# ANNA UNIVERSITY TIRUCHIRAPPALLI
TIRUCHIRAPPALLI – 620 024

Regulations 2009

Curriculum

**MASTER OF COMPUTER APPLICATIONS (MCA)**

## SEMESTER I

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MASTER OF COMPUTER APPLICATIONS (MCA)

SEMESTER I

CA5101 MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE

UNIT I MATRIX ALGEBRA

UNIT II BASIC SET

UNIT III MATHEMATICAL LOGIC

UNIT IV GRAPHS AND TREES

UNIT V LATTICES

TEXT BOOK

REFERENCES
1. Narasingh Deo, “Graph Theory with Applications to Engineering and computer science”, Prentice Hall of India, New Delhi, 2007.
UNIT I FUNDAMENTALS OF ALGORITHMS
Algorithm – Analysis of algorithms – Best case and worst case complexities – Analysis of some algorithms using simple data structures – Amortized time complexity.

UNIT II FUNDAMENTALS OF DATA STRUCTURES

UNIT III TREES

UNIT IV GRAPHS AND THEIR APPLICATIONS

UNIT V STORAGE MANAGEMENT

Total: 45

TEXT BOOKS

REFERENCES
UNIT I PROBLEM SOLVING AND ALGORITHMS

UNIT II PROBLEM SOLVING TECHNIQUES
Factoring Methods – Array Techniques – Merging – Sorting – Searching

UNIT III FUNDAMENTALS OF C LANGUAGE

UNIT IV ARRAYS - FUNCTIONS - STRUCTURES AND UNIONS
Arrays – Dynamic and multi dimensional arrays – Character arrays and Strings – String handling Functions – User defined Functions – Categories of Functions – Recursion – Structures and Unions – Array of Structures – Structures and Functions

UNIT V POINTERS AND FILE MANAGEMENT

TEXT BOOKS

REFERENCES
UNIT I   BASIC STRUCTURE OF COMPUTERS   9

UNIT II   BASIC PROCESSING UNIT   9

UNIT III   PIPELINING   9

UNIT IV   MEMORY SYSTEM   9

UNIT V   I/O ORGANIZATION   9
Accessing I/O devices – Interrupts – Direct Memory Access – Buses – Interface circuits – Standard I/O Interfaces (PCI, SCSI, USB)

Total: 45

TEXT BOOK

REFERENCES
UNIT I FUNDAMENTALS

UNIT II RELATIONAL DATABASES

UNIT III DATA STORAGE AND INDEXING

UNIT IV QUERY EVALUATION & OPTIMIZATION

UNIT V TRANSACTION MANAGEMENT

TEXT BOOKS

REFERENCES
1. Implementation of all the data structures specified in Data Structures theory subject.
2. Implement applications like conversion of arithmetic expressions from infix to postfix and evaluation of Postfix expressions.
5. Implementation of Quick sort algorithm.
7. Implementation of Graph search algorithms.
8. Implementation of Minimal spanning tree algorithms.
10. Implementation of Heap structure.

Total : 45
1. Display the following:
   (i) Floyd’s triangle   (ii) Pascal Triangle

2. Generate the following series of numbers:
   (i) Armstrong numbers between 1 to 100
   (ii) Prime numbers between 1 to 50
   (iii) Fibonacci series up to N numbers

3. Manipulate the strings with following operations
   (i) Concatenating two strings (ii) Reversing the string (iii) Finding the substring
   (iv) Replacing a string (v) Finding length of the string

4. Find the summation of the following series:
   (i) Sine (ii) Cosine (iii) Exponential

5. Create the sales report for M sales person and N products using two dimensional arrays

6. Simulate the following Banking operations using functions
   (i) Deposit   (ii) Withdrawal   (iii) Balance Enquiry

7. Implement using recursion
   (i) Find the solution of Towers of Hanoi problem using recursion.
   (ii) Fibonacci number generation.
   (iii) Factorial of a number.

