

Course Name : MULTIMEDIA SYSTEMS
Course Code : IT 438
LTP : 4 0 0
Pre requisite :

MEDIA AND DATA STREAMS : Types of media, Representing a medium, Transmission medium , Information exchange. (04)

DATA STREAM ,SOUND & AUDIO : Medium ,Properties of multimedia systems, characteristics of Data streams, characteristics Of multimedia system ,Sound and audio. (04)

MIDI BASICS : Basic sound concepts, Music, speech,MIDI basics. (04)

INTRODUCTION TO DIGITAL IMAGE PROCESSING: Images and graphics, Digital image processing, Computer image processing. (04)

CODING TECHNIQUES: Video and animation, Television, computer based animation. Data compression, Storage space, basic data compression techniques – Huffman coding ,Shanon Fanon ,Arithmetic coding , LZW coding , Run Length coding ,Entropy coding, Differential Coding. (04)

IMAGE COMPRESSION TECHNIQUES :Image compression Technique - JPEG, H.261,H.263. (04)

VIDEO COMPRESSION TECHNIQUES : Video compression techniques - MPEG 1 , MPEG 2 ,MPEG 4 , MPEG 7, and DVI. (04)

MULTIMEDIA OPERATING SYSTEM : Multimedia operating system, Real time, resource management, process management, files systems, system architecture. (04)

QUALITY OF SERVICE : Multimedia communication systems,Application sub systems, transport subsystem, quality of service and resource management. (04)

DATABASE MANAGEMENT SYSTEM IN MULTIMEDIA : Database systems,Multimedia DBMS, data analysis, data structure, operations on data, integration in database model. (04)

MHEG : Documents, hypertext and mheg, Documents, hypertext and hypermedia, document architecture SGML, document architecture ODA, MHEG. (05)

MULTIMEDIA NETWORKING : Multimedia networking, Multimedia networking applications, Real time interactive audio and video ,Streaming audio and video ,RTSP protocol , RTP Protocol , RTCP Protocols, SIP Protocols. (02)

MUTIMEDIA OVER ATM NETWORKS : Multimedia over ATM networks , Multimedia over wireless networks – radio propagation models and wireless networks ,standards for multimedia communications-reference models ,standard relating to interpersonal

communication, standards relating to interactive applications over the network and standards for entertainment applications. (04)

IT 438 H : The students registered for honours in this course shall be required to undergo the following additional syllabus contents:

Multimedia and enterprise networks, content based retrieval and digital libraries, computer and multimedia networks, Concept of entropy, entropy functions and calculation of entropy in data compression, Estimation and calculation of motion vectors in H.261, MPEG.

Case studies: MHEG, hytime, Firefly System, MODE, ACME,

BOOK:

1. Multimedia : Computing. Communications and Applications, Ralf Steinmetz Klara Nahrstedt

REFERENCES:

1. Fundamentals of Multimedia, Ze-Nian
2. Multimedia In Action, James E. Shuman, Thomson Wadsworth
3. Multimedia in Practice: Technology and applications, Judith Jeffcoate
4. Multimedia Technology & Application, David Hillman, Galgotia Publication, 1998.
5. Multimedia Systems Design, Prabhat K. Andleigh Kiran Thakkar
6. Multimedia Syetems, John F. Koegel Buford

Course Name	:	WEB TECHNOLOGY AND ADMINISTRATION	
Course ID	:	IT 439	
L T P	:	4 0 0	Design Points: 02
Lecture wise break up			No. of lectures

Javascript and Browsers, Embedding Javascript in HTML, the noscript tag, javascript entities, Javascript comments, Generating HTML. Variable, types and literal values, Conversion between types, The object types and Arrays, Object and the length property (3)

Using operators, statements and functions – Arithmetic, Logical, Comparison, Bit manipulation, Assignment, Conditional expression, Ternary, special operators, operator precedence. Javascript programming statements – Assignment statements, Data declarations, Loop statements, switch statement, function call statements, local variable declaration, return statement (4)

Handling - javascript events, link events, Window events, image events, form events, settig event handlers in javascript, event capturing – onMouseMove event, Event bubbling, Error handling (onError event Handler, error object) (4)

Working with objects – Javascript object based programming features, Javascript object model (using properties, using methods, creating instances objects), browser objects, Boolean object, Date object, Function objects, Global objects, Math object, Number object, String

object, String object. Using Javascript with cookies, Comparison – Cookies vs Hidden form fields (4)

Creation of Java, importance to Internet, Java applets and applications, security, portability, Java's Bytecode. OOP paradigms and principles, Understanding the java programs, compiling the program, control statements, lexical issues, Data types in Java, Java literals, Variables, Scope and lifetime of Variables, Type conversion, Declaring and using arrays (6)

Operators in Java – (Arithmetic, Modulus, Assignment, Bitwise, Relational, Short circuit logical operators, Assignment, ternary operator, Operator precedence. Control statements, Classes, Garbage Collection, Overloading methods, overloading constructors, using objects as parameters, Argument passing by value and by reference, returning objects, static and final keywords, Inheritance in Java (using super keyword), overloading methods in Java, Abstract classes (6)

Exception Handling in Java, Exception types, using try and catch, multiple catch classes, nested try statement, using throw, throws, finally keywords, Java Built in Exceptions, creating user defined exceptions (6)

Multithreaded programming in Java, Java thread model, Thread priorities, synchronization, creating thread using Thread class and Runnable interface, creating multiple threads, Interthread communication, Deadlocks. (6)

Applets – Applet fundamentals, Applet architecture, creating and running applets, Passing parameters in Applets, AWT – AWT Basics, AWT classes, Working with event frame windows, working with graphics – Drawing lines, rectangles, ellipses, circles, Arcs, polygons), creating and selecting a font, Managing Text output using Font Metrics. (6)

Using AWT controls, Layout Managers, Menus, using Labels, Buttons, Checkboxes, Checkboxgroup, Choice controls, using Lists, Managing scrollbars, using a TextField, TextArea, Layout Manager – FlowLayout, BorderLayout, GridLayout, Menubars, Menus. (3)

IT 439H Additional Topics for HONOURS Students

Advanced Java Concepts:-

Socket programming: networking, basics, TCp/IP sockets,

Java Swing classes: jApplet, buttons-text,radio etc,usage of swings

Java database connectivity: connection string, connecting with databases.

