. Abdul Kalam’s “Wings of Fire”
4. Report Writing
5. Paper Presentation

Unit IV 10
1. Listening to Telephonic Conversation & Situational Conversation
2. Debate
3. Note Taking
4. Interview Skills

RECORD LAY OUT
Every student has to maintain a record in which he / she have to incorporate the following details.
1. Students have to collect materials related to topics for Group Discussion / Debate
2. 10 assignments of Lab observations related to Presentation Skills about 200 words each
3. Covering letter with Bio data / Resume / Curriculum Vitae
4. Paper Presentation Topics with source materials to be pasted in the record

TOTAL: 45

Required Software: Oral Digital Language Lab & Globarena
MCC31 JAVA PROGRAMMING L T P C 3 0 0 3

COURSE OUTCOMES
On successful completion of the course, the students will be able to

• Analyze and design a computer program to solve real world problems based on object-oriented principles of Java.
• Understand and able to design applications using multithreading and well suitable runtime error handling.
• Develop GUI interfaces for a computer program to interact with users, and to understand the event-based GUI handling principles.
• Develop applications with components and patterns of Networking and database activities.

UNIT I INTRODUCTION 7

UNIT II INHERITANCE 9

UNIT III EXCEPTION AND MULTITHREADING 9

UNIT IV APPLET AND AWT 12

UNIT V I/O AND NETWORKING 8

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
MCC32     OBJECT ORIENTED ANALYSIS AND DESIGN             L T P C
                                                      3     0     0     3

COURSE OUTCOMES
On successful completion of the course, the students will be able to
- Develop the knowledge of structural and behavioral modeling techniques.
- Develop effective model-based software development methodology.
- Implement the design patterns and their application in a software design project.
- Demonstrate knowledge of Design and Testing Process Improvement Models.

UNIT I  REVIEW OF OBJECT ORIENTATION                           9
An overview – Object basics – Object state and properties – Behavior – Methods – Messages –
Information hiding – Class hierarchy – Relationships – Associations – Aggregations – Identity –
Dynamic binding – Persistence – Metaclasses – Object oriented system development life cycle.

UNIT II METHODOLOGY AND UML                   9
approach – Unified modeling language – Static and Dynamic models – UML diagrams – Class diagram –

UNIT III OBJECT ORIENTED ANALYSIS                      9
Identifying Usecase – Business object analysis – Usecase driven object oriented analysis – Usecase
model – Documentation – Classification – Identifying object, relationships, attributes, methods – Super-
sub class – A part of relationships Identifying attributes and methods – Object responsibility.

UNIT IV OBJECT ORIENTED DESIGN                   9
Design process – Axioms – Corollaries – Designing classes – Class visibility – Refining attributes –
Methods and protocols – Object storage and object interoperability Databases – Object relational systems
– Designing interface objects – Macro and Micro level processes – Purpose of a view layer interface.

UNIT V IMPLEMENTATION, USABILITY, TESTING AND QUALITY                9
Mapping models to Code, Mapping Object Model to Database Schema Usability Principles – User
interface design evaluating user interfaces. Testing and Quality – strategies, defects, test cases and test
plan, inspections, quality assurance.

TOTAL: 45 PERIODS

TEXT BOOKS
and Java”, Pearson Education, 2011.

REFERENCES
1. Timothy C. Lethbridge, Robert Laganiere “Object-Oriented Software Engineering – A Practical
2. Mike O’Docherty “Object-Oriented Analysis & design – understanding system development

MCC33     COMPUTER GRAPHICS             L T P C
                                                      3     0     0     3
COURSE OUTCOMES

On successful completion of the course, the students will be able to
• Perform pixel-based processing to create simple geometric figures upon a screen.
• Implement transformations of graphical objects in two and three dimensions, project such objects from three to two dimensions and perform hidden-surface removal on faceted models.
• Understand the principles of color models and animation.
• Understand the use of fractal geometry and ray tracing to the problem of improving visual realism.
• Demonstrate practical competence in the use of graphics.

UNIT I  INTRODUCTION  9
I/O devices – I/O primitives – Attributes of output primitives – DDA – Bresenham technique – Circle drawing algorithms – Interactive input methods.

UNIT II  2D GRAPHICS  9

UNIT III  3D GRAPHICS  9

UNIT IV  GRAPHICS PROGRAMMING  9

UNIT V  FRACTALS  9
Fractals and Self similarity – Creating image by iterated functions – Mandelbrot sets – Random Fractals – Overview of Ray Tracing – Intersecting rays with other primitives – Adding Surface texture – Reflections and Transparency – Boolean operations on Objects.

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
MCC34          COMPUTER NETWORKS          L   T   P   C
                                    3   0   0   3

COURSE OUTCOMES
On successful completion of the course, the students will be able to

- Analyze and solve the data transmission medium oriented numerical problems.
- Construct a network with different topologies.
- Analyze the difference between reliable and unreliable secure data delivery service.

UNIT I  INTRODUCTION

UNIT II  NETWORK FUNDAMENTALS

UNIT III  NETWORK LAYER

UNIT IV  TRANSPORT LAYER

UNIT V  APPLICATIONS
Security: Requirements and Attacks, Message Authentication and Secure Hash Algorithm, RSA Public Key Encryption and Digital Signature – DNS – SNMP – Electronic mail: Architecture and Services, User agent, Message Format (MIME) and Message Transfer (SMTP, E-mail Gateway and Final Delivery) – World Wide Web (WWW): HTTP and URLs.

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
MCC35 RESOURCE MANAGEMENT TECHNIQUES 3 0 0 3

COURSE OUTCOMES
On successful completion of the course, the students will be able to
• Formulate real practical problems by mathematical modeling.
• Solve a LPP, transportation, assignment problems using resource management techniques.
• Apply scheduling and queuing models and propose solutions to them.
• Use computer tools to solve a mathematical model for a practical problem.

UNIT I LINEAR PROGRAMMING MODELS
Mathematical Formulation of Linear Programming problems – Graphical Solution method – Simplex method – slack, surplus and artificial variables, two phase method and Big-M method artificial variable Techniques – Variants of Simplex method.

UNIT II TRANSPORTATION AND ASSIGNMENT MODELS

UNIT III INTEGER PROGRAMMING MODELS
Formulation – Gomory’s IPP method – Gomory’s mixed integer method – Branch and bound technique.

UNIT IV SCHEDULING BY PERT AND CPM

UNIT V QUEUEING MODELS
Characteristics of Queuing Models – Poisson Queues – (M / M / 1) : (FIFO / ∞ / ∞), (M / M / 1) : (FIFO / N / ∞), (M / M / C) : (FIFO / ∞ / ∞), (M / M / C) : (FIFO / N / ∞) models.

TOTAL: 45 PERIODS

TEXT BOOK

REFERENCES
MCC36  JAVA PROGRAMMING LABORATORY  

L T P C  
0 0 3 2  

COURSE OUTCOMES  

On successful completion of the course, the students will be able to  

• Implement, compile, test and run Java program.  
• Make use of hierarchy of Java classes to provide a solution to a given set of requirements found in the Java API.  
• Understand the components and patterns that constitute a suitable development for GUI application and event handling.  
• Demonstrate systematic knowledge of backend and front end by developing an appropriate application.  

