SWAMI VIVEKANAND UNIVERSITY, SIRONJA, SAGAR (M.P.)

SYLLABUS

For

DIPLOMA IN ENGINEERING (3 YEAR)
COMPUTER SCIENCE & ENGINEERING

Course Code: DCSE

Department of Computer Science & Engineering

Faculty of Engineering

Duration of Course	:	3 Year
Examination Mode	:	Semester
Examination System	:	Grading

Swami Vivekanand University, Sironja Sagar (M.P.)

2016-2017

DCSE-0301 COMPUTER ARCHITECTURE

Unit -1

COMPUTER ARCHITECTURE

Register Transfer and Micro operations, Register Transfer: Bus and Memory Transfers. Three-State Bus Buffers, Memory Transfer. Arithmetic Micro operations: Binary Adder, Binary Adder Subtractor, Half Adder and Full Adder Binary Incrementer. Arithmetic Circuit, Logic Micro operations: List of Logic Micro operations, Hardware, Implementation. Shift Micro-operations: Hardware Implementation.

Unit- 2

BASIC COMPUTER ORGANIZATION AND DESIGN

Instruction Codes: Stored Program Organization, Indirect Address Computer Registers: Common Bus System, Computer Instruction: Instruction Set Completeness Timing and Control Instruction Cycle: Fetch and Decode, Type of Instruction, Register- Reference Instructions Memory-Reference Instructions: AND to AC, ADD to AC, Load to AC, Store to AC, Branch Unconditionally, Branch and Save Return Address, ISZ, Control Flowchart Input-Output Configuration, Input-Output Instructions, Program Interrupt, Interrupt Cycle Complete Computer Description, Design of Basic Computer: Control Logic Gates, Control of Registers and Memory, Control of Single flip- flops, Control of Common Bus Design of Accumulator Logic: Control of AC Register, Adder and Logic Circuit, Character Manipulation, Program Interrupt.

Unit -3

CENTRAL PROCESSING UNIT

Introduction General Register Organization: Control Word Stack Organization: Register Stack, Memory Stack, Reverse Polish Notation, Evaluation of Arithmetic Expressions Instruction Formats: Three Address Instructions, Two Address Instructions, One Address Instructions, Zero Address Instructions, RISC Instructions Addressing Modes Data Transfer and Manipulation: Data Transfer Instructions, Data Manipulation Instructions, Arithmetic Instructions, Logical and Bit Manipulation Instructions, Shift Instructions Program Control: Status Bit Conditions, Conditional Branch Instructions Subroutine Call and Return, Program Interrupt, Types of Interrupts Reduced Instruction Set Computer (RISC): CISC Characteristics, RISC Characteristics, Overlapped Register Windows.

Unit -4

INPUT OUTPUT ORGANIZATION

Peripheral Devices: ASCII Alphanumeric Characters Input-Output Interface: I/O Bus and Interface Modules, I/O Versus Memory Bus, Isolated versus Memory-Mapped I/O Asynchronous Data Transfer: Strobe Control, Handshaking, Asynchronous Serial Transfer, Asynchronous Communication Interface First-In, First-Out, Buffer Modes of Transfer: Interrupt-Initiated I/O, Software Considerations Priority Interrupt: Daisy-Chaining Priority, Parallel Priority Interrupt, Priority Encoder, Software Routines, Direct Memory Access (DMA): DMA Controller, DMA Transfer Input-Output Processor: CPU-IOP Communication Serial Communication: Character-Oriented Protocol, Data Transparency Bit-Oriented Protocol.

Unit- 5

MEMORY ORGANIZATION

Memory Hierarchy Main Memory: RAM and ROM Chips, Memory Address Map, Memory Connection to CPU Auxiliary Memory: Magnetic Disks, Magnetic Tape, CD, DVD Associative Memory: Hardware Organization, Read Operation, Write Operation Cache Memory: Associative Mapping, Direct Mapping, Set Associative Mapping, Writing into Cache, Cache Initialization Virtual Memory: Address Space and Memory Space, Address Mapping. **Advance Processor Architectures** Instruction Pipelining, Arithmetic Pipelining, Super Scalar Processors, VLIW Processors, Parallel Processing, Flynn's Classification of Parallel Processing, Vector Computers, Array Processors, Distributed Shared Memory Parallel Computers. Cluster of Workstations.