Java Beans: what is java bean, its importance, Application Builder Tools, The Bean Developer Kit (BDK), creation of bean,

BOOK:

1. The Complete Reference Java, by Herbert Schildt

REFERENCE:

1. Java Programming, Steven Holzner, M & T BOOKS:s, 1998.
2. WEB Technology Handbook, Daniel Minali, Emma Minoli, 1998.

COURSE NAME : Department Lab VI
COURSE CODE : IT452
CREDITS : 02
DESIGN POINTS : 02
L T P : 0 0 3

Multimedia Systems:

A. Five Projects based on design of interactive multimedia applications using Dreamweaver, Flash, Adobe for conceptual and real life problems.

B.

1. Write a program to justify a text entered by the user on both the left and right hand side.
2. Study the notes of a piano and stimulate them using the key board and store them in a file.
3. Write a program to read a paragraph and store it to a file name suggested by the author.
4. Create a web page for a clothing company which contains all the details of that company and at-least five links to other web pages.
5. Write a program by which we can split mpeg video into smaller pieces for the purpose of sending it over the web or by small capacity floppy diskettes and then joining them at the destination.
6. Write a program to play “wave” or “midi” format sound files.

Course Name: Deptt lab –VII
Course Id : IT 453
DESIGN POINTS : 02
L T P : 0 0 3

A. Web Technology and Administration Lab

1.0 Programming problems based on JAVA and JAVA Script for the unsolved text book and two to five problems related to real life applications.

2.0 Sample projects like

- (i) designing GUI for media player,
- (ii) Designing and implementation games,
- (iii) Designing and implementation exam seating schedule,
- (iv) Designing and implementation online shopping system,
- (v) Designing and implementation of online banking system,
- (vi) Design and implementation chat server etc.

3.0 Five to ten problems to be decided by the faculty instructor.

Course Name : Capstone Project-II
Course ID : 455
Credits : 04
L T P : 0 0 8

The students registered for the course have to work of the engineering application of pertinent branch and submit a project along with software/ hardware project inclusive of all detailed

information. This work may be sequel of the capstone project-I or other new idea simulated or fabricated. The work shall be evaluated.

Course Name: SOFTWARE QUALITY ASSURANCE
Course ID : IT 426
LTP : 4 0 0
Pre-req : Software Engineering

S. No.		No. Of lectures
1	<p><i>QUALITY PRINCIPLES</i> Definitions of Quality: Vocabulary of Quality, Two Quality Gaps (producer, customer), Quality Attributes (e.g., correctness, efficiency, maintainability) Quality Concepts: The Quality Challenge, The PDCA cycle (plan, do, check, act), The Cost of Quality (prevention, appraisal, failure), The Quality Solution (define, control and assure quality), Benchmarking, Six Sigma Quality, Total Quality Management Quality Control and Quality Assurance</p>	5
2	<p><i>THE SOFTWARE DEVELOPMENT, ACQUISITION AND OPERATION PROCESSES</i> SDLC Phase: Initiation, Definition, System Design, Evaluation and Acceptance, Responsible Participants, Use of External Development Service, Differences from the SDLC Matrix, SDLC Life Cycle Documentation, The “V” Testing Concept</p>	8
3	<p><i>QUALITY MODELS AND QUALITY ASSESSMENT</i> Model and Assessment Fundamentals: Purpose of a Model, Types of Models (staged and continuous), Model Selection Process, Using Models for Assessment and Baselines Industry Quality Models: Software Engineering Institute Capability Maturity Model/CMMI, Malcolm Baldrige National Quality Award, ISO 9001:2000, ISO/IEC 12207, ISO/IEC TR 15504</p>	10
4	<p><i>QUALITY MANAGEMENT AND LEADERSHIP</i> Management Commitment: Executive and Middle Management Commitment, Quality Management Champion, New Behaviors for Management, Traditional Management to Quality Management (differences in philosophy), Leadership (modeling, coaching, reinforcing), Establishing Mutual Trust, Competition to Cooperation, Awareness Training (preparing for training, conducting training) Quality Management Infrastructure: Quality Council, Management Committees, Teams and Work Groups Quality Management Techniques and Approaches: Assessing the Organizational Climate, Visiting Other Companies, Just-in-Time Technique, Team Development Phases (forming, storming, norming, conforming), Establishing Group Compatibility (FIRO), Consensus, Controlling Meetings, Using Task Forces Effectively, Implementing a Mission, a Vision, Goals, Values and a Quality Policy Communications: Constructive Criticism, Listening, Personal Persuasion, Conformity Behavior of Individuals in a Group, Resolving</p>	10