8. Generate Student mark sheets using structures

9. Create a collection of books using arrays of structures and do the following:
   (i) Search a book with title and author name (ii) Sorts the books on title.

Total: 45
1. Execute a single line and group functions for a table.
2. Execute DCL and TCL Commands.
3. Create and manipulate various DB objects for a table.
4. Create views – partitions and locks for a particular DB.
5. Write PL/SQL procedure for an application using exception handling.
6. Write PL/SQL procedure for an application using cursors.
7. Write a DBMS program to prepare reports for an application using functions.
8. Write a PL/SQL block for transaction operations of a typical application using triggers.
9. Write a PL/SQL block for transaction operations of a typical application using package.
10. Design and develop an application using any front end and back end tool (make use of ER Diagram and DFD).
11. Develop an application using Menus
12. Importing / Exporting Data

Total: 45
SEMESTER II

CA5151 OBJECT ORIENTED PROGRAMMING

UNIT I  FUNDAMENTALS  9
Object Oriented Programming concepts – Encapsulation – Programming Elements – 
Program Structure – Enumeration Types – Functions and Pointers – Function 
Invocation – Overloading Functions – Scope and Storage Class – Pointer Types –  

UNIT II  IMPLEMENTING ADTS AND ENCAPSULATION  9
Aggregate Type struct – Structure Pointer Operators – Unions – Bit Fields – Data 
Hiding and Member Functions – Classes – Constructors and Destructors – Static 
Member – this Pointer – Reference semantics – Implementation of simple ADTs.

UNIT III  POLYMORPHISM  9
ADT Conversions – Overloading – Overloading Operators – Unary Operator 
Overloading – Binary Operator Overloading – Function Selection – Pointer Operators –  

UNIT IV  TEMPLATES  9
Template Class – Function Templates – Class Templates – Parameterizing – STL –  
Algorithms – Function Adaptors.

UNIT IV  INHERITANCE  9
Derived Class – Typing Conversions and Visibility – Code Reuse – Virtual Functions –  
Templates and Inheritance – Run–Time Type Identifications –Exceptions – Handlers –  
Standard Exceptions.

Total: 45

TEXT BOOK

REFERENCES
Pearson Education.
UNIT I DATA COMMUNITATIONS FUNDAMENTALS
Communication model – Data communications networking – Data transmission
Concepts and terminology – Transmission media – Data encoding – Data link Control.

UNIT II NETWORK FUNDAMENTALS

UNIT III NETWORK LAYER
Network layer – Switching concepts – Circuit switching networks – Packet Switching –
Routing – Congestion control – X.25 – Internetworking concepts and X.25 architectural
models – IP – Unreliable connectionless delivery – Datagrams – Routing IP datagram –
ICMP.

UNIT IV TRANSPORT LAYER
Transport layer – Reliable delivery service – Congestion control – Connection
establishment – Flow control – Transmission control protocol – User datagram
protocol.

UNIT V NETWORK SECURITY AND APPLICATIONS
Name Service – Traditional Applications – SMTP – HTTP – Multimedia Application –
RTP – RTCP – SCTP.

Total: 45

TEXT BOOK
1. Larry L. Peterson & Bruce S. Davie, “Computer Networks – A Systems

REFERENCES
CA5153 OPERATING SYSTEMS

UNIT I    FUNDAMENTALS
Definition of OS – Mainframe System – Desktop Systems – Multi processor System –
Distributed – Clustered – Real time Systems – Handheld Systems – Operating System
Structure – System Components – Services – System Calls – System Programs –
System Design and Implementation

UNIT II    PROCESS MANAGEMENT
Inter Process Communication – CPU Scheduling – Scheduling Concepts – Criteria –
Scheduling Algorithms – Multiprocessor Scheduling – Real time Scheduling

UNIT III    PROCESS SYNCHRONIZATION
Critical Section – Synchronization Hardware – Semaphores – Problems of
Synchronization – Critical Regions – Monitors – Deadlocks – Characterization –
Handling Deadlocks – Deadlock Prevention – Avoidance – Detection – Deadlock
Recovery