BOOKS RECOMMANDED.

1. Computer Organization & Architecture by V. Rajaraman & T. Radha Krishnan, PHI Learning
2. Computer System Architecture by P.V.S. Rao, PHI Learning

REFERENCES

1. Morris Mano. M., Computer System Architecture, PHI Learning.
2. Tanenbaum, 5/e, Structured Computer Organisation, PHI Learning.
3. Hwang & Brigg, Advanced Computer Architecture, McGraw Hill .
4. Stallings, 4/e, Computer Organisation & Architecture.
5. Murdocca Computer Architecture &Organization Wiley India
6. ISRD group Computer Organization TMH
7. T.K. Ghosh, Computer Organisation & Architecture TMH

DCSE-0302 OPERATING SYSTEM

Unit- 1

INTRODUCTION TO OPERATING SYSTEM

Basics of Operating System, its functions, Objectives and Types of operating System Introduction of time sharing, real time, Parallel and Distributed Multiprocessor embedded O.S. Structure of Operating System:- System components, Operating System services, System calls and Programs, System Structure.

Unit-2

PROCESS MANAGEMENT

Concepts of Processes; Process state (state diagram), Process Scheduling & Process control block (PCB), Operation on Processes, Threads multiprocessor scheduler. Process Scheduling & Algorithms- Basic Concepts, Scheduling criteria, Scheduling Algorithms- FCFS, SJF, Priority, RR, Multiple queues, Multiple processor Scheduling, Real time Scheduling. Dead Locks - Basic Concept of deadlock, deadlock detection, deadlock prevention, deadlock Avoidance, recovery from deadlock & Banker's algorithm.

Unit- 3

MEMORY MANAGEMENT

Concept of Memory Management- Logical v/s Physical address, Cache Memory, Swapping, Allocation Techniques (contiguous and Non-contiguous), Fragmentation & Compaction Concepts of paging and segmentation - Paged Segmentation & Segmented Paging Concepts of Virtual Memory- Demand Paging, Page Fault, Page replacement and its Algorithms, Allocation of frames, Thrashing.

Unit -4

FILE MANAGEMENT SYSTEM

File System interface: File Concepts, Types of Files, Access Methods, Directory Structure, File System mounting, Protection. File System Implementation: File System Structure, Allocation Methods (Contiguous, Non Contiguous, and index allocations), and Free space Management (Fragmentation & compaction), Directory implementation, File- sharing, recovery, network file system, (NFS), Efficiency and performance.

Unit- 5

DEVICE MANAGEMENT

Input Output System: I/O Hardware & Interface, Kernel I/O Sub System, I/O request streams. Disk Management- Disk Structure, Disk Scheduling and its algorithms, RAID TECHNOLOGY **PROTECTION AND SECURITY** Goal of Protection, Domain of Protection, Security Problems Authentication. **Other Operation System** Introduction to Network Operation System (Only Brief Concept). Introduction to Distributed Operation System (Only Brief Concept).

LIST OF EXPERIMENTS

Practical: 2 Hrs. per Week

1. BIOS Configuration
2. Installation of Various Operation System
   a) Windows Vista
   b) Windows XP
   c) Linux
   d) Unix
3. File Management Commands, Use of Administration Commands, System Calls
4. Simulation of CPU Scheduling Algorithms (FCFS, SJF, RR)
5. Simulation of Memory Allocation, Paging and fragmentation
6. Case study of UNIX, Linux, Windows Vista & Windows XP

TEXT BOOKS

1. Galvin, Operating Systems, Wiley Eastern.
2.Godbole A.S Operating Systems, TMH New Delhi.
3. Pal Chaudhury, Operating system, Principals & Design PHI Learning

REFERENCE BOOKS

1. Bach M.J., Design of the UNIX Operating System, PHI
2. Milankovic, Operating Systems, TMH
3. Ray Dunkan Advance Dos Programming, BPB.
4. Donovons & Mendric, Operating Systems, TMH.
5. William stalling Operating System, pearson edu.

DCSE-0303 DATA COMMUNICATION

Unit -1

DATA COMMUNICATION CONCEPT & TECHNOLOGY

Data Representation, Data Transmission. Modes of Data Transmission- Analog Data, Digital Data, Communication Channels, Synchronous & Asynchronous Data & Communication, Series & Parallel data Communication, Bit rate and Baud rate, Bandwidth & Channel Capacity, Nyquists and Shannon's theorems.