	Customer Complaints Written Reports	
5	QUALITY ASSURANCE	10
	Establishing a Function to Promote and Manage Quality: The Challenges of Implementing a Quality Function, Implementing an IT Quality Function	
	IT Quality Plan: Contents, Long-term Action, Short-term Actions	
	Quality Tools: Workbench for Selecting and Using a Tool, Tools for Ideas and Information (logic-based tools to address idea generation and organization, decision-making and implementation), Tools for Numbers (tools with a mathematical focus, related to data collection, organization and/or interpretation), Tools for Presentation (tools used to summarize or graphically illustrate data for oral presentations or written materials)	
	Process Deployment: The Deployment Process (assessment, strategic, tactical phases), Critical Success Factors for Deployment	
	Internal Auditing and Quality Assurance: Types of internal audits, Differences in responsibilities	
6	QUALITY CONTROL PRACTICES	8
	System of Internal Control (management, application and quality controls)	
	Testing Concepts: The Testers' Workbench, Test Stages (Unit, Integration, System, User Acceptance), Independent Testing, Static vs. Dynamic Testing, Test Objectives, Reviews and Inspections, Review Formats (informal/peer, semiformal/walkthrough, formal/inspection), In Process, Checkpoint, Phase-End and Post-Implementation Reviews	
	Verification and Validation Techniques: Verification Techniques (reviews, code walkthroughs, requirements tracing), Validation Techniques (white box, black box, incremental, thread, regression), Structural and Functional Testing	
	Development, Acquisition and Constructor Verification and Validation: Management of Verification and Validation, Software Development Verification and Validation, Acquisition Verification and Validation, Constructor Verification and Validation	
	Software Change Control: Software Configuration Management, Change Control Procedures	
	Defect Management: Defect Management Process, Defect Reporting, Severity versus Priority, Using Defects for Process Improvement	
7	DEFINE, BUILD, IMPLEMENT AND IMPROVE WORK PROCESSES	7
	Process Management Concepts: Process Workbench and Components (policy, standards, input, procedures, output/deliverables), Business Control Model, Management Processes, Work Processes, Check Processes, The Process Management Continuum (products and services, work and check processes, customer involvement), How Processes are Managed	
	Process Management Processes: Planning Processes, Do Processes, Check Process, Act Process	

BOOKS:

1. The handbook of software quality assurance, 3rd edition by G. Gordan Schulmever, James I. Mcmanus

REFERENCE BOOKS:

1. Quality and quality assurance by R. S. Pressman
2. Software Quality Management and ISO 9001: How to Make Them Work for You by Michael G. Jenner
3. Software Quality Engineering: A Total Technical and Management Approach by Michael S. Deutsch, Ronald R. Willis

Course Name : WINDOWS PROGRAMMING
Course ID : IT 427
L T P : 4 0 0

Prerequisite :
Lecture wise breakup

No of lectures

THE WINDOWS ARCHITECTURE

(6)

The Concept of Handlers, The concept of Windows class, Registering a Window class, Style like CS_HREDRAW, Instance handlers, Icon handlers, Cursor handlers, The concept of Windows class, Registering a Window class, Style like CS_HREDRAW, Instance handlers, Icon handlers, Cursor handlers, Menu name, Create a Window, Class names-predefined and user defined, Window name, Draw styles, Width Height etc., Parent-Child Windows, The concept of Window Messages, Messages Queue

COMPILING AND LINKING FOR WINDOWS

(3)

Compiling for Windows, Memory models in Windows, Linking, stub file

I/O TECHNIQUES

(5)

Drawbacks of Windows, Screen printing, determining the size of Windows, The concept of device context, Device context handles, Text formatting, Using fonts, the concept of scroll bars, setting scroll bar range and position.

KEYBOARD

(3)

Keyboard messages, Virtual key codes, Parameters like repeat count, scan code etc, System keys like Alt-Tab, Ctrl-Esc etc.

MOUSE

(3)

Mouse action, Mouse messages, Activating Windows, Change mouse cursors File I/O: Win 3.1 file functions, Buffered file I/O, Common dialog boxes, Open file name structure

CHILD WINDOWS

(4)

The concept of child Windows, Child Window control, Child Window control classes, The static class, The button class, Button messages, Push buttons, Check boxes, Radio buttons, Edit class, Edit control messages, Edit styles, The list box class.

MENUS (2)

Creating menus, working of menus, Using menus Inputs, Creating pop-ups to top level menus, Menu messages, Menu templates, Using system menus, Messages from menus

DIALOG BOXES (2)

Concept of dialog boxes, Control state, working with dialog boxes.

PRINTING (3)

Obtaining printer's driver content, determining the printer name, Notifying the print job, Page breaks, determining device capabilities, printing graphics

GRAPHICS (2)

Fonts, Portrait of a character, Types of fonts, creating logical fonts.

GRAPHICAL DEVICE INTERFACE (2)

Need, The device context, determining device capabilities.

DRAWING GRAPHICS (2)

Pixels, Lines, Rectangles, and Circles.

BITMAPS (2)

Bitmap handle, Obtaining handles, internal representation of bitmaps, Creating bitmaps, Memory device context.

MEMORY MANAGEMENT (3)

Memory handles and locks, Problems of Windows memory handling, Intel's segmented memory architecture, 80286 protected mode, the memory API, Kernel Macros

WINDOWS RESOURCES (2)

Accessing resources, loading techniques.

WINDOWS TIMER (2)

Timekeeping on the PC, Windows interaction with 8259 chip, the timer API function.

WINDOWS CLIPBOARD (2)

Concept, The clipboard API, Working of clipboard, the concept of clipboard viewers, Clipboard viewer message.

BOOKS:

- 1 .Charles Petzold, "Programming Windows 95", Microsoft Press 1996.
- 2 .Ben Ezzell with Jim Blaney, "NT4/Windows 95 Developer's Handbook", BPB Publications 1997.