LIST OF EXPERIMENTS  

1. Writing Java programs by making use of class, interface, package, etc for the following:  
   a. Simple programs using control structures  
   b. Stack / Queue implementation using Array.  
   c. Constructor  
   d. Method overloading  
   e. Types of inheritance  
   f. Overriding and interfaces  
   g. Creation of user specific packages  
   h. User specific exception handling  
2. Write a java program to read the contents of a file and copy to destination file.  
3. Write a java multithread program to synchronize the producer consumer problem using Inter Process Communication.  
4. Design an applet program to create a color pallet using 5 radio buttons and one Choice box. Provide appropriate event handling to change the background color using radio button and change the foreground color by choice.  
5. Design a banner Applet program to scroll the Text “Java programming Lab” using Thread.  
6. Design an applet to implement Digital clock using Thread  
7. Design an Applet program to create Email registration Form using different awt components. (Minimum 5 components). Write an event handling procedure to validate each field and display appropriate message.  
8. Design an applet program to create a Calculator with Grid of Buttons. Write an event handling procedure to activate the buttons with required functionality. Make the contents of text field should not be editable.  
9. Design a java GUI Frame to Manipulate the Student details in a database using JDBC. The frame contains the select, insert, delete buttons to do the database activity. The results of database queries are displayed into a Text Area component. The inputs to the queries are collected by using Input Dialog control. Write an event handling procedure to do the above work. Use MS Access to create a student database.  
10. Design a Text Editor using java Frame class and the editor must support for creation of new file, open an exiting file and save the contents of Editor area using Menu components. Write an event handling procedure to accomplish the above task.  
11. Write a java program to implement the Chat application using Sockets.  
12. Write a Java GUI Application to display the content of web page using URL Class.  

Softwares Required: Java / Netbeans IDE  

TOTAL: 45 PERIODS
MCC37  
CASE TOOLS LABORATORY  
L T P C  
0 0 3 2  

COURSE OUTCOMES  
On successful completion of the course, the students will be able to  
- Analyze the functional requirements for a system  
- Design, implement and test the programs that make appropriate use of advanced object-oriented facilities.  

Mini-Project - I: A Point-of-Sale (POS) System  
Develop a computerized application for recording sales and handling payments for a retail store.  

Mini-Project - II: Online Bookshop Example  
Develop a model like amazon.com or bn.com, design and implement an online bookstore.  

Mini-Project - III: A Simulated Company  
Simulate a small manufacturing company. The resulting application will enable the user to take out a loan, purchase a machine, and monthly production runs, follow the performance of the company.  

Mini-Project - IV: A Multi-Threaded Airport Simulation  
Simulate the operations in an airport. Your application should support multiple aircrafts using several runways and gates avoiding collisions/conflicts. Landing: an aircraft uses the runway, lands, and then taxis over to the terminal. Take-Off: an aircraft taxis to the runway and then takes off.  

Mini-Project - V: An Automated Community Portal  
Develop enterprise intranet portals for sharing information.  

Mini-Project - VI: A Content Management System  
The goal is to enable non-technical end users to easily publish, access, and share information over the web, while giving administrators and managers complete control over the presentation, style, security, and permissions.  

Mini-Project - VII: An Auction Application  
Design and implement an auction application that provides auctioning services. It should clearly model the various auctioneers, the bidding process, auctioning etc.  

Mini-Project - VIII: A Notes and File Management System  
Develop personal notes and documents.  

Mini-Project - IX: A Customizable Program Editor  
Develop an editor for user interaction.  

Mini-Project - X: A Graphics Editor  
Design and implement graph editing applications, i.e., applications that include the ability to draw structured and unstructured diagrams.  

TOTAL: 45 PERIODS  

Softwares Required: Agro UML, Visual paradigm UML, Visual basic, Java
MCC38  GRAPHICS LABORATORY  L  T  P  C
        0  0  3  2

COURSE OUTCOMES
On successful completion of the course, the students will be able to
- Create simple geometric figures upon a screen.
- Implement transformations of graphical objects in two and three dimensions.
- Employ clipping operations through various algorithms.
- Create image editing applications and animation.
- Apply the use of fractal geometry.

LIST OF EXPERIMENTS
1. Drawing Algorithms
   a. Write a program to draw a line using DDA Algorithm
   b. Write a program to draw a line using Bresenham Algorithm
   c. Write a program to draw a circle using Bresenham Algorithm
   d. Write a program to draw an ellipse using Bresenham Algorithm

2. 2D transformations
   a. Draw a square object. Write a program in C for moving the object diagonally or turn the
      object clockwise by the user choices.
   b. Draw a circle object. Write a program in C for moving an object vertically or enlarge the
      object by the user choices.
   c. Draw a triangle object. Write a program in C for moving an object horizontally or turn the
      object counterclockwise by the user choices.
   d. Draw an oval object. Write a program in C for enlarging an object or spin the object
      counterclockwise by the user choices.
   e. Draw a polygon object. Write a program in C for shrinking an object or spin the object
      clockwise by the user choices.
   f. Draw an ellipse object. Write a program in C for resizing or changing the position of the
      object.

3. 2D composite transformations
   a. Draw a star object. Write a program in C for moving an object diagonally and rotating the
      object using composite transformation.
   b. Draw a diamond object. Write a program in C for enlarging and rotating the object using
      composite transformation.

4. Reflection and Shear
   a. Write a program in C for getting the mirror image of an object in X and Y direction
   b. Write a program in C for changing the square to rhombus shape in X and Y direction.

5. Cohen Sutherland line clipping algorithm
   a. Write a line clipping program in C which involves logical operations,
   b. Write a line clipping program in C which has encoding operations.

6. Liang Barsky line clipping algorithm
   a. Write a line clipping program in C which involves clip-test operation.
   b. Write a line clipping program in C which has less multiplications and only one division.

7. Sutherland – Hodgeman Polygon clipping Algorithm
8. 3D transformations
   a. Draw a cylinder object. Write a program in C for moving the object diagonally or turn the object clockwise by the user choices.
   b. Draw a cube object. Write a program in C for moving an object vertically or enlarge the object by the user choices.
   c. Draw a cone object. Write a program in C for moving an object horizontally or shrink the object by the user choices.
   d. Draw a cube object. Write a program in C for rotating the object in X and Y direction.
   e. Draw a hexagon object. Write a program in C for rotating the object in X or Z direction.
   f. Draw a pyramid object. Write a program in C for rotating the object in Y or X direction.

9. 3D composite transformations
   a. Draw a cube object. Write a program in C for moving and resizing the object.

10. Create an application for image editing, enhancement, manipulation by using editing tools, layers, filters, special effects and color modes using photoshop.
    a. Create an effect such that one image overlaps another.
    b. Create a selective color change effect.
    c. Type your name in caps. Apply an image into that.
    d. Open a flower. Copy it and paste it four times. Give different colors to each
    e. Open two people’s images. Cut one’s head and paste it into another
    f. Design a greeting card atleast using 3 effects
    g. Create a mirror image of an object
    h. Print a watermark effect
    i. Create an effect such that a baby’s face smiling inside a flower
    j. Adjust the features of a person’s face
    k. Open an Image, try to bring the effect of painting
    l. Repaint the damaged images
    m. Make an image glowing
    n. Blur and sharpen an image.
    o. Take a grayscale image. Change the color only in the face

11. Create an animation using Image Ready.
    a. Two people walking from opposite side handshaking.
    b. Changing colors of a rose
    c. Printing our college name one letter by another
    d. Rising a sun slowly from sea
    e. Blinking of an eye of a child.