Unit 2

TRANSMISSION MEDIA Transmission Line Characteristic, Liner Distortions, Crosstalk, Twisted Pairs Cable, Coaxial Cable, UTP, STP. Optical Fiber – Multimode Fibers, Modal Dispersion, Mono Mode Fiber, Graded Index Fibers, Total Dispersion, Fiber Attenuation, Radio Media, UHF & Microwaves, Satellite Link, Equalization.

Unit 3

MODULATION AND DATA MODEMS : Concept of modulation and demodulation, Digital modulation methods: PCM, Amplitude, Shift-keying, Frequency Shift-keying, Quadrature PSK (QPSK), Differential PSK (DPSK), Simplex, Half Duplex, Full Duplex. **Cellular and Satellite Networks** SATELLITE NETWORKS: Orbits, Footprint, Three Categories of Satellites, GEO Satellites, MEO Satellites, LEO Satellites. CABLE TV NETWORKS and DATA TRANSFER: Traditional Cable Networks, Hybrid Fibre-Coaxial (HFC) Network, Bandwidth, Sharing. CELLULAR TELEPHONY: Frequency-Reuse Principle Transmitting, Receiving, Roaming, First Generation, Second Generation, Third Generation. BLUETOOTH: Architecture, Bluetooth Layers.

Unit 4

Multiplexing, Spreading and Switching

MULTIPLEXING: Frequency-Division Multiplexing, Wavelength Division Multiplexing Synchronous Time-Division Multiplexing, Statistical Time-Division Multiplexing, SPREAD SPECTRUM: Frequency Hopping Spread Spectrum (FHSS), Direct Sequence Spread Spectrum.

CHANNELIZATION: Frequency-Division Multiple Access (FDMA), Time Division Multiple Access (TDMA), Code-Division Multiple Access (CDMA). CIRCUIT-SWITCHED NETWORKS: Three Phases, Efficiency, Delay, Circuit- Switched Technology. DATAGRAM NETWORKS: Routing Table, Efficiency, Delay, Datagram Networks. VIRTUAL-CIRCUIT NETWORKS: Addressing, Three Phases, Efficiency. Delay in Virtual-Circuit Networks, Circuit-Switched Technology. STRUCTURE OF A SWITCH: Circuit Switches, Packet Switches.

Unit 5

Error Detection and Correction INTRODUCTION: Types of Errors, Redundancy, Detection Versus Correction, Forward Error Correction Reverse Error Correction. BLOCK CODING: Error Detection, Error Correction, Hamming Distance And Minimum Hamming Distance. Liner Block Code, CRC, Checksum **Telephone and Cable Networks** TELEPHONE NETWORK: Major Components, topology, Signaling, Services Provided by Telephone Networks, echo & noise in transmission system. DIAL-UP MODEMS: Modem Standards, type of modems DIGITAL SUBSCRIBER LINE: DSL, ADSL Lite, HDSL, SDSL VDSL.C++

TEXT BOOK

1. Behrouz A Forouzan, Data Communication and Networking, 4e, Tata McGraw-Hill, 2008.
2.William Stallings, Data and Computer Communications, 8e, Pearson Education, 2008.

REFERANCES

1. Tomasi Wayne, Introduction to Data Communications and Networking, Pearson Education, 2007.
2. Rajneesh Agrawal and Bharat Bhushan Tiwari, Data Communication and Computer Networks, Vikas Publishing house Ltd., 2005.
3. S. Tanenbaum, Computer Networks, Fourth Edition, Pearson Education.
4. Leon-Gracia and I. Widjaja, Communication Networks, Tata McGraw Hill, 2004.
5. K. Pahlavan and P. Krishnamurthy, Principles of Wireless Networks, PHI Learning

DCSE-0304 DATA STRUCTURE & ALGORITHMS

Unit-1
INTRODUCTION
Introduction to algorithm design and data structure Top-down and bottom-up approaches to algorithm design Analysis of Algorithm, complexity measures in terms of time and space Concept of Pointer Variable

Unit 2
ARRAYS

Representation of arrays: single and multidimensional arrays Address calculation using column and row major ordering.