UNIT IV    MEMORY MANAGEMENT
Storage Hierarchy – Storage Management Strategies – Contiguous-Non Contiguous
Virtual Memory – Basic Concepts – Multilevel Organization – Block Mapping –

UNIT V    I/O AND FILE SYSTEMS
Free Space Management – Case Study: Linux System

Total: 45

TEXT BOOKS

REFERENCES
UNIT I  FUNDAMENTALS

UNIT II  REQUIREMENT ANALYSIS

UNIT III  SOFTWARE DESIGN
Design Concepts – Design Models – Pattern Based Design – Architectural Design – Component Level Design – Component – Class Based And Conventional Components Design – User Interface – Analysis And Design.

UNIT IV  SOFTWARE TESTING

UNIT V  SCM AND QUALITY ASSURANCE

Total: 45

TEXT BOOKS

REFERENCES
UNIT I  GRAPHICS FUNDAMENTALS  
I/O devices – I/O Primitives – DDA – Bresenham technique – Circle drawing algorithms – Interactive input methods.

UNIT II  2D GRAPHICS  

UNIT III  3D GRAPHICS  

UNIT IV  OVERVIEW OF MULTIMEDIA  

UNIT V  MULTIMEDIA SYSTEMS AND APPLICATIONS  

Total: 45 hrs.

TEXT BOOK

REFERENCES
CA5156 OBJECT ORIENTED PROGRAMMING LABORATORY

L T P C
0 0 3 2

1. Recursive functions.
2. File handling operations using structures.
3. Simple Classes for understanding objects, Member functions and constructors, handling constants in a class and constant objects.
4. String class implementation.
5. Dynamic memory allocation.
6. Iterator applications.
7. Static members in class and an application.
8. Operator overloading including unary operators, new and delete.
10. Inheritance issues.
11. File handling (text and objects)

Total: 45
1. Implement the following CPU scheduling Algorithms
2. Implement the Mutual Exclusion Problem Using Dekker’s Algorithm
3. Implement Inter Process Communication Problem (Producer-Consumer/Reader-Writer Problem) Using Semaphores
4. Implement Bset fit-First Fit Algorithm for Memory Management
5. Implement Memory Allocation with Pages
6. Implement FIFO page Replacement Algorithm
7. Implement LRU page Replacement Algorithm
8. Implement the creation of Shared memory Segment
9. Implement File Locking
10. Implement Banker’s algorithm

Total: 45
1. Implementation of DDA algorithm
2. Implementation of Bresenham’s algorithms.
   a) Line b) Circle c) Ellipse.
3. 2D Transformations:
   a) Translation
   b) Rotation
   c) Scaling
   d) Reflection
   e) Shearing of Objects
4. Cohen-Sutherland 2D clipping and windowing.
5. 3D Transformations:
   a) Translation
   b) Rotation
   c) Scaling
6. To implement text compression algorithm.
7. To implement image compression algorithm.
8. Animation using any Animation software.
9. Basic operations on image using any image editing software.
10. Examples using PHOTOSHOP, FLASH, and MAYA.

   **Total: 45 hrs.**
SEMESTER III

CA5201        ACCOUNTING AND FINANCIAL MANAGEMENT

L  T  P  C
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UNIT I    FINANCIAL ACCOUNTING  9


UNIT II    MANAGEMENT ACCOUNTING  9


UNIT III    GOALS AND FUNCTIONS OF FINANCIAL MANAGEMENT  9


UNIT IV    WORKING CAPITAL MANAGEMENT  9


UNIT V     TALLY 9.0 (ACCOUNTING PACKAGE)  9


L:45 T:15 Total: 60

TEXT BOOK


REFERENCES

CA5202 OBJECT ORIENTED ANALYSIS AND DESIGN  

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UNIT I  FUNDAMENTALS  


UNIT II  OBJECT ORIENTED METHODOLOGIES  


UNIT III OBJECT ORIENTED ANALYSIS  

Identifying use cases - Object Analysis - Classification – Identifying Object relationships - Attributes and Methods.