12. Fractal Images
    a. Generating fractal images with self-similarity
    b. Generating fractal images with iterated functions.

Software Required: C, Photoshop, Image Ready.

TOTAL: 45 PERIODS
MCC41  NETWORK PROGRAMMING  L  T  P  C
3  0  0  3

COURSE OUTCOMES
On successful completion of the course, the students will be able to
- Develop client-server communication using TCP and UDP sockets.
- Develop iterative and concurrent server using TCP.
- Implement I/O multiplexing using select and poll functions.
- Implement concurrent server using threads.
- Develop connection less client-server communication using Java.

UNIT I  ELEMENTARY TCP SOCKETS  9

UNIT II  APPLICATION DEVELOPMENT  9

UNIT III  SOCKET OPTIONS, ELEMENTARY UDP SOCKETS  9

UNIT IV  ADVANCED SOCKETS  9

UNIT V  NETWORK PROGRAMMING IN JAVA  9

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
MCC42 WEB PROGRAMMING

COURSE OUTCOMES
On successful completion of the course, the students will be able to

- Design and implement complete applications over the web using client and server side scripting languages.
- Interconnect clients and server using interconnectivity techniques.
- Retrieve data from a database and present it in a web page.
- Modify, add, and delete data in a database through a web page.

UNIT I INTRODUCTION
Client and Server concepts, Tiered architecture, WWW, IP Address, URL, URI, URN, Domain Name System, Internet protocols and applications: TCP, UDP, FTP, SMTP, POP, ICMP, SNMP; Types of Networks and applications, HTML.

UNIT II DYNAMIC HTML

UNIT III SCRIPTS and APPLETS

UNIT IV SERVLETS

UNIT V ASP and JSP
ASP basics – ASP objects – ASP applications – JSP Programming – JSP objects – Applications – PHP – MySQL.

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
MCC43 COMPILER DESIGN

COURSE OUTCOMES
On successful completion of the course, the students will be able to
- Distinguish formal and practical properties of different approaches to parsing.
- Understand and implement various techniques to parse source code.
- Implement a basic compiler.
- Analyze the optimization technique on the intermediate representation.

UNIT I LEXICAL ANALYSIS 9

UNIT II SYNTAX ANALYSIS 9

UNIT III INTERMEDIATE CODE GENERATION 9

UNIT IV CODE OPTIMIZATION 9

UNIT V CODE GENERATION 9

TOTAL: 45 PERIODS

TEXT BOOK

REFERENCES
COURSE OUTCOMES
On successful completion of the course, the students will be able to

• Analyze and develop client/server communication using connection oriented and connection less protocols.
• Demonstrate domain name system.
• Competent with application development and debugging in Unix environments.
• Demonstrate remote method invocation and remote procedure call.

LIST OF EXPERIMENTS

1. Implement a client/server user-level application using TCP sockets in C. The Server application has to accept string from client and echo the received string. For example, when client sends “Welcome to Network programming Lab”, Server replies with “Welcome to Network programming Lab.

2. Implement a client/server user-level application using TCP sockets in C. The Server application has to support ‘n’ number of clients, but one by one. The Server application has to accept string from client and replies with received string. For example, when client sends “Iterative Sever”, Server replies with “Iterative server”.

3. Implement a client/server user-level application using TCP sockets in C. The Server application has to support ‘n’ number of clients simultaneously. The Server application has to accept string from client and replies with received string. For example, when client sends “concurrent sever”, Server replies with “concurrent server”.

4. Implement a client/server user-level application using TCP sockets in C. The Server application must be able to chat with ‘n’ number of clients simultaneously.

5. Implement a client/server user-level application using UDP sockets in C. The Server application must be able to chat with ‘n’ number of clients simultaneously.

6. Implement a client/server user-level application using UDP sockets in C. The Server application has to accept string from client and echo the received string. For example, when client sends “Welcome to Network programming Lab”, Server replies with “Welcome to Network programming Lab.

7. Implement a client/server user-level application using UDP sockets in C. The Server application has to support ‘n’ number of clients, but one by one. The Server application has to accept string from client and replies with received string. For example, when client sends “Iterative Sever”, Server replies with “Iterative server”.

8. Implement a client/server user-level application using UDP sockets in C. The Server application has to support ‘n’ number of clients simultaneously. The Server application has to accept string from client and replies with received string. For example, when client sends “concurrent sever”, Server replies with “concurrent server”.

9. Write a client/server program wherein the client sends the name of a command to be executed at the server. The server then sends the result back to the client. Implement the above using connection less service.
10. Write a client/server program wherein the client the name of a program to be executed at the server. The server then sends the result back to client. Implement the above using connection oriented service and concurrent server.

11. Write a client server program wherein the client when connects to the server, the server then sends the system data and time to the client. Implement the above using RMI.

12. Develop a client / server communication program in Java using connection less protocol.

13. Write a client / server program wherein the client sends the IP – address and the server responds by sending the corresponding host's name. Use connection less service to implement the above.

14. Write a client / server program wherein the client sends the name of a file and the server returns the contents of the file. Use connection oriented service to implement the above. Implement the server as an iterative server.

15. Write a client / server program wherein the client sends two numbers, the server finds its gcd and returns to the client. Use RPC to implement above.

16. Write client / server program wherein the client sends a Unix Command (like 'ls') and the server returns the result of execution of the command. Use RPC to implement the above.

17. Write a program to implement the following interaction between client and server. User supplies the filename to the client program. Client program in turn sends it to the server; the server reads the contents of a text file and then sends the contents to the client, then the client displays it on the screen. Implement with concurrent TCP server.

Software Required: Unix, C and Java

TOTAL: 45 PERIODS
COURSE OUTCOMES
On successful completion of the course, the students will be able to
- Design Web Pages using Client Side Scripting and DHTML.
- Implement server side languages like Servlets, JSP and ASP.
- Develop web services and E-business applications.

LIST OF EXPERIMENTS
1. Design of image mapping for an image using HTML. Link the documents using an image and mark the hot spots in the image.
2. Development of web page using cascading Style Sheets (CSS) and implement its types.
3. Create a registration form and do the validation using HTML and Java Script.
4. Design of color palette using java and change the background and foreground of web pages.
5. Implement the types of layouts for different application and develop a simple calculator using grid layout.
6. Design and develop an application using servlets and interconnect client and server.
7. Invoke HTML form using servlets and create interactivity.
8. Develop a real time application using applets.
9. Implement an Employee payroll processing application using ASP and connect client and server.
10. Develop an Online examination using JSP and display the marks.
11. Implement a web system using JDBC and interconnect client and server using servlets.
12. Design an online shopping web page using JSP and design an interactive online shopping web site.