Unit 3
SYMBOL TABLES

Static symbol table. Hash tables, Hashing Techniques. Collision Handlin Techniques

Unit 4
STACKS AND QUEUES
Representation of stacks and queues using arrays Type of queues-Linear queue, circular queue, De-queue

Unit 5
Applications of stacks: Conversion form infix to postfix and prefix expressions, Evaluation of postfix expression using stacks.

LIST OF EXPERIMENT

Practical: 2 Hrs. per Week

1. Program implementation for
   a) Reading and printing of single array and multidimensional array.
   b) Matrix manipulation.
   c) For one dimensional, 2D & 3D array.

2. Program implementation for creating, updating, deleting, traversing, searching and sorting of arrays, linear and circular link, lists, doubly link list, stacks and queues, trees, post, prefix.

3. Program implementation for manipulation of strings and match algorithms. Program implementation for agency matrix, traversing and searching.

4. Program implementation for adjacency creating matrix tree.

TEXT BOOKS:

1. Sahani, Data structure & Algorithms, TMH.
2. Langsam, Tenenbaum, Data Structure using C/C++, PHI Learning
3. Data structure(schaum outline series) Indian edition, TMH

REFERENCE BOOKS:

1. Drozdek Adams, Data Structures and Algorithms in C++, Vikas Publishing House Pvt. Ltd.
2. Kunth D. E., Art of Computer Programming and Fundamentals of Algorithms, Vol.-I,
3. Kunth, Art of computer programming, Vol.-III, Sorting searching.
4. Wirth Niklaus, Algorithm + Data = Program, PHI Learning
5. Drozdek Adams, Data structures & Algorithms in Java, Vikas.
6. Lipschutz, Data structure, Schaum out line series, TMH.
7. Kruse, Leung & Tondo, Data structure & Program design in C, PHI Learning
8. Kutti & Pandye, Data Structures in C++, PHI Learning
9. Thomas A Staudish, Data Structure Techniques.

DCSE-0305 PROGRAMMING WITH C++

LIST OF EXPERIMENTS

Practical: 4 Hrs. per Week

Name of Experiment

1. Problems involving sequence, selection and iteration.
2. Small problems mainly computational to illustrate expression and operator precedence.
3. Program such as: GCD, Sum of series, Fibonacci Series, Even and Odd series, Finding root of a function, Sequence of a numbers, Checking prime number, Largest among given number etc.
4. Problems relating to arrays: Print Reverse, Sum, Maximum and Minimum, Insert and Delete elements etc.
5. Problems related to classes and objects.
6. Problems to illustrate constructor & destructor.
7. Problems related to inline functions.
8. Problems related to friend functions.
9. Problems related to operator overloading.
10. Problems related to default arguments, function overloading, functions overriding.
11. Problems related to different types of inheritance.
12. Moderately large function based problems for which the solutions should be represented by coordinating modules.
13. Formatting a text, replacing a given word in a text with another, counting the number of words, in a text.

TEXT BOOKS:

1. Balguruswamy E. (2001), Object-Oriented Programming with Turbo C++, 3rd edition, TMH.
2. Lafore Rober, 2001), Object-Oriented Programming in Turbo C++, 3rd edition, Galgotia Publications.
3. M. kumar, programming with C ++,

REFERENCE BOOKS:

1. Shukla, object oriented programming in C++, wiley India.
2. Stevens, Teach Yourself C++, BPB Schildt H, 1997, C++ Complete Reference, TMH
3. Kanetkar Y, Programming in C++ ,BPB

DCSE-0306 VISUAL BASIC PROGRAMMING

Introductory Part :

Knowledge of IDE of VB, Menu Bar, Tool Bar, Project Explorer, Tool Box, Properties Window, Form Designer, Form Layout, Immediate Window. Concept of Event Driven Programming. **Customizing the environment:** Editor Tab, Format Tab, General Tab, Docking Tab, and Environment Tab. Working with From: Loading, Showing & Hiding Form. Controlling one form from another.