UNIT IV OBJECT ORIENTED DESIGN  


UNIT V SOFTWARE QUALITY AND USABILITY  


Total: 45 hrs.

TEXT BOOKS


REFERENCES

UNIT I THE 8086 PROCESSOR - SOFTWARE ASPECTS 9
Evolution of Microprocessors - 8086 architecture – Addressing modes- Instruction set and assembler directives – Assembly language programming – Interrupts and interrupt service routines.

UNIT II 8086 SYSTEM DESIGN 9
8086 signals description – Basic configurations - System bus timing – System design using 8086 – Minimum mode /Maximum modes 8086 system and timings.

UNIT III INTERFACING CONCEPTS 9
Memory Interfacing and I/O interfacing - Parallel communication interface – Serial communication interface – Timer – Keyboard /display controller – Interrupt Controller – DMA controller – Programming and applications.

UNIT IV ADVANCED PROCESSORS 9

UNIT V BUILDING SYSTEMS 9

Total: 45

TEXT BOOK

REFERENCES
UNIT I  JAVA FUNDAMENTALS

UNIT II  NETWORK PROGRAMMING IN JAVA

UNIT III  DISTRIBUTED COMPUTING IN JAVA

UNIT IV  N - TIER APPLICATION DEVELOPMENT

UNIT V  MOBILE APPLICATION DEVELOPMENT

Total: 45 hrs.

TEXT BOOKS


REFERENCES

Develop software for an application using typical Case Tool, following Software Engineering methodology as given below:

1. **Problem Statement**  Thorough study of the problem – Identify project scope, Objectives and infrastructure.

2. **Business modeling and requirements specification:**  The specification language Unified Modeling Language (UML), will be used.

3. **UML**  Use work products – data dictionary, use case diagrams and activity diagrams, build and test, class diagrams, sequence diagrams, collaboration diagrams and add interface to class diagrams.

4. **Software Implementation**  Coding - Use tools for automatic code generation from system specifications.

5. **Change Management**  --Program, Data and Documentation management

6. **Software Testing**  - Prepare test plan, perform validation testing, coverage analysis, memory leaks, develop test case hierarchy, Site check and site monitor.

7. **Software Documentation and Reverse Engineering**  - Apply Reverse Engineering approach and compare with the forward engineering approach. Prepare documents and reports

**Total:** 45 hrs.
1. Assembly Language Programming with 8086 to perform arithmetic Manipulation.
2. Assembly Language Programming with 8086 to perform string Manipulation.
3. Study of DOS and BIOS function calls for keyboard and monitor interface.
4. File manipulation.
5. Write a program to Perform Power on Self Test.
6. Write an assembly language program to interface Programmable Peripheral Interface.
7. Write an assembly language program to interface Programmable Timer.
8. Write an assembly language program to interface Programmable Communication Interface.
9. Write a program for floppy disk trouble shooting.
10. Write a program for printer trouble shooting.

Total: 45
1. Implementation of Streaming Models – Stream Customization.
2. Byte Code Interpretation Program – Applications.
3. Threading – Synchronization of Threads And Applications.
4. JNI Applications.
5. Socket Programming.
7. RMI With Call Back – Implementation Of RMI – IIOP Using CORBA
   Concepts And Using IDL.
8. JDBC Applications – Data Retrieval – Storing Multimedia Data And Retrieval
   – Three – Tier Applications Using Servlets.
10. Mobile Application Development using J2ME.