TOTAL: 45 PERIODS

Software Required: Java, XML, HTML, Scripting languages, ASP, JSP, Servlets.
MCC46 COMPILER DESIGN LABORATORY  L  T  P  C  0  0  3  2

COURSE OUTCOMES
On successful completion of the course, the students will be able to
- Understand the language translation peculiarities by designing complete translator for mini language.
- Understand the design aspect of various phases of compiler.

LIST OF EXPERIMENTS
1. Implement a lexical analyzer in “C”.
2. Use LEX tool to implement a lexical analyzer.
3. Write a C Program to convert a grammar into finite automata
4. Write a C Program to convert a Regular expression into finite automata
5. Implement a recursive descent parser for an expression grammar that generates arithmetic expressions with digits, + and *.
6. Implement LL (1) parser using C Program.
7. Write semantic rules to the YACC program in problem 5 and implement a calculator that takes an expression with digits, + and * and prints its value.
8. Implement the front end of a compiler that generates the three address code for a simple language with: one data type integer, arithmetic operators, relational operators, variable declaration statement, one conditional construct, one iterative construct and assignment statement.
9. Implement the back end of the compiler which takes the three address code generated in problems 7 and 8, and produces the 8086 assembly language instructions that can be assembled and run using a 8086 assembler. The target assembly instructions can be simple move, add, sub, and jump.
10. Implement code optimization technique to improve the quality of the program.

TOTAL: 45 PERIODS

Software Required: TURBO C, LEX, YACC
MCE4A NUMERICAL AND STATISTICAL METHODS L T P C
3 0 0 3

COURSE OUTCOMES
At the end of this course, students will be able to
- Use numerical techniques for solving linear system of equations.
- Understand and utilize the problems in numerical differentiation and numerical integration.
- Demonstrate the utility of numerical techniques of ordinary differential equations.
- Apply the concepts of estimation (confidence intervals) and hypothesis testing for population averages and percentages.
- Analyze the appropriate tabular for displaying design of experiments.

UNIT I SOLUTION OF EQUATIONS AND EIGENVALUE PROBLEMS

UNIT II INTERPOLATION, NUMERICAL DIFFERENTIATION AND NUMERICAL INTEGRATION
Lagrange’s and Newton’s divided difference interpolation – Newton’s forward and backward difference interpolation – Approximation of derivatives using interpolation polynomials – Numerical integration using Trapezoidal and Simpson’s 1/3 rules for single and double integration.

UNIT III NUMERICAL SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS

UNIT IV TESTING OF HYPOTHESIS
Sampling distributions – Tests for single mean, Proportion, Difference of means (large and small samples) – Tests for single variance and equality of variances – Chi-square test for goodness of fit – Independence of attributes.

UNIT V DESIGN OF EXPERIMENTS
Completely randomized design – Randomized block design – Latin square design.

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
MCE4B                ELECTRONIC COMMERCE                L T P C                3 0 0 3

COURSE OUTCOMES
On successful completion of the course, the students will be able to

• Explore basic Internet Transactions features
• Apply the Security Technologies in Electronic Commerce
• Acquire knowledge about the strategies to develop Electronic Commerce web sites and Payment Systems
• Acquire knowledge about the environment of Electronic commerce, Techniques and Tools of Electronic Data Interchange

UNIT I    INTRODUCTION                            6

UNIT II    SECURITY TECHNOLOGIES                9

UNIT III   ELECTRONIC PAYMENT METHODS           9

UNIT IV    ELECTRONIC COMMERCE PROVIDERS        9

UNIT V    ONLINE COMMERCE ENVIRONMENTS          12

TOTAL: 45 PERIODS

TEXT BOOK

REFERENCES
MCE4C INFORMATION SYSTEMS

COURSE OUTCOMES
On successful completion of the course, the students will be able to

- Identify and analyze Information System Management and requirements in Decision Making
- Communicate to both business and IT professionals
- Implement practical applications of Information Systems in Business and Society

UNIT I INFORMATION SYSTEM AND ORGANIZATION 9

UNIT II INFORMATION TECHNOLOGY INFRASTRUCTURE 9

UNIT III INFORMATION SYSTEMS AND DECISION MAKING 9

UNIT IV SYSTEM DEVELOPMENT APPROACHES 9

UNIT V INFORMATION SYSTEM DEVELOPMENT TOOLS AND APPLICATIONS 9
Computer-Aided System Engineering (CASE) Tools – Business – Accounting – Health – Academic and Social Services

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
COURSE OUTCOMES
On successful completion of the course, the students will be able to
- Design the websites and create images and animated pictures.
- Design logo, brochure and images.
- Develop animations, graphics and movies using Windows Media Player.

UNIT I  INTRODUCTION

UNIT II  RASTER IMAGE EDITING SOFTWARE

UNIT III  VECTOR IMAGE HANDLING

UNIT IV  MULTIMEDIA
Creating clippings – Animations with sound effects – Adding audio or Video – Windows Media Player ActiveX Control – Agent control – Embedding VRML in a web page – Real Player ActiveX control.

UNIT V  APPLICATIONS
Development of interactive web applications with a particular theme using vector graphics and raster graphics concepts – Animations and Interaction.

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
COURSE OUTCOMES
On successful completion of the course, the students will be able to

- Explain and evaluate the fundamental theories and requirements that influence the design of modern database systems.
- Assess and apply database functions and packages suitable for distributed database development.
- Critically evaluate alternative designs and architectures for databases and data warehouses.
- Analyze the background processes involved in queries and transactions, and explain how these impacts on spatial and temporal database operation and design.

UNIT I DATA WAREHOUSING 8

UNIT II DISTRIBUTED DATABASES 9

UNIT III OBJECT ORIENTED DATABASES 10

UNIT IV SPATIAL AND TEMPORAL DATABASES 9

UNIT V RESEARCH TRENDS 9

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
MCE4F SOFTWARE QUALITY MANAGEMENT LT P C
3 0 0 3

COURSE OUTCOMES
On successful completion of the course, the students will be able to
- Use quality models to identify and specify the quality attributes a software system must satisfy
- Find the interrelation between product quality and process quality
- Apply the product and process quality control techniques and able to create a quality product with standards

UNIT I FUNDAMENTALS OF SOFTWARE QUALITY ENGINEERING 9

UNIT II DEVELOPMENTS IN MEASURING QUALITY 9

UNIT III QUALITY MANAGEMENT SYSTEM 9

UNIT IV PRINCIPLES AND PRACTICES IN QMS 9

UNIT V MEASURES AND METRICS IN PROCESS AND PROJECT DOMAINS 9

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
MCE4G      TCP / IP DESIGN AND IMPLEMENTATION         L  T  P  C
                                                      3  0  0  3

COURSE OUTCOMES
On successful completion of the course, the students will be able to
- Develop the practical experience of IP addresses, and the fundamentals of IP routing
- Build the trade-offs between UDP and TCP and its uses
- Implement the details of IP and TCP operations

UNIT I      INTRODUCTION                             9
Internetworking concepts and architectural model – Classful Internet address – CIDR – Subnetting and

UNIT II     TCP                                                                 9
Services – Header – Connection establishment and termination – Interactive data flow – Bulk data flow –
Timeout and retransmission – Persist timer – Keepalive timer – Futures and performance –
TCP Undiagnosed Problems.