Practical Part:

Experiments based on:

1. Data types of VB.
2. Control Flow Statements and conditional Statements.
3. Array and types of Arrays.
4. Designing Menus and Pop-Up Menus.
5. Use of MsgBox & InputBox.
6. VB Controls.
7. Control Arrays & Collections.
8. Procedures, Subroutines & Functions.
9. Graphics with VB.
10. MDI

Application Development Using VB Like:

1. Exam System
2. Library System
3. Banking System
4. Hospital System
5. Inventory & Stock System
6. Small Gaming Program
7. Student Record System

REFERENCE BOOKS:

1. Visual Basic 6 by Deitel & Deitel Nietro, Person Education.
2. Programming with Visual Basic 6.0 Mohammed Azam, Vikas Publication.
3. Visual Basic 6 from the ground up, gary cornell, TMH
4. Visual Basic 6 in easy steps T.M Andercon willey India

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DCSE-0401 Computer Network

Unit -1
INTRODUCTION:
Basics of Networks - Definition, Need, Uses and Advantages. Types of Computer Networks-Local area Networks(LAN), Wide Area Networks(WAN) , Metropolitan Area Network (MAN) Network Architectures- Peer to Peer , Client-Server, Hybrid, Intranet, Internet and Extranet. Different Topologies – Bus, Ring, Star, Hybrid etc .
Networking Models And Addresses: Detailed Layered architecture of OSI and TCP/IP Reference Model. Comparison Between OSI Vs. TCP/IP reference Model. Introduction to various LAN and WAN Protocols. Network Address: Overview, Type of Addresses, Need, advantages and disadvantages. IP Addresses : Class Full Addressing Network ID, Host ID Special Addressing Overview Sub-netting and Super-netting, VLAN

Unit- 2
NETWORKING COMPONENTS AND NETWORK OPERATING SYSTEM
Networking Media – Coaxial, UTP, Shielded Twisted Pair, Fiber Optical Cable, and wireless media. Networking Devices – NIC, Modem , Hub, Repeater, Switches, Bridge, Router, Gateway, Wi-Fi, VSAT. Structured cabling- Concept, advantages, racks, patch panel, crimping and punch tool, patch cords, RJ Connectors, Information Outlets (I/O Box) , Media Converter Types of Connectivity – Dial up, Digital Subscriber Line (DSL), Asynchronous Digital Subscriber Link (ADSL) , Leased line Non Exchange , Cable Net , WI-FI, WI-MAX, CDMA, GSM. Introduction to Network Operating System(NOS)

Unit -3
INTERNET PROTOCOL:
ARP/RARP: Resolution, Packet format mapping and encapsulation Internet protocol: Virtual network, Connectionless, unreliable, Packet Delivery System. Datagram format: Datagram size, Network MTU and fragmentation, Time stamp option. IP Routing algorithmic Checksum. ICMP and **IGMP :** Introduction and message format **HOST TO HOST PROTOCOLS** UDP: Introduction to User Data gram Protocol, Format of UDP Message, Pseudo Header, Multiplexing & Demultiplexing **TCP:** Introduction to Transmission Control Protocol, Ports, Collections And EndpointsTCPSegment Format, Checksum Computation, Establishing a TCP Connection.

Unit -4
APPLICATION LAYER PROTOCOL
Introduction to FTP, TEL-NET, NFS, SMTP, rlogin, SNMP DNS Applications: Concept of DNS, Mapping DNS resource record, DNS Resolution, DHCP, VPN, IPv6, ICMPv6

Unit -5
ROUTING AND MULTICASTING
Vector Distance & link state routing protocol Routing Information Protocol Open SPF Protocol Gateway to Gateway Protocol Hardware Broadcast, Hardware Multicast IP Multicast and Address Mapping IP Multicast to Ethernet Multicast. **WIRELESS NETWORKING** Basics, hardware and Software Requirement for wireless network Types of wireless network Wireless technologies Wireless networking standards Application of wireless network

Reference Books

1. Computer Networks, Andrew S Tanenbaum, Publisher- PHI, New Delhi
2. B. A. Fourozan, TCP/IP Protocol Suite, Tata McGraw Hill
3. Internetworking with TCP/IP, Douglas E. Comer, Publisher- PHI, New Delhi
4. Hardware and networking by Vikas Gupta Publisher: Dreamtech press
5. Network Cabling Handbook by Chris Clerk Publisher Tata Mcgraw Hills Ltd.India.
6. Introduction to Networking by Richard McMohan Publisher Tata Mcgraw Hills Ltd. India.
7. TCP/IP Illustrated by Richard Stevens, Publisher- Addison – Wesley.