REFERENCES

1. Richard J Simson, "Windows NT Win 32, API Super Bible", SAMS 1997
2. James F Kurose and Keith W Ross, "Computer Networking", Pearson Education 2002.
3. Nance, "Introduction to Networking", PHI 4th Edition 2002.

Course Name : **ADVANCED DATABASE SYSTEMS**
Course ID : **IT 428**
L T P : **4 0 0**

Prerequisite :

Lecture wise breakup

No of lectures

INTRODUCTION TO DATABASE SYSTEMS (6)

Database System Concepts and Architecture, Data Models, Data Independence, SQL: DDL, DML, DCL, Normalization: 1NF, 2NF, 3NF, BCNF, 4NF, 5NF.

QUERY PROCESSING AND OPTIMIZATION (6)

Query Processing, Syntax Analyzer, Query Decomposition, Query Optimization, Heuristic Query Optimization, Cost Estimation, Cost Functions for Select, Join, Query Evaluation Plans.

TRANSACTION PROCESSING AND CONCURRENCY CONTROL (6)

Transaction processing concepts: Properties, Schedules, Serializability, Transaction support in SQL, Concurrency Control Techniques: Two-phase Locking, Timestamp Ordering, Multiversion, Validation, Multiple Granularity Locking.

OBJECT ORIENTED AND OBJECT RELATIONAL DATABASES (5)

Object Oriented Concepts, Object Oriented Data Model, Object Definition Language,

Object Query Language, Object Relational Systems, SQL3, ORDBMS Design.

DISTRIBUTED DATABASES (8)

Distributed Database Concepts, System Architecture, Distributed database design, Advantages and Disadvantages, Types of Distributed Database Systems, Data Fragmentation, Replication and Allocation Techniques for Distributed Database Design, Five Level Schema Architecture, Query Processing, Concurrency Control and Recovery in Distributed Databases

BACKUP AND RECOVERY (4)

Types of Database Failures, Types of Database Recovery, Recovery Techniques: Deferred Update, Immediate Update, Shadow Paging, Checkpoints, Buffer Management.

DATABASE SECURITY: (2)

Database security issues, Discretionary access control, Mandatory & role based access control, Database audit.

INTRODUCTION TO DATA WAREHOUSING AND DATA MINING (6)

Introduction to OLAP, OLTP, Data Warehouse, Data Marts, Data Mining , Data Mining Process.

COMMERCIAL DATABASES (5)

Commercial Database Products, Familiarity with IBM DB2 Universal Database, Oracle, Microsoft SQL Server, MySQL, their features.

BOOKS:

1. Elmasri R. & Navathe S. B, Fundamentals of Database Systems, Fifth edition, Pearson Education.

REFERENCES

1. Raghu Ramakrishnan, Johannes Gehrke, Database Management Systems, Tata McGraw-Hill.
2. C.J. Date An Introduction to Database Systems, Eighth Edition, Pearson Education.
3. Alexis Leon, Mathews Leon, Database Management Systems, Leon Press.
4. Silberschatz A., Korth H. F. & Sudarshan S., Database System Concepts, McGraw Hill
5. S. K. Singh Database Systems Concepts, Design and Applications, Pearson Education.

Course Name : UNIX NETWORK PROGRAMMING

Course ID : IT 429

L T P : 4 0 0

Lecture wise break up

No. of lectures

UNIX MODEL Introduction, Basic Definitions, Input and Output, Signals, process Control, daemon processes, Inter Process Communication- Introduction, Pipes and FIFOs, Message Queues, Read-Write locks, Record Locking, **(06)**

SEMAPHORES, SHARED MEMORY: basics of semaphores, implementation characteristics of shared memory and semaphores. **(04)**

COMMUNICATION PROTOCOLS XNS, SNA, NETBIOS, OSI Protocols, UUCP .Introduction to TCP/IP, The Transport Layer: TCP,UDP and SCTP, TCP Connection Establishment and Termination, SCTP Association Establishment and Termination, Port Numbers, Buffer Sizes and Limitations **(10)**

SOCKETS : Sockets Introduction, TCP Sockets, UDP Sockets, SCTP Socket , I/O Multiplexing, Socket Options, Name and Address Conversions, TCP, UDP and SCTP

Examples Introduction to Ipv4 and Ipv6 Interoperability, Daemon processes, Advanced I/O functions. (10)

UNIX Domain Protocols, Nonblocking I/O, Routing Sockets, Out-of-Band Data, details of protocols. (06)

Signal-Driven I/O, Threads, Raw Sockets. (06)

Remote Login, remote Command Execution, Remote Tape Drive Access, Remote Procedure Calls. (06)

TEXT BOOKS

1. UNIX Network programming by W. Richard Stevens, Prentice Hall India, 2000
2. UNIX Network programming, The Sockets Networking API Volume 1, Third Edition by W. Richard Stevens, Bill Fenner, Andrew M. Rudoff, Pearson Education

REFERENCES:

1. Unix Network Programming Volume 1 by W. Richard Stevens, Bill Fenner, Andrew M. Rudoff, Addison-Wesley, Hardcover, 3rd edition, Published November 2003
2. Internetworking with TCP/IP, Vol. III: Client-Server Programming and Applications--BSD Socket Version (2nd Edition) by Douglas E. Comer, David L. Stevens, Prentice Hall
3. The Protocols (TCP/IP Illustrated, Volume 1) by W. Richard Stevens, Addison-Wesley Professional; 1st edition
4. Internetworking with TCP/IP Vol. I: Principles, Protocols, and Architecture by Douglas E. Comer, Prentice Hall.
4. UNIX Network programming: Interprocess Communications Volume 2, Second Edition by W. Richard Stevens, Pearson Education

Course Name : WIRELESS COMMUNICATION & MOBILE COMPUTING

Course Code : IT 430

LTP : 4 0 0

Pre Requisite : Computer Communication Network

WIRELESS SYSTEM DESIGN

Channel Assignments, Interference and System Capacity, Frequency reuse, Radio Propagation, Free space Propagation Model, Ground Reflection, Diffraction, Scattering, Outdoor and Indoor propagation Models, Small Scale Multipath Propagation and Measurements Parameters of Mobile Path Channels, 1G, 2G, and 3G wireless systems (AMPS, GSM, GPRS).