Total: 45 hrs.
SEMESTER IV
CA5251 RESOURCE MANAGEMENT TECHNIQUES

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UNIT I  LINEAR PROGRAMMING (LP)  9
Model Formulation – Graphical Solution of linear programming models – Simplex method – Duality – Applications of Linear Programming - Computer Solution and Interpretation, Sensitivity Analysis

UNIT II  TRANSPORTATION AND ASSIGNMENT PROGRAMMING  9
Model formulation of transportation problems – Solution Methodologies – Sensitivity Analysis – Model formulation of assignment problems – Solution Methodologies

UNIT III  GOAL PROGRAMMING (GP)  9
Model formulation – Solution Methodologies – Preemptive – Non Preemptive – Lexico Graphic –Applications of GP - Computer Solution and Interpretation

UNIT IV  DYNAMIC PROGRAMMING (DP)  9
Model formulation – Resource Allocation Problem – An Inventory Problem – Equipment Replacement Problem – Solution Methodologies – Applications of DP

UNIT V  SCHEDULING BY PERT AND CPM  9
Network Construction – Critical Path Method (CPM) – Project Evaluation and Review Technique (PERT) – Resource Analysis in Network Scheduling

L:45 T:15 Total: 60 hrs.

TEXT BOOK

REFERENCES
CA5252  INTERNET PROGRAMMING

UNIT I  WEB SCRIPTING  8

UNIT II  WEB SERVER  9

UNIT III  SERVER SIDE TECHNOLOGIES  10

UNIT IV  XML AND WEB SERVICES  9

UNIT V  WEB SERVICE DEVELOPMENT  9

Total: 45 hrs.

TEXT BOOKS


REFERNCES

UNIT I  INTRODUCTION AND FILE SYSTEM  

UNIT II  PROCESSES  

UNIT III  INTER PROCESS COMMUNICATION  

UNIT IV  SOCKET PROGRAMMING  

UNIT V  ADVANCED SOCKET PROGRAMMING  

Total: 45 hrs

TEXT BOOKS


REFERENCES

UNIT I  INTRODUCTION TO ORGANIZATIONAL BEHAVIOUR  
Definition, Need and Importance of Organizational Behaviour – Contributing Discipline to the Organizational Behaviour – Field-Challenges and Opportunities for Organizational Behaviour - Organizational Behaviour Models.

THE INDIVIDUAL FOUNDATIONS OF INDIVIDUAL BEHAVIOUR

UNIT II  VALUES, ATTITUDES AND JOB SATISFACTION

PERSONALITY AND PERCEPTION

UNIT III  GROUP BEHAVIOUR

UNIT IV  POWER AND POLITICS
Power - Definition – Bases – Dependency: the Key to Power - Power Tactics-Power in Groups - Politics – Definition the Reality of Politics Factor Contributing – Employee Responses to Organizational Politics.

UNIT V  CONFLICT, NEGOTIATION AND ORGANIZATIONAL CULTURE

Total: 45 hrs.
TEXT BOOK


REFERENCES

1. Develop a Simple Web Site with following Features
   * Drop down menus
   * Hotspot Links
   * CSS

2. Develop a simple AJAX applications

3. Design a Web application in ASP to demonstrate the following using IIS server
   * Session and Cookie management
   * Server side Includes

4. Design a Web application in JSP to demonstrate the following using tomcat server
   * Include and Forward
   * Use Bean Tag

5. Create a Custom Tag Library and use the Tags in JSP pages.


7. Develop a student information system to insert, update, delete and search information using DOM and SAX

8. Develop an application to display catalog information in tabular format using XSLT

9. Develop a Simple Web Service using JAX-RPC

10. Develop a Simple Web Service using .NET

11. Implement Web Service Interoperability

Total 45 hrs.
WRITTEN COMMUNICATION

1. Remedial English  Subject – verb agreement – concord – tense forms – auxiliary verbs different ways of rewriting sentences.
3. Formal and Informal Writing.

ORAL COMMUNICATION

1. Stress and Intonation
2. Delivery Techniques – The extemporaneous speech and the manuscript speech – The physical aspects of speech – audience interaction.
3. The Use of Visual Aids Criteria of visual aids (visibility – clarity – simplicity – control) – The tools of visual presentation (chalk board, chart, overhead projector and so on).
4. Practice in Oral Communication
   (a) Short speeches
   (b) Group discussion – as participant and as moderator.
   (c) Mock press conference
   (d) Seminar
   (e) Mock interview
   (f) Speech based on a situation
   (g) Extemporaneous speech

Practice will also be given in conducting a meeting - welcoming a gathering - presiding over a function and proposing a vote of thanks.