DCSE-0402 Data Base Management System

Unit -1
DATABASE CONCEPTS
Introduction to database and database management system, history of DBMS. Disadvantages of file system data management. Database system applications. Advantages and disadvantages of DBMS. Three level architecture: Mapping between views , data independence. DBMS users and administrators, DBMS Architecture. DML, DDL & DCL.

Unit -2
DATA MODELS
Introduction to data models. Entities, attributes & association, Relationship among entities, representation of association & relationship. Entity-Relationship model: Entity sets, relationship sets, constraints, E-R diagram, Entity- Relationship design issues, Generalization, Specialization & aggregation. Relational Model: Attributes and Domains, tuples, relations and their schemas, relation representation, keys, relationship, integrity rules. Codd's Relational database rules

Unit -3
DATABASE DESIGN CONCEPTS & NORMALIZATION
Relational algebra: Basic operation, select, join, projection, additional relational algebra, queries. Functional dependency: Definition, inference axioms for functional dependency, closure, cover and equivalence of FD, Referential integrity Normalization Introduction to Normalization. 1 NF, Data anomalies in 1 NF. Partial dependency, 2 NF, Data anomalies in 2 NF. Transitive Dependency, 3NF, Data anomalies in 3 NF. Boyce-Codd Normal Form, Lossless or Lossy Decomposition.

Unit -4
INTRODUCTION TO SQL
Introduction to SQL language. Structure of SQL statements & SQL writing guidelines. Data Definition commands, describing the structure of a table. Data manipulation commands. Basic structure of SQL queries

Unit -5
ADVANCED IN SQL
SQL query structure for selection & join operators, defining primary keys, foreign keys in a table, CHECK constraints, removing constraints from table. SQL functions: SUM(), AVG(), MAX(), MIN(), COUNT(). Introduction to Triggers, stored procedures & views
ADVANCE DATABASE CONCEPTS Introduction to transactions. Introduction to concurrency control. Data mining & Data Warehousing. Distributes & Object based database. Introduction to Cloud based database.

LIST OF EXPERIMENTS

1. Execute Data Definition SQL commands like create table
2. Execute Data Manipulation SQL commands like insert, update, delete data from single & multiple tables.

3. Creating users, granting & revoking permission, set roles to users.
4. Basic PL/SQL program using flow control statement functions.
5. Creating triggers, stored procedure and cursors.
6. Database access from a programming language such as JAVA or C++.
7. Building web application

TEXT BOOKS

1. Silberschatz A. , Korth, Sudarshan 6th edition, Database System Concepts, TMH New Delhi.
2. Schaum's Outlines, Database Management System, TMH.

REFERENCE BOOKS

1. Desai Biplin C. (2001), An Introduction to Database Management System, Galgotia Publication Pvt. Ltd., New delhi.
2. Ivan Byrose, SQL programming.
3. Peter Rob & Carlos Coronel, Database System Concepts, Indian Edition, Cengage Learning India Pvt. Ltd..
4. Date C.J., An Introduction to Database Systems, Narosa.
5. Leon, SQL complete reference, TMH.

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DCSE-0403 Linux and Shell programming

Unit -1

Introduction

Linux Ideas and History Understanding Open Source, Linux Origins, Distributions, Linux Principles Linux Usage and Basics Logging in to a Linux System, Switching between virtual consoles and the graphical environment, Elements of the X Window System, Starting the X server, Changing your password, The root user, Changing identities, Editing text files. **NETWORKING SERVICES ON LINUX:** Server –side setup, configuration, and basic administration of common networking services: Samba, DNS, NIS, Apache, SMB, DHCP, Send-mail, FTP Other common services: tftp, pppd, proxy.