(05)

WLANS

Wireless Lans Physical & MAC layer, IEEE 802.11 standards, Architecture & protocols, Infrastructure vs. Adhoc Modes, Hidden Node Problems, Fading Effects in Indoor and outdoor Wlans, WLAN Deployment issues, Case Studies, Hiper LAN and Bluetooth, Wireless pans, Wireless Sensors.

(05)

MULTIPLE ACCESS TECHNIQUES

FDMA, TDMA, CDMA, SDMA.

(03)

SECOND GENERATION MOBILE NETWORKS

GSM : Architecture and protocols. :GSM network architecture, GSM air architecture, GSM multiple access scheme, GSM channel organization, GSM call set up proceeding, GSM protocols and signaling, Authentication and security, GSM and signaling system, Routing of a call to mobile subscriber. (05)

2.5G NETWORKS

The general packet radio services :GPRS : GSM addresses and identifiers, GPRS network architecture , SPRS signaling, GPRS states of mobility management, GPRS location management procedures, GPRS roaming, the IP internetworking model, GPRS interface and related protocols. (05)

3G The universal mobile telecommunication system (UMTS) : UMTS network architecture , UMTS interfaces, UMTS network evolution, UMTS FDD and TDD , UMTS channels, UMTS time slots, UMTS network protocol architecture. (05)

OVERVIEW OF INTERNET PROTOCOL AND MOBILE INTERNET PROTOCOL

Brief overview of internet protocol, TCP, UDP, DNS, Network address resolution protocol, IP routing protocols, basic mobile IP. (05)

MOBILITY MANAGEMENT ISSUES

Role of IP on wireless networks: IP for GPRS and UMTS R99,Protocol reference model for UMTS PS domain, Mobility management in wireless networks. (05)

OVERVIEW OF WIMAX TECHNOLOGIES

Broadband wireless communication : Evolution broadband wireless ,spectrum allocation, WiMAX, wifi, Optical Fiber 3G. (05)

CELLULAR CONCEPT

Frequency reuse , Channel assignment strategies, Interference and system capacity, trunking and grade of service, improving coverage & capacity in cellular system. (05)

SECURITY IN WIRELESS NETWORKS

Secure routing, secure localization, Encryption and Authentication, Security in-group Communication, Denial of service attacks. (05)

MOBILE COMPUTING CONCEPTS

Mobile Devices, Mobile IP Layer, Wireless application protocols & Architecture, Mobile Web Programming: Wireless markup languages, Mobile Web Controls, Smart Client Programming, Building Embedded OS and mobile applications using WIN CE 5.0. (05)

Text Books:

1. Wireless Communications, Principles & Practices: S. Rappaport, Pearson Education
2. Mobile Communications, Jochen Schiller, Pearson Education

Reference Books:

1. Mobile and Wireless design essentials, Martyn Mallick, John Wiley
2. Wireless communications & Networks, By William Stallings, PHI
3. Couch II, L. W. Digital and Analog Communication Systems. Prentice-Hall, 1996

4. Building Microsoft® ASP.NET Applications for Mobile Devices, Andy Wigley and Peter Roxburgh, MS Press
5. IEEE Wireless LAN medium access control (MAC) and physical layer (PHY) specifications. *IEEE Standard 802.11*, 1997.
6. G.A.Halls. HIPERLAN: the high performance radio local area network standard. *Electronics and Communication Engineering Journal*, 6:289–296, December 1994.
7. IEEE Wireless LAN medium access control (MAC) and physical layer (PHY) specifications Amendment 4: Further higher speed physical layer extension in the 2.4 GHz band. *IEEE Standard 802.11g*, 2003.
8. The Changing Usage of a Mature Campus-wide Wireless Network Tristan Henderson, David Kotz, Ilya Abyzov (Dartmouth College, USA), Mobicom 2004

Course Name : **ADVANCED COMPUTER NETWORKS**
Course Code : **IT 431**
LTP : **4 0 0**
Pre Requisite : **Computer Communication networks**

Lectures

INTRODUCTION

Overview of computer networks, seven-layer architecture, TCP/IP suite of protocols, etc. (05)

MEDIUMACCESS

MAC protocols for high-speed LANS, MANs, and wireless LANs. (For example, FDDI, DQDB, HIPPI, Gigabit Ethernet, Wireless ethernet, etc.) (10)

INTERNETWORKING AND ROUTING

Packet Switching, The Internetworking Problem, The IP/TCP split connections, Scaling IP, Routers: Forwarding and Routing, The IP forwarding path, Unicast Internet routing: Intra and Inter domain routing, Router Design and Implementation, Security problems with Internet Architecture, IPV6. (10)

RESOURCE MANAGEMENT

End-to-End Congestion Control, Router-Assisted Congestion Control: Active Queue Management, Fair Queuing and Variants, Modeling and Measurement: Packet Trains, TCP Congestion Control Impediments, Adaptive Network Applications. (10)