Total: 45 hrs.
1. Program using basic network commands.
3. Program to implement inter process communication using Pipes.
4. Program to perform inter process communication using message queues.
5. Program to perform inter process communication using shared memory.
6. Program to perform synchronization using semaphores.
7. Socket Programming
   a. TCP chat Application.
   b. UDP Sockets Application.
   c. Multi client chat server using fork()
   d. Multithreaded chat server
8. Application to Hand SIGCHLD signals
9. Simulation of ARP/RARP.
10. Simulation of Sliding Window Protocol.
12. Developing PING application
13. Program using URL class to download WebPages.

Total: 45 hrs.
ELECTIVE I

CA5221 ADVANCED DATABASES

UNIT 1 DISTRIBUTED DATABASES


UNIT II OBJECT ORIENTED DATABASES


UNIT III EMERGING SYSTEMS

Enhanced Data Models - Client/Server Model - Data Warehousing and Data Mining - Web Databases – Mobile Databases.

UNIT IV DATABASE DESIGN ISSUES


UNIT V CURRENT ISSUES

Rules - Knowledge Bases - Active And Deductive Databases - Parallel Databases – Multimedia Databases – Image Databases – Text Database

Total: 45 hrs

TEXT BOOKS

REFERENCES
UNIT I  DATA WAREHOUSING  

UNIT II  BUSINESS ANALYSIS  

UNIT III  DATA MINING  
Data – Types of Data – Data Mining Functionalities – Interestingness of Patterns – Classification of Data Mining Systems – Data Mining Task Primitives – Integration of a Data Mining System with a Data Warehouse – Issues – Data Preprocessing.

UNIT IV  ASSOCIATION RULE MINING AND CLASSIFICATION  
Mining Frequent Patterns, Associations and Correlations – Mining Methods – Mining various Kinds of Association Rules – Correlation Analysis – Constraint Based Association Mining – Classification and Prediction – Basic Concepts – Decision Tree Induction – Bayesian Classification – Rule Based Classification – Classification by Backpropagation – Support Vector Machines – Associative Classification – Lazy Learners – Other Classification Methods – Prediction.

UNIT V  CLUSTERING, APPLICATIONS AND TRENDS IN DATAMINING  

TOTAL : 45 hrs.

TEXT BOOKS

REFERENCES
UNIT I  FUNDAMENTALS OF TUNING


UNIT II  INDEX TUNING

Types of Queries – Data Structures – B tree – B⁺ Tree – Hash Structures – Bit Map Indexes – Clustering Indexes – Non Clustering Indexes – Composite Indexes – Hot Tables – Comparison of Indexing and Hashing Techniques

UNIT III  QUERY OPTIMIZATION

Techniques – Tuning Relational Systems – Normalization – Tuning Denormalization – Clustering Two Tables – Aggregate Maintenance – Record Layout – Query Tuning – Triggers – Client Server Mechanisms – Objects, Application Tools and Performance – Tuning the Application Interface – Bulk Loading Data – Accessing Multiple Databases

UNIT IV  TROUBLESHOOTING


UNIT V  CASE STUDIES


Total: 45 hrs

TEXT BOOK


REFERENCES

UNIT I       FUNDAMENTALS OF GRID COMPUTING  


UNIT II      GRID COMPUTING ARCHITURE  


UNIT III     GRID COMPUTING TECHNOLOGIES  


UNIT IV      FUNDAMENTALS OF CLOUD COMPUTING  

Fundamentals – Shot history of cloud computing – Cloud Architecture – Cloud Storage – Cloud Service – Pros and Cons of cloud computing – Benefits from cloud computing.