UNIT III    IP IMPLEMENTATION                                                                  9
IP global software organization – Routing table – Routing algorithms – Fragmentation and reassembly –
Error processing (ICMP) – Multicast Processing (IGMP) Using IP Multicasts with Windows Sockets
Programs – Configuration Parameters Using DHCP.

UNIT IV     TCP IMPLEMENTATION I                                                                 9
Data structure and input processing – Transmission control blocks – Segment format – Comparison –
Finite state machine implementation – Output processing – Mutual exclusion – Computing the TCP data
length – Integration of Windows NT DNS and WINS Servers.

UNIT V      TCP IMPLEMENTATION II                                                                9
Timers – Events and messages – Timer process – Deleting and inserting timer event – Flow control and
adaptive retransmission – Congestion avoidance and control – Urgent data processing and push function
– Architecture of Microsoft TCP/IP for Windows NT, Nagle Algorithm.

TOTAL: 45 PERIODS

TEXT BOOK

REFERENCES
COURSE OUTCOMES
On successful completion of the course, the students will be able to

- Articulate relative advantages and drawbacks of the main types of formal models for a distributed system
- Describe algorithms and/or impossibility results for typical abstract problems in distributed computing and Operating system
- Identify appropriate complexity measures and analyze solutions to Fault tolerance in distributed environment

UNIT I COMMUNICATION IN DISTRIBUTED ENVIRONMENT

UNIT II DISTRIBUTED OPERATING SYSTEMS

UNIT III DISTRIBUTED RESOURCE MANAGEMENT

UNIT IV FAULT TOLERANCE AND CONSENSUS

UNIT V CASE STUDIES
Ivy – Munin – CORBA – COM+ – Distributed Coordination – Based System – JINI.

TOTAL: 45 PERIODS

TEXT BOOK

REFERENCES
COURSE OUTCOMES
On successful completion of the course, the students will be able to

- Work with UNIX shell and file system.
- Develop skills to experience common UNIX programming tools to create UNIX applications.
- Work with UNIX files, processes, signals, sockets, and various other SystemV constructs
- Implement memory allocation in response to specific requests, to manage and reclaim memory.

UNIT I  UNIX SYSTEM STRUCTURES  9

UNIT II  INTERNAL REPRESENTATION OF FILES  9
Inode – Structure of a regular file – Directories – Conversion of a path names to an Inode – Superblock – Inode assignment to a file – Allocation of disk blocks – Other file types.

UNIT III  SYSTEM CALLS FOR THE FILE SYSTEM  9

UNIT IV  PROCESSES  9

UNIT V  MEMORY MANAGEMENT  9

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCE
COURSE OUTCOMES
On successful completion of the course, the students will be able to
• Develop Windows Application Programming Interface (API).
• Build well structured GUI programming using Microsoft Foundation Classes.
• Develop simple applications using Visual C++.
• Integrate the media content with the programming environment.

UNIT I  WINDOWS PROGRAMMING  10

UNIT II VISUAL C++ PROGRAMMING FUNDAMENTALS  9

UNIT III DOCUMENT VIEW ARCHITECTURE  9

UNIT IV CONTROLS  9

UNIT V ADVANCED CONCEPTS  8

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
MCC51  .NET PROGRAMMING AND SCRIPTS  L T P C  3 0 0 3

COURSE OUTCOMES
Upon successful completion of this course, the students will be able to

CO 1: Acquire knowledge about .NET standards and its functionalities.
CO 2: Apply the detailed concepts of ADO.NET to implement backend connection.
CO 3: Able to understand the controls that constitute a suitable architecture for a web application using ASP.NET and VB.NET.
CO 4: Explore the MVC concept of ASP.NET and create interactive web pages.

UNIT I  CLR AND .NET FRAMEWORK

UNIT II  VB.NET

UNIT III  ADO.NET

UNIT IV  ASP.NET

UNIT V  ASP.NET MVC

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
MCC52  XML AND WEB SERVICES  L  T  P  C

3   0   0   3

COURSE OUTCOMES
Upon successful completion of this course, the students will able to

CO 1: Develop the XML documents and its DTD.
CO 2: Validate the XML file against schema and Transform XML into XHTML.
CO 4: Program SOAP and apply it in E-Commerce.
CO 5: Analyze the security concepts in XML.

UNIT I  INTRODUCTION  9

UNIT II  XML TECHNOLOGY  9

UNIT III  WEB SERVICES  9

UNIT IV  SOAP  9

UNIT V  XML SECURITY  9

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
COURSE OUTCOMES
Upon successful completion of this course, the students will able to
   CO 1: Develop the XML and its DTD and verify the structure of XML document.
   CO 2: Validate XML file.
   CO 3: Convert XML file into XHTML file for further processing.
   CO 4: Extract XML elements and query the XML file.
   CO 5: Develop Web Services and convert web application into Web Service.

List of Experiments:
1. Create an XML document for employee information and store employee details and display in table form using Cascading Style Sheets.
2. Create an XML document to store information about books and create its corresponding DTD file.
4. Develop XML document for Online Library and present it using XSL.
5. Develop a program for validating XML document for any real time application.
7. Implement XSLT filters using Transformation technologies for CD catlog application.
8. Implement Xquery and XPATH for a real time application.
9. Use Microsoft DOM to navigate and extract information from the book’s XML document.
10. Use Microsoft DSO to connect HTML form or VB form to the book’s XML document and display the information.
11. Create a web service for temperature conversion using .NET.
12. Create a web service for currency conversion (five currencies) with appropriate client program.

TOTAL: 45 PERIODS

Software Required: .NET, Notepad++, XML Editor
MCC54 .NET PROGRAMMING LABORATORY L T P C 0 0 3 2

COURSE OUTCOMES
Upon successful completion of this course, the students will be able to
CO 1: Acquire knowledge about .NET environment.
CO 2: Implement backend connection using ADO.NET.
CO 3: Develop a web application using ASP.NET and VB.NET.
CO 4: Create Interactive web pages using ASP.NET.

List of Experiments:
1. Create a website of a company using HTML.
2. Write a program to create a registration form using VBScript and validate it.
3. Implement a VB.NET program to display the Web Controls.
   a. A List Box
   b. A Button
   c. An Image
   d. A Label
   e. A TextBox
4. Write a program for data encryption and decryption using VB.NET.
5. Design an application for a library management system using ADO.NET.
6. Design an application using VB.NET and connect with database.
   a. Employee Detail Management.
   b. Student Detail Management.
   c. Dictionary creation.
7. Implement an ASP.NET Application to validate the form using controls.
   a. Range Validation.
   b. Required Field Validation.
   c. Regular Expression Validation.
   d. Custom Validation.
8. Write a program using ASP.NET.
   b. Online Quiz.
   c. Hospital Management system.
9. Write a program to create a web application using ASP.NET with MVC.
10. Write a program to invoke .NET web service from Web form.

TOTAL: 45 PERIODS

COURSE OUTCOMES
Upon successful completion of this course, the students will be able to
CO 1: Select the right person in company sector.
CO 2: Acquire the knowledge about the human resource policies and ethics.
CO 3: Study the training programme of self-development and knowledge management.