QUALITY OF SERVICE (QOS)

Why QoS; Basic Models and Architecture, Mechanisms and Properties, Modeling and Measurement: Traffic Self-Similarity; Virus Propagation. (02)

GROUP COMMUNICATION

Multicast Routing and Transport, IP Multicasting: Multicast routing protocols, address assignments, session discovery etc., Multicasting in mobile networks. (05)

TRANSPORT LAYER PROTOCOL

TCP protocol dynamics, TCP extensions for high-speed networks, transaction-oriented applications. Other new options in TCP. (02)

WIRELESS NETWORKS

Wireless LAN architecture, Mobile IP, Broadcast file system, Agent technology, Satellite technology. (02)

SECURITY

Network security at various layers. Secure-HTTP, SSL, ESP, Authentication header, Key distribution protocols. Digital signatures, digital certificates. (02)

BOOKS:

Andrew Tenenbaum. Computer Networks, PHI

REFERENCES:

1. W. R. Stevens. TCP/IP Illustrated, Volume 1: The protocols, Addison Wesley, 1994.
2. G. R. Wright. TCP/IP Illustrated, Volume 2: The Implementation, Addison Wesley, 1995.
3. W. R. Stevens. TCP/IP Illustrated, Volume 3: TCP for Transactions, HTTP, NNTP, and the Unix Domain Protocols, Addison Wesley, 1996.
4. R. Handel, M. N. Huber, and S. Schroeder. ATM Networks: Concepts, Protocols, Applications, Addison Wesley, 1998.
5. W. Stallings. Cryptography and Network Security: Principles and Practice, 2nd Ed., Prentice Hall, 1998.
6. CE Perkins, B. Woolf, and S. R. Alpert. Mobile IP: Design Principles and Practices, Addison Wesley, 1997.

Course Name : ELECTRONICS COMMERCE

Course ID : IT 432

L T P : 4 0 0

Lecture wise break up

No. of lectures

Introduction to Electronics Commerce Defining Electronics Commerce, Forces fueling Electronics Commerce, Electronics Commerce Industry Frame work, Types of Electronics Commerce. (8)

World Wide Web and its applications Brief history and introduction of WWW, The web and the Electronics Commerce, Key concepts behind Web, Web and Database Integration, Web Software development tools (HTML, XML, UML, Java script, VB script, ASP, JSP), Multimedia Web extensions (VRML, Real Audio, Internet and Web based Technology), Directories and search engines. (10)

Firewalls and Transaction security Introduction to firewalls and network security (Types, policies and Management), Transaction Security, Encryption and Transaction Security, The comparison of encryption methods, Security in WWW (Netscape's secure socket layer, security and online web based banking). (8)

Electronics Payment Systems Overview of the Electronics payment technology, Electronics cash, Electronics checks, online credit cards based system, other emerging financial instruments. (4)

.Electronics Commerce and banking Home Banking, Banking via the PC using Internet/Intranet, Banking via online services, Banking via Web. (4)

Electronics Commerce and Retailing Changing Retail industry dynamics and technology improvements in Electronics retailing, Mercantile models from consumers perspective. (4)

Supply chain management Fundamentals and management of supply chains, Supply chain application software ad its future. (4)

Roadmaps to E-Business Challenges and strategy creation, Roadmaps to E-Business. (4)

Translating E-Business strategy into action Beginning of a virtual factor, E-business blueprint creation, E-Business project planning checklist, an execution blueprint, Failures of E-Business Initiatives. (4)

TEXT BOOK

1. E-Business - Roadmap for success by Dr Ravi Kalkota Published by Addison Wesley (Pearson Education Asia).

REFERENCES:-

1. Electronic Commerce by David Kosiur Published by Microsoft Press.
2. Electronic Commerce by Ravi Kalakota and Andrew B. Whinston Published by Addison Wesley

Course Name : ENTERPRISE RESOURCE PLANNING

Course ID : IT 433

L T P : 4 0 0

Lecture wise break up

No. of lectures

Unit 1: Introduction To ERP Overview of ERP– introduction to ERP- brief history, advantages of ERP, basic concepts of erp,,Importance Of Erp To Company,How Erp Creates Value,benefits and risks of erp. (6)

Unit 2: ERP and Related Technologies ERP and Related Technologies – Business Process Reengineering – Data Warehousing – Data Mining – On–line Analytical Processing – Supply Chain Management. (6)

Unit 3: ERP Implementation ERP Implementation basics ,objectives of erp implementation, Erp Implementation Life Cycle – Implementation Methodology – Hidden Costs – Organizing Implementation – Vendors, Consultants and Users –Contracts – success and failure factors of ERP implimention. (12)

Unit 4: ERP Marketplace and functional modules : ERP Market Place and marketplace dynamics, changing erp market,Indian scenario, functional modules of ERp software. (9)

Unit 5: ERP – Present And Future : ERP and E–business, supply chain integration, ERP and E–Commerce bringing erp to entire enterprise,– ERP and Internet – Future Directions in ERP, new channels, new market, expenditure. (9)

Unit 6: Erp case studysupply chain management , customer relationship, and relevant case studies. (8)

TEXT BOOKS:

1. Alexis Leon, “ERP Demystified”, Tata McGraw Hill, 1999.

2. Joseph A. Brady, Ellen F. Monk, Bret J. Wangner, "Concepts in Enterprise Resource Planning", Thomson Learning, 2001.

REFERENCE BOOKS:

1. Vinod Kumar Garg and N.K .Venkata Krishnan, "Enterprise Resource Planning – concepts and Planning", Prentice Hall,

2. Jose Antonio Fernandz, " The SAP R /3 Hand book", Tata McGraw Hill,

3. Fu, "SAP BW: A Step by Step Guide", First Edition, Pearson Education,

COURSE NAME : ARTIFICIAL INTELLIGENCE

COURSE CODE: IT 434

CREDITS: 4

L T P: 4 0 0

LECTURE WISE BREAKUP

NO. OF

LECTURES

AI Techniques, Importance, functions, advantages, as well as the limitations of AI (04)

Use of Artificial Intelligence and Intelligent Agents (04)

State, Space, Search, Control strategies, Heuristic search, Problems characteristics, Production system characteristics. (04)

Approaches to knowledge representation, Predicate logic, Resolution in predicate logic, Semantic nets, Frame, Conceptual dependency, Scripts (04)

Procedural v/s Declarative knowledge, Matching, Conflict resolution, commonsense reasoning (04)

Non-monotonic reasoning, Default reasoning, Statistical reasoning, Knowledge extraction, Expert system concept, Differences with regard to conventional software systems, Players in expert system development, some examples of expert systems (04)

Investigate the roles and advance methods of artificial intelligence in decision making processes (04)

Neural network resources, Cognitive science, Role of neural network in computer science (04)

AI languages, LISP (04)

AI problems: Pattern (biological sequence) recognition, Voice recognition, Feature extraction (04)

BOOK:

1. Artificial Intelligence by Rich and Kinght, TMH

REFERENCES:

1. Introduction to Artificial Intelligence by Charniak and Mcdermott, Addison-Wesley

2. Artificial Intelligence : A new synthesis by Nils and Nilson, Elsevier

3. Artificial Intelligence by Luger, Pearson Education

4. Artificial Intelligence by Padhy, Oxford Press
5. Artificial Intelligence: A modern approach by Stuart Russel,
Pearson Education

Course Name : WEB SITE DESIGN
Course ID : IT 435
L T P : 4 0 0

Prerequisite :
Lecture wise breakup

No of lectures

WORLD WIDE WEB AS COMMUNICATION SYSTEM (4)

The state of the World Wide Web, An overview of the World Wide Web, The role of the Web within Cyberspace, Information Spaces in the web. An overview of the web's Potential, Web functions, Web development Phases, Information Provider Connections, Accessing the Web, Web Connections Check.

INFORMATION ARCHITECTURE (2)

Role of information architecture, collaboration and Communication, Organizing information.

NAVIGATION SYSTEMS (2)

Types of navigation systems, integrated navigation elements, Remote navigation elements, Design elements navigation system.

WEB DEVELOPMENT PRINCIPLES AND METHODOLOGY (2)

The Web as a medium for expression, Web User Experiences, Web Communication Process, A Web Development Methodology, Web Principles and Methodology check.

WEB PLANNING AND ANALYSIS (2)

Principles of web planning, web planning techniques, a web plan example, web analysis processes, web analysis principles

WEB DESIGN & IMPLEMENTATION (8)

Overview of web design, principles of web design, web design methodologies, design techniques, design problems, sample web design, web designer's Check, The State of the art in Web implementation, an implementation overview, implementation Principles, implementation Processes, Web implementer's Check, Web promotion & Innovation, Web promotion Principles, Web promotion Techniques, Web Business Models, Web Promoter's Check, an Innovation Overview, Web Innovation Techniques, and Web Innovator's Check.

HTML (7)

Structure of HTML document, HTML elements, Linking Basics, Linking in HTML, Images and Anchor tag, their attributes, image maps, list, frames, tables, Forms in HTML, Embedding of graphics through HTML.

XML (6)

Basic of XML valid documents, Syntax, elements & attributes of XML, Document Type Definition, Ways to use XML: using XML as data source, XML in data islands. Displaying XML with CSS & XSL, rewriting HTML as XML

DHTML (6)

Introduction of DHTML, relationship between HTML, SGML, & XML
CSS – basic style sheet concept, using style sheet in your document.

JAVASCRIPT (5)

Features of JavaScript, Variables, Control Structures, operators, looping, conditional statements & functions in JavaScript.

CORE LANGUAGE OBJECTS (4)

Array, Boolean, date, Math, String, Global, Number

JavaScript with DOM Objects – Event Handling through JavaScript, Window, Document & Forms, Frame Object, Form Validation through JavaScript, JavaScript vs. CGI

BOOKS:

1. HTML – a beginner’s guide by Willard –TMH
2. JavaScript – Unleashed - 3 rd Edition from SAMS – Tech Media.

REFERENCES

1. HTML – Complete Reference By Thomas A Powell – TMH.
2. Yong , XML in steps by step – PHI
3. HTML 3.2 and CGI Professional Reference Edition by John December & Mark Ginsburg – SAMS – Tech Media
4. Aaron Weiss , Rebecca Taply , Kim Deniels , Stuvén Mulder , Jeff Kaneshki : Web Authoring Desk Reference – Tech Media

Course Name : **ADVANCED INTERNET TECHNOLOGIES**

Course ID: **IT 436**

L T P : **4 0 0**

Lecture wise break up

No. of lectures

HTML :- Formatting text, hyperlinks and color in web pages creating tables and frames. Working with images, maps and forms. (5)

Scripting Languages :- JavaScript- Using Operators, statements, function, handling events and working with objects. Creating frames, Processing forms, using hidden fields and cookies. Working with links and images. (10)

Active Server Pages (ASP) :- ASP basic architecture, Request Object, response Object, application Object, Session Object, Server Object Database Access in ASP. (10)

XML :- Creating an XML document, Using element, declaration and examination attribute declarations, using XML in an HTML document, XML on the web. (5)

WAP :- Introduction to WAP. (5)

Content preparation - HTML,DHTML, VRML, SGML XML and other markup schemes.