UNIT V       CLOUD SERVICES  

Need for Web-Based Application – The cloud Service Development – Cloud Service Development Types – Cloud Service development tools.

Total : 45 hrs.

TEXT BOOKS


REFERENCES

UNIT I  FUNDAMENTALS  10
Transmission media – Local Area and Wide Area Networks – Switching – Connecting
devices – IP addressing

UNIT II  INTERNET PROTOCOL  10
Internet control message protocol – Internet group management protocol

UNIT III  TRANSMISSION CONTROL PROTOCOL  8
User Datagram protocol – UDP operation – Use – UDP design – TCP services – Flow
control – Error control – TCP operation and design – Connection – Transition diagram
– Congestion control

UNIT IV  APPLICATION LAYER AND CLIENT SERVER MODEL  8
Concurrency – BOOTP – DHCP – Domain name system – Name space – Distribution –
Resolution – Messages – Telnet – Rlogin – Network Virtual Terminal – Character Set –
Controlling the server – Remote login

UNIT V  APPLICATION PROTOCOLS  9
File Transfer Protocol – Connections – Communication – Simple Mail Transfer
Transaction – Request and Response messages

Total: 45 hrs

TEXT BOOK

REFERENCE
ELECTIVE II
CA5271 WEB GRAPHICS

UNIT I FUNDAMENTALS

HTML coding – Basic web graphics – Web page design and site building – Image maps – Adding multimedia to the web

UNIT II PAINT SHOP PRO/PHOTOSHOP


UNIT III IMAGE HANDLING

Scanning Images – Adding Text to the images – Designing icons – Creating background images – Color models – Color depths – Color calibration – Creating gradients – Oil paint effect

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

Creating web site with a particular theme using all the utilities – Graphics – Animations and Interaction

Total: 45 hrs

TEXT BOOKS


REFERENCES


UNIT I  AD HOC NETWORKS

Characteristics and Applications of Ad hoc Networks, Routing – Need for routing and routing classifications, Table Driven Routing Protocols, Source Initiated On-Demand Routing Protocols, Hybrid Protocols – Zone Routing, Fisheye Routing, LANMAR for MANET with group mobility, Location Added Routing, Distance Routing Effects, Microdiscovery and Power Aware Routing

UNIT II  SENSOR NETWORKS


UNIT III  WIRELESS BROADBAND NETWORKS TECHNOLOGY

VERVIEW, PLATFORMS AND STANDARDS


UNIT IV  MANAGING WIRELESS NETWORKS AND TESTING


UNIT V  ADVANCED WIRELESS NETWORKS


TOTAL : 45

TEXT BOOKS


REFERENCES

UNIT I INTRODUCTION TO STORAGE TECHNOLOGY


UNIT II STORAGE SYSTEMS ARCHITECTURE


UNIT III INTRODUCTION TO NETWORK STORAGE


UNIT IV INTRODUCTION TO INFORMATION AVAILABILITY


UNIT V MANAGING AND STORAGE VIRTUALIZATION


Total: 42 hrs.

TEXT BOOK


REFERENCES

UNIT I    PERVASIVE ARCHITECTURE  9
Local Area Networks – Wireless LANs – Relationship of Wireless, Internet and
Ubiquitous Computing – Pervasive Computing and Ubiquitous Computing – Ambient
Computing – Pervasive Web application Architecture – Requirements of
Computational Infrastructure – Failure Management – Security – Performance –
Dependability.

UNIT II    MOBILE DEVICE TECHNOLOGIES  9
Mobile Computing Devices Characteristics – Adaptation – Data Dissemination and
Management – Heterogeneity – Interoperability – Context awareness – Language
localization issues – User Interface Design Issues – Difference between UI Design for
Mobile Devices and Conventional Systems – Mobile Agents – Mobile Device

UNIT III    SENSOR NETWORKS AND RFID’S  9
of Sensor Networks – Platforms for Wireless Sensor Networks – Applications of
Wireless Sensor Networks –RFID – Transponder and Reader Architecture – Types of
Tags and Readers – Frequencies of Operation – Application of RFID Technologies.