UNIT I  PERSPECTIVES IN HUMAN RESOURCE MANAGEMENT  9

UNIT II  THE CONCEPT OF BEST FIT EMPLOYEE  9

UNIT III  TRAINING AND EXECUTIVE DEVELOPMENT  9

UNIT IV  SUSTAINING EMPLOYEE INTEREST  9

UNIT V  PERFORMANCE EVALUATION AND CONTROL PROCESS  9

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
MCE5B  DATA MINING AND DATA WAREHOUSING  L T P C  3 0 0 3

COURSE OUTCOMES
Upon successful completion of this course, the students will be able to

- **CO 1**: Explore data warehousing and OLAP, and devise efficient and cost effective methods for maintaining Data warehousing.
- **CO 2**: Develop practical work of data mining techniques and design hypothesis based on the analysis to conceptualize a data mining solution to a practical problem.
- **CO 3**: Evaluate systematically supervised and unsupervised models and algorithms with respect to their accuracy.
- **CO 4**: Explore recent trends in data mining such as web mining, text, multimedia and spatial-temporal mining.

UNIT I  DATA WAREHOUSING  9

UNIT II  DATA MINING  9

UNIT III  CLASSIFICATION AND PREDICTION  9
Issues Regarding Classification and Prediction – Classification by Decision Tree Introduction, Bayesian Classification – Rule Based Classification, Classification by Back propagation, Support Vector Machines – Associative Classification, Lazy Learners – Other Classification Methods, Prediction – Accuracy and Error Measures, Evaluating the Accuracy of a Classifier or Predictor – Ensemble Methods – Model Section.

UNIT IV  CLUSTER ANALYSIS  9
Types of Data in Cluster Analysis – A Categorization of Major Clustering Methods, Partitioning Methods – Hierarchical methods – Density-Based Methods – Grid-Based Methods – Model, Based Clustering Methods – Clustering High-Dimensional Data – Constraint, Based Cluster Analysis – Outlier Analysis.

UNIT V  MINING OBJECT, SPATIAL, MULTIMEDIA, TEXT AND WEB DATA  9
Multidimensional Analysis and Descriptive Mining of Complex Data Objects – Spatial Data Mining – Multimedia Data Mining – Text Mining – Mining the World Wide Web.

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
MCE5C COMPONENT BASED TECHNOLOGY

COURSE OUTCOMES
Upon successful completion of this course, the students will be able to
CO 1: Familiarize software components.
CO 2: Understand java based component technologies.
CO 3: Study the .NET and CORBA component technologies.
CO 4: Study the component frameworks and development.

UNIT I INTRODUCTION

UNIT II JAVA BASED COMPONENT TECHNOLOGIES

UNIT III CORBA COMPONENT TECHNOLOGIES

UNIT IV .NET BASED COMPONENT TECHNOLOGIES

UNIT V COMPONENT FRAMEWORKS AND DEVELOPMENT

TOTAL: 45 PERIODS

TEXT BOOK

REFERENCES
MCE5D MANAGERIAL ECONOMICS L T P C
3 0 0 3

COURSE OUTCOMES
Upon successful completion of this course, the students will be able to
- CO 1: Approach managerial decision problems using economic reasoning.
- CO 2: Analyze the production costs and set optimal prices for products.
- CO 3: Apply economic principles to decision making within a company and analyze long-term prospects for specific firms and markets.
- CO 4: Estimate demand, segment markets, use quality discrimination, and decide volume discounts.

UNIT I INTRODUCTION TO MANAGERIAL ECONOMICS 9

UNIT II FORECASTING, PRODUCTION AND COST ANALYSIS 9

UNIT III MARKET STRUCTURE, PRICING AND OUTPUT DECISIONS 9

UNIT IV RISK AND UNCERTAINTY 9

UNIT V MACROECONOMIC ISSUE 9

TOTAL: 45 PERIODS

TEXT BOOK

REFERENCES
MCE5E  MOBILE COMPUTING                     L T P C
                                                3 0 0 3

COURSE OUTCOMES
Upon successful completion of this course, the students will be able to
  CO 1: Recognize the fundamental concepts of wireless communication.
  CO 2: Understand the concept of location aware computing.
  CO 3: Apply the concerns on security and privacy.

UNIT I  FUNDAMENTALS OF WIRELESS COMMUNICATION                                 9
Propagation – Multiplexing – Modulations – Spread spectrum – Medium Access Control – Space
Division Multiple Access – Frequency Division Multiple Access – Time Division Multiple Access –
Code Division Multiple Access – Cellular Wireless Networks.

UNIT II  TELECOMMUNICATION SYSTEMS                           9

UNIT III  WIRELESS NETWORKS                            9
Wireless LAN – IEEE 802.11 Standards – Architecture – Services – High Performance Radio LAN –
Adhoc Network – Blue Tooth.

UNIT IV  NETWORK LAYER                                       9
Mobile IP – Dynamic Host Configuration Protocol – Routing – Destination Sequential Distance Vector –
Dynamic Source Routing – Ad hoc On-demand Distance Vector – Zone Routing Protocol – On-Demand
Multicast Routing Protocol.

UNIT V  TRANSPORT AND APPLICATION LAYERS                          9
TCP over Wireless Networks – Indirect TCP – Snooping TCP – Mobile TCP – Fast Retransmit / Fast
Transaction Application.

TOTAL: 45 PERIODS

TEXT BOOK

REFERENCES
   Hill, 2010.
4. Uwe Hansmann, Lothar Merk, Martin S. Nicklons and Thomas Stober, “Principles of Mobile
MCE5F  DIGITAL IMAGING  L T P C  3 0 0 3

COURSE OUTCOMES
Upon successful completion of this course, the students will be able to

CO 1: Design and implement with Matlab algorithms for digital image processing operations such as histogram equalization, enhancement, filtering, and denoising.

CO 2: Implement segmentation and compression for an image.

CO 3: Apply image processing issues and techniques for real world problems.

UNIT I  FUNDAMENTALS OF IMAGE PROCESSING  9

UNIT II  IMAGE ENHANCEMENT  9

UNIT III  IMAGE SEGMENTATION AND FEATURE ANALYSIS  9

UNIT IV  MULTI RESOLUTION ANALYSIS AND COMPRESSIONS  9

UNIT V  IMAGE REPRESENTATION AND RECOGNITION  9

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
MCE5G ENTERPRISE RESOURCE PLANNING L T P C 3 0 0 3

COURSE OUTCOMES
Upon successful completion of this course, the students will be able to
CO 1: Understand the Business Modules in ERP.
CO 2: Study the different ERP Market.
CO 3: Study the Future ERP.

UNIT I INTRODUCTION TO ERP 9

UNIT II ERP IMPLEMENTATION 9

UNIT III BUSINESS MODULES 9

UNIT IV ERP MARKET 9

UNIT V ERP – PRESENT AND FUTURE 9
Turbo Charge the ERP System – EIA – ERP and E-Commerce – ERP and Internet – Future Directions in ERP.

TOTAL: 45 PERIODS

TEXT BOOK

REFERENCES
MC5H   AGENT BASED INTELLIGENT SYSTEMS   LT P C
3 0 0 3

COURSE OUTCOMES

Upon successful completion of this course, the students will able to

CO 1: Describe methods of representing and using knowledge.
CO 2: Use inference in propositional or predicate logic.
CO 3: Apply various methods to handle uncertainty.