(05)

Images - compression, formats; **Audio** - compression, formats; **Content Delivery** - protocols - HTTP and variants, Internet servers, proxy servers, Search engines, Data on the web, Content Display - browsers, plugins, helper applications; **Interactivity** - Java, Active-X; **Component technologies**, Javabeans, CORBA, Security, Electronic payment systems, Firewalls, Encryption, Watermarks; **Performance**, Benchmarking the Web. **(10)**

REFERENCE:-

1. Active Server pages 3 Developers Guide- Alberto Manuel Ricart, Stephen Asbury, DIG Books India.
2. HTML 4 By QUE
3. Teach Yourself HTML 4 With XML, DHTML and Java Script - Stephine Cottrell Bryant

Course Name: HUMANITIES III (CORPORATE FINANCE)

Course Code : HU 404

Credits-4 : L T P: 4-0-0

Pre Req:

Lecture wise breakup

No. of Lectures

- | | |
|---|-------------|
| 1. INTRODUCTION | (07) |
| Finance, Financial Decisions, Objectives of Corporate Financial Decisions and factors influencing financial decisions. | |
| 2. INDIAN FINANCIAL SYSTEM | (07) |
| Nature and role of financial system in Indian Economy. | |
| 3. FINANCIAL MARKETS | (08) |
| Concepts, Type of markets and their relevance in present scenario. | |
| 4. FINANCIAL INSTRUMENTS AND FINANCIAL SERVICES | (08) |
| Capital and Money Market Instruments, Services. | |
| 5. WORKING CAPITAL | (05) |
| Types and factors affecting the requirements of working capital. | |
| 6. SOURCES OF FINANCE | (05) |
| Short term and long term. | |
| 7. TIME VALUE OF MONEY AND CAPITAL BUDGETING | (05) |
| Concept of Compounding and Discounting, Nature of Investment Decisions, Investment, Evaluation Criteria: Pay Back Period Method, Accounting Rate of Return Method, Internal Rate of Return Method and Net Present Value Method. | |
| 8. FINANCIAL LEVERAGE | (03) |
| Meaning (trading on equity) and measures. | |
| 9. DIVIDEND POLICY | (05) |
| Objectives of Dividend Policy, factors influencing firm's dividend policy. | |
| 10. CAPITAL STRUCTURE | (03) |

Essentials of Capital Structure, Approaches to establish target capital structure.

BOOKS:

1. Pandey I.M., Financial Management, Vikas Publishing House Pvt.Ltd.
2. Khan M Y, Indian Financial System, Tata McGraw Hill.
3. Bhole LM and Mahakud Jitendra, Financial Institutions and Markets,

Tata McGraw Hil

REFERENCES:

1. Chandra Prasanna, Financial Management Theory and Practice, Tata McGraw Hill
2. Lasher William R., Practical financial Management, Thomson
3. Van Horne J.C., Financial Management and Policy, Prentice Hall
4. Apte, P.G., International Financial Management, Tata McGraw Hill

HU404H (Humanities III) -In addition to the contents of HU404, additional topics:

Capital Market Intermediaries and their Regulation.
Functions and Operations of Money Market.
Foreign Exchange Market –From FERA to FEMA.
Role of Banks and Financial Institutions in Economic Development.

Course Name: HUMANITIES III (BUSINESS ENVIRONMENT&

INDUSTRIAL LEGISLATION)

Course Code: HU 402

Credits: 4

L T P : 4-0-0

Pre Req:

Lecture Wise Breakup

No. of Lectures

1. INTRODUCTION

(07)

Scope of business, Characteristics of business and its forms.

2. BUSINESS ENVIRONMENT

- Economic, Political and Technological. (07)
 Ecological and Global Environment and their relevance in present scenario. (08)
3. **SOCIAL RESPONSIBILITY OF BUSINESS** (05)
 Concept, Social Responsibility toward different interest groups and Business Ethics.
 4. **GLOBALIZATION** (07)
 Meaning, Rationale for globalization, features of current globalization, Pros and Cons of globalization.
 5. **WTO** (07)
 Functions of WTO. WTO structure, and Implications for India.
 6. **CORPORATE GOVERNANCE** (05)
 Concept, Essentials of good Corporate Governance, One case study.
 7. **CONTRACT ACT** (05)
 Concept of Contract, types and its essentials.
 8. **SALE OF GOOD ACT** (05)
 Essential of sale of goods Act.

BOOKS:

- 1 Francis Cherunilam, Business Environment, Himalaya Publications.
- 2 K.C.Garg,V.K.Sareen,MukeshSharma andR.C.Chawla, Commercial & Labour Laws, Kalyani Publishers.

REFERENCES:

1. K Aswathappa, Essential of Business Environment, Himalaya Publication.
2. S.S.Gulshan, Mercantile Law, Excel Books.
3. S.S. Gulshan & G.K. Kapoor, Business Law, New Age International (p) Ltd.,Publisher.
4. S Singh, Corporate Governance – Global Concepts & Practices, Excel Books.
5. Roger Benett, International Business, Addison Wesley Longhran, Delhi.
6. Y K Bhushan, Business Organization & Management, Sultan Chand & Sons.

HU402H (Humanities III) -In addition to the contents of HU402, additional topics:

Cluster Growth Model Vs SEZ

Innovative Dynamics of the Company

Foreign Market Entry Strategies

Competition Policy and Law

Corporate Social Responsibility-Two Case Studies