UNIT IV    LOCAL AREA AND WIDE AREA WIRELESS TECHNOLOGIES  9
IEEE 802.11 Technologies – Infrared Technologies – Bluetooth Networks (OBEX
Protocol) – Personal Area Networks – Mobility Management – Mobile IP –
Establishing Wide Area Wireless Networks – Concept and Structure of Cell – Call
Establishment and Maintenance – Channel Management – Frequency Assignment
Techniques.

UNIT V    PROTOCOLS AND APPLICATIONS  9
Networks – Data Centric Protocols – Hierarchical Protocols – Location Based
Protocol (WAP) – Applications of Pervasive Computing – Retail – Healthcare – Sales
Force Automation – Tracking Applications.

Total: 45 hrs.

TEXT BOOK
1. Burkhardt, Henn, Hepper, Rintdorff, Schaeck, “Pervasive Computing”,
Addison Wesley, 2002.

REFERENCES
2005
UNIT I  FUNDAMENTALS  

UNIT II  RTOS  

UNIT III  REAL TIME UML  

UNIT IV  SOFTWARE DEVELOPMENT  

UNIT V  CONNECTIVITY  

Total: 45 hrs.

TEXT BOOK

REFERENCES
UNIT I  LINUX FUNDAMENTALS I

UNIT II  LINUX FUNDAMENTALS II
Configuring additional hardware – Sound cards – Displays and display cards – Network cards – Modems – USB drives – CD writers – Understanding the OS boot-up process – Performing every day tasks using gnu/linux – Accessing the internet – Playing music – Editing documents and spreadsheets – Sending and receiving email – Copy files from disks and over the network – Playing games – Writing CDS – X window system configuration and utilities – Configure X windows – Detect display devices – Installing software – From source code as well as using binary packages – Setting up email servers – Using postfix ( SMTP Services) – Courier ( IMAP & POP3 Services) – Squirrel mail ( Web Mail Services) – Setting up web servers – Using apache ( HTTP Services) – PHP (Server-Side Scripting) – Perl ( CGI Support) – Setting up file services – Using samba ( File and Authentication Services for Windows Networks) – Using NFS ( File Services for Gnu/Linux / Unix Networks) – Setting up proxy services – Using squid ( Http / Ftp / Https Proxy Services) – Setting up printer services – Using CUPS (Print Spooler) – Foomatic(Printer Database)

UNIT III  DEVELOPMENT ENVIRONMENT
Setting up a firewall – Using netfilter and IP tables – Using the GNU compiler collection – GNU compiler tools – C preprocessor (CPP) – C compiler (GCC) and the C++ compiler (G++) – Assembler (GAS) – Understanding build systems – Constructing make files and using make – Using autoconf and autogen to automatically generate make files tailored for different development environments – Using source code versioning and management tools – Using CVS to manage source code revisions – Patch and diff.

UNIT IV  LINUX INTERNALS
Understanding the GNU LIBC libraries and linker – Linking against object archives (.a libraries) and dynamic shared object libraries (.so libraries) – Generating statically linked binaries and libraries – Generating dynamically linked libraries – Using the GNU debugging tools – GDB to debug programs – Graphical debuggers like DDD – Memory debugging / profiling libraries MPATROL and VALGRIND – Review of common programming practices and guidelines for GNU/Linux and FOSS – Basics of bash – SED and Awk scripting- Basics of the X windows server architecture.

UNIT V  DESKTOP PROGRAMMING
QT programming – GTK+ programming – Python programming – Programming GUI applications with localization support.

Total: 45
TEXT BOOK

REFERENCES

ON-LINE MATERIALS
5. An Introduction to GCC, Brian Gough. URL: http://www.network-theory.co.uk/docs/gccintro/
6. GNU Autoconf, Automake and Libtool, Gary V. Vaughan, Ben Elliston, Tom Tromey and Ian Lance Taylor. URL: http://sources.redhat.com/autobook/