UNIT I  INTRODUCTION
Constraint Satisfaction Problems – Game playing.

UNIT II  KNOWLEDGE REPRESENTATION AND REASONING
Logical Agents – First order logic – First Order Inference – Unification – Chaining – Resolution
Strategies – Knowledge Representation – Objects – Actions – Events.

UNIT III  PLANNING AGENTS
Conditional Planning – Continuous Planning – Multi Agent Planning.

UNIT IV  AGENTS AND UNCERTAINTY
Acting under uncertainty – Probability Notation – Bayes Rule and use – Bayesian Networks – Other
Complex Decisions.

UNIT V  HIGHER LEVEL AGENTS
Knowledge in Learning – Relevance Information – Statistical Learning Methods – Reinforcement
Learning – Communication – Formal Grammar – Augmented Grammars – Future of AI.

TOTAL: 45 PERIODS

TEXT BOOK
Hall, 2010.

REFERENCES
COURSE OUTCOMES
Upon successful completion of this course, the students will be able to
- CO 1: Develop a language model using finite state automata and N-grams.
- CO 2: Build a simple document indexer.
- CO 3: Develop a binary classifier for a set of documents.
- CO 4: Build a statistical analyzer for a given document.

UNIT I  INTRODUCTION
9
Finite State Automata – Morphology and Finite-State Transducers – Dealing with Spelling Errors –
Spelling Error Patterns – Detecting New-Word Errors – Probabilistic Model – Bayesian Model –
Minimum Edit Distance.

UNIT II  LANGUAGE MODELING AND PART-OF-SPEECH TAGGING
9

UNIT III  CONTEXT-FREE GRAMMARS AND PARSING
9
Coordination – Agreement – The Verb Phrase and Sub-categorization – Auxiliaries – Parsing:
Introduction – Top-Down Parser – Problems with Top-Down Parser – Feature Structures – Unification of

UNIT IV  MEANING AND TEXT MINING
9
Representing Meaning – Meaning Structure of Language – First Order Predicate Calculus –
Representing Linguistically Relevant Concepts – Syntax-Driven Semantic Analysis – Word Sense
Disambiguation – Text Categorization: Decision Trees – Maximum Entropy Modeling – Perceptrons – k-
Nearest Neighbour Classification. Clustering: Hierarchical Clustering – Non- Hierarchical Clustering.

UNIT V  APPLICATIONS
9
Machine Translation – Transfer Metaphor – Interlingua and Statistical Approaches – Discourse
Processing – Dialog and Conversational Agents – Natural Language Generation – Surface Realization
and Discourse Planning – Information Retrieval.

TOTAL: 45 PERIODS

TEXT BOOKS
1. Daniel Jurafsky and James H. Martin “Speech and Language Processing an Introduction to Natural
2. Christopher D. Manning and Hinrich Schütze, “Foundations of Statistical Natural Language

REFERENCES
COURSE OUTCOMES
Upon successful completion of this course, the students will be able to
CO 1: Describe the basic concept techniques and applications of software agents.
CO 2: Design agent based application in Java.
CO 3: Apply knowledge for security contemplation in agent.

UNIT I  INTRODUCTION
Agent Definition – Agent Programming Paradigms – Agent Vs Object – Aglet – Mobile Agents – Agent
Frameworks – Agent Reasoning.

UNIT II  JAVA AGENTS
Computing – Aglets Programming – Jini Architecture – Actors and Agents – Typed and proactive
messages.

UNIT III  MULTIAGENT SYSTEMS
Interaction between agents – Reactive Agents – Cognitive Agents – Interaction protocols – Agent
coordination – Agent negotiation – Agent Cooperation – Agent Organization – Self-Interested agents in
Electronic Commerce Applications.

UNIT IV  INTELLIGENT SOFTWARE AGENTS
Interface Agents – Agent Communication Languages – Agent Knowledge Representation – Agent
Adaptability – Belief Desire Intension – Mobile Agent Applications.

UNIT V  AGENTS AND SECURITY
Agent – Black Box Security – Authentication for agents – Security issues for Aglets.

TOTAL: 45 PERIODS

TEXT BOOK

REFERENCES
   Hall, 2010.
MCE5L SUPPLY CHAIN MANAGEMENT

COURSE OUTCOMES
On completion of the course, the students will be able to
   CO 1: Satisfy customer requirements.
   CO 2: Produce the product within promise date with high quality factors.
   CO 3: Do the reverse engineering to meet the best quality.

UNIT I INTRODUCTION
Concept, Objectives and function of SCM, Conceptual framework of SCM, Supply chain Strategy, Operating model for supply chain. Managing the External and internal supply chain.

UNIT II GLOBAL SUPPLY CHAIN MANAGEMENT

UNIT III SOURCING
Sourcing of material, Global sourcing – issues, problems. Group Purchasing, Inventory Management in Supply chain: Role and importance of inventory in SC, Inventory policies, JIT, VMI. Role of Stores management in SC, inventory as an element of customer service.

UNIT IV STRATEGIC ISSUES IN SUPPLY CHAINS
Lean Manufacturing, Strategic Partnerships, Alliance, and Collaborative. Strategic relationship in – logistics, Handling system and equipment, Stores management. Best practice and Bench marking, Re-engineering of supply chain.

UNIT V RETAILING AND SUPPLY CHAIN INTERFACE
Retail supply chain management, Transportation and inventory in retail SC, Cannel design and management, Role of Packaging and Repackaging in Retail business, Customer led business, Customer focus in Supply Chain, Complaint Handing, developing customer service strategy, RFID and Bar coding.

TOTAL: 45 PERIODS

TEXT BOOK

REFERENCES
MCE5M   HEALTHCARE FOR IT SERVICES       L T P C
                                              3 0 0 3

COURSE OUTCOMES
On the successful completion of the course, the students will able to
   CO 1: Enrich and apply the knowledge of health care information in a real time system.
   CO 2: Use current technology and security principles in modern health care systems.
   CO 3: Meet IT challenges and initiate a management role of accessing health care information.

UNIT I   INTRODUCTION                  9
Introduction to health care information – Health care data quality – Health care information regulations, laws and standards.

UNIT II  HEALTH CARE INFORMATION SYSTEMS  9
History and evolution of health care information systems – Current and emerging use of clinical information systems – system acquisition – System implementation and support.

UNIT III INFORMATION TECHNOLOGY              9
Information architecture and technologies that support health care information systems – Health care information system standards – Security of health care information systems.

UNIT IV MANAGEMENT OF IT CHALLENGES         9
Organizing information technology services – IT alignment and strategic planning – IT governance and management.

UNIT V   IT INITIATIVES                   9
Management’s role in major IT initiatives – Assessing and achieving value in health care information systems.

TOTAL: 45 PERIODS

TEXT BOOK

REFERENCES
MCE5N PORTFOLIO MANAGEMENT

COURSE OUTCOMES
Upon successful completion of this course, the students will be able to

- CO 1: Evaluate the characteristics of different financial assets such as money market instruments, bonds, and stocks, and how to buy and sell these assets in financial markets.
- CO 2: Provide a general overview of capital markets, financial instruments, and investment process.
- CO 3: Understand how financial markets work, to analyze securities, and to make intelligent investment decisions based on available evidence and analysis.
- CO 4: Analyze financial articles and news with a critical approach.
- CO 5: Know how to apply different valuation models to evaluate fixed income securities, stocks, and how to use different derivative securities to manage their investment risks.

UNIT I MONEY AND CAPITAL MARKETS

UNIT II STOCK EXCHANGES

UNIT III FUNDAMENTAL ANALYSIS

UNIT IV TECHNICAL ANALYSIS

UNIT V PORTFOLIO ANALYSIS

TOTAL: 45 PERIODS

TEXT BOOK

REFERENCES
MCE5P  ARTIFICIAL INTELLIGENCE  L T P C  3 0 0 3

COURSE OUTCOMES
On the successful completion of the course, the students will be able to
- CO 1: Understand the modern view of AI as the study of agents and apply in real system.
- CO 2: Use the searching techniques and build an ontology structure of a problem using knowledge engineering.
- CO 3: Assess the techniques presented and apply them to real world problems.

UNIT I  INTRODUCTION  9

UNIT II  SEARCHING TECHNIQUES  9

UNIT III  KNOWLEDGE REPRESENTATION  9

UNIT IV  LEARNING  9

UNIT V  APPLICATIONS  9

TOTAL: 45 PERIODS

TEXT BOOK

REFERENCES
MCE5Q PARALLEL AND DISTRIBUTED COMPUTING L T P C 3 0 0 3

COURSE OUTCOMES
Upon successful completion the course, the students will able to
  CO 1: Understand parallel and distributed computing basics including the concepts, architecture, and algorithms.
  CO 2: Understand distributed computing techniques and program using remote method invocation.
  CO 3: Understand about fault tolerance level and issues in Distributed File Systems.

UNIT I INTRODUCTION TO DISTRIBUTED ENVIRONMENT 8

UNIT II INTRODUCTION TO PARALLEL COMPUTING 8
Introduction to Parallelism and computing – Parallel machine model – Parallel programming model – HPC/HTC models.

UNIT III DESIGNING PARALLEL ALGORITHMS 10
Methodical design – Partitioning – Communication – Agglomeration; Mapping – Design and development of parallel processing system – Unix Workstation clusters – Master slave programming – Multi-threaded programming – Scheduling –Concurrency.

UNIT IV FAULT TOLERANCE AND DISTRIBUTED FILE SYSTEMS 10

UNIT V CASE STUDIES 9

TOTAL: 45 PERIODS

TEXT BOOK

REFERENCES
MCE5R SOFT COMPUTING

COURSE OUTCOMES
Upon successful completion of this course, the students will be able to
CO 1: Familiarize soft computing constituents.
CO 2: Understand the fuzzy logic.
CO 3: Study the different classifications of neural networks.
CO 4: Study the applications of Genetic algorithms.

UNIT I SOFTCOMPUTING AND CONVENTIONAL AI 9

UNIT II FUZZY SYSTEMS 9

UNIT III ARTIFICIAL NEURAL NETWORKS 9

UNIT IV NEURO - FUZZY MODELING 9

UNIT V GENETIC ALGORITHMS 9

TOTAL: 45 PERIODS

TEXT BOOK

REFERENCES
MCE5S  SOFTWARE PROJECT MANAGEMENT     L T P C
                                      3 0 0 3

COURSE OUTCOMES
Upon completion of this course, the students will able to
   CO 1: Manage the software project development process.
   CO 2: Monitor the entire software project development process.
   CO 3: Organize the team members and take in to the right direction.

UNIT I  INTRODUCTION TO SOFTWARE PROJECT MANAGEMENT  9
Project Definition – Contract Management – Activities Covered By Software Project Management –
Overview of Project Planning – Stepwise Project Planning.

UNIT II  PROJECT EVALUATION  9
Strategic Assessment – Technical Assessment – Cost Benefit Analysis – Cash Flow Forecasting – Cost

UNIT III  ACTIVITY PLANNING  9
Objectives – Project Schedule – Sequencing and Scheduling Activities – Network Planning Models –
Forward Pass – Backward Pass – Activity Float – Shortening Project Duration – Activity on Arrow
– Hazard Analysis – Risk Planning and Control.

UNIT IV  MONITORING AND CONTROL  9
Prioritizing Monitoring – Getting Project Back To Target – Change Control – Managing contracts –
management – Acceptance.

UNIT V  MANAGING PEOPLE AND ORGANIZING TEAMS  9
Introduction – Understanding Behaviour – Organizational Behaviour: A Background – Selecting the right
person for the job – Instruction in the best methods – Motivation – The Oldman – Hackman Job
Characteristics Model – Working in groups – Becoming a team – Decision making – Leadership –
Organizational structures – Stress – Health and Safety – Case Studies.

TOTAL: 45 PERIODS

TEXT BOOK

REFERENCES
## MCE5T  PROFESSIONAL ETHICS

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### COURSE OUTCOMES
Upon completion of this course, the students will be able to

- CO 1: Apply ethics in society.
- CO 2: Discuss the ethical issues related to engineering.
- CO 3: Realize the responsibilities and rights in the society.

### UNIT I  ENGINEERING ETHICS

### UNIT II  ENGINEERING AS SOCIAL EXPERIMENTATION

### UNIT III  ENGINEER'S RESPONSIBILITY FOR SAFETY

### UNIT IV  RESPONSIBILITIES AND RIGHTS

### UNIT V  GLOBAL ISSUES

### TOTAL: 45 PERIODS

### TEXT BOOKS

### REFERENCES
MCE5V MOBILE ENGINEERING

COURSE OUTCOMES
Upon successful completion of this course, the students will be able to
   CO 1: Recognize the basic concepts of mobile communication.
   CO 2: Acquire the knowledge of wireless network structure.
   CO 3: Have an idea about routing protocol functions and their implication.
   CO 4: Understand the issues and challenges of wireless sensor networks.

UNIT I MOBILE COMMUNICATION FUNDAMENTALS 9

UNIT II WIRELESS NETWORKS 9

UNIT III NETWORK PROTOCOLS 10

UNIT IV WIRELESS SENSOR NETWORK 10

UNIT V END-END DELIVERY AND SECURITY 7

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES
MCE5W  INFRASTRUCTURE ADMINISTRATION AND MANAGEMENT  L T P C
3 0 0 3

COURSE OUTCOMES
Upon successful completion of this course, the students will be able to
CO 1: Understand and utilize System Administration and ethics.
CO 2: Understand Database Administration using oracle.
CO 3: Apply the Security Technologies in Network Environment.
CO 4: Acquire knowledge about the Linux Environment.

UNIT I  SYSTEM ADMINISTRATION AND ETHICS

UNIT II DATABASE ADMINISTRATION

UNIT III SYSTEM INFRASTRUCTURE DESIGN

UNIT IV NETWORK ADMINISTRATION

UNIT V LINUX FILE SYSTEM MANAGEMENT
File System Organizations and File Types – File System Configuration – Optimizing storage and Data access – Logical volume manager.

TOTAL: 45 PERIODS

TEXT BOOKS

REFERENCES