Unit- 2

Linux Basics and File System Running Commands and Getting Help Running Commands, Some Simple commands, Getting Help, The whatis command, The – help Option, Reading Usage Summaries, The man command, Navigating man pages, The info command, Navigating info pages, Extended Documentation. File System Linux File Hierarchy Concepts, Some Important Directories, Current Working Directory, File and Directory Names, Absolute and Relative Pathnames, Changing Directories, Listing Directory Contents, Copying, Moving, Renaming, Creating and Removing Files & Directories, Using Nautilus, Determining File Content. The Linux File System In-depth Partitions and File system, I-nodes, Directories, Hard Links, Symbolic (or soft) Links, The Seven Fundamental File types, Checking Free Space, mounting & un-mounting File system , working with etc/fstabe, Archiving Files, Compressing, Creating, Listing and Extracting File, Other Archiving Tools

Unit -3

Text processing and Standard I/O Text Processing Vi: Opening, Modifying, saving and exiting vi text editor, mode of vi. Viewing file contents, sorting text, Eliminating Duplicate lines, Comparing files, Compressing the file. Standard I/O and Pipes Standard Input and Output, Redirecting Output to a File, Redirecting STDOUT to a Program(Piping), Combining Output and Errors, Redirecting to Multiple Targets (tee), Redirecting STDIN from a file, Sending Multiple Lines to STDIN.

Unit-4

Shell Programming and Process Using and configuring the Bash Shell Introduction of Bash shell, Bash Features, Command Line, Command Line Expansion, and Editing, gnome-terminal. Shell Programming Scripting Basics, Creating Shell Scripts, Handling Input/ Output, Control Structures, Conditional Execution, File and string Tests, continue and break, Using positional parameters, Scripting at the command line, Shell Script debugging. Investigating and Managing Process Process, Listing Processes, Finding Processes, Signals Sending, Signals to Processes, Scheduling Priority, Altering Scheduling Priority, Interactive Process management tools, Job Control, Scheduling a Process to execute later, Crontab File format. Different run levels

Unit -5

SYSTEM ADMINISTRATION: Common Administrative tasks, identifying administrative files – configuration and log files, Role of system administrator, Managing user accounts –adding & deleting users, changing permissions and ownerships, Creating and managing groups, modifying group attributes, Temporary disable user's accounts, creating and mounting file system, checking and monitoring system performance, file security, password and Permissions, becoming super user

using su. Getting system information – host name, disk partitions & sizes, users, kernel. Backup and restore files, linuxconf. Utility in GUI, reconfiguration hardware with kudzu.

LIST OF EXPERIMENTS

1. **Files and Directories :** Cat, cd, chgrp, chmod, cp, file, find, grep, head, just, lpq, lpr , lprm, cancel, ls, mkdir, more, page, mv, pwd, rm, rmdir, tail, touch,
2. **File Editors :** Editors are used to create and amend files. Emacs, ex, edit, gedit, nedit, xemacs, emacs, dtpad, pico, vi,
3. **Manipulating data:** The contents of files can be compared and altered with the following commands.Awk, cmp, comm, cut, diff, expand, unexpand, gawk,Join, look, perl, paste, sed, sort, split, tr, uniq, wc,
4. **Compressed files :** Files may be compressed to save space.Compressed files can be created and
5. examined. Compress, uncompress, zcat, zcmp, zdiff, zmore, gzip, gunzip.
6. **Information :** Manuals and documentation are available on-line. The following Shell commands give information, answerbook2, apropos, dthelpview, man, info, help.
7. **Shell Programming :** Writing shell scripts for arithmetic operations, file permission.
8. **Messages between Users :** The UNIX systems support on-screen messages to other users and world-wide electronic mail, pine, elm, dtmail, frm, from, dtmail, mesg, parcel, talk, write
9. **Networking :** Setup a small network in your lab and connect to that network Internet Protocol Service. These commands are used to send and receive files from Campus UNIX hosts and from other hosts and the Internet around the world.

MAIN READING

1. Sumitabha Das, UNIX/LINUX: Concepts and Applications, Tata McGraw-Hill, 2008.
2. ISRD Group, Basics of OS, UNIX and SHELL Programming, Tata McGraw-Hill, 2006.
3. Stephen Prata Advanced UNIX -A programmer's Guide, BPB Publication, 2008.

REFERANCES

1. Kochan S & Wood P, UNIX Shell Programming, Pearson Education, 2008.
2. Sarwar, Koretsky, and Sarwar, UNIX, the Text Book, Pearson Education, 2007.
3. Stevens W R, Rago S.A, Advanced Programming in UNIX Environment, Pearson Education,
4. Maurice J. Bach, Design of the UNIX Operating System, Pearson Education, 2008.

WEB REFRERANCES:

http://www.linux-tutorial.info/index.php
http://www.ee.surrey.ac.uk/Teaching/Unix/
http://www.aboutdebian.com/
www.developertutorials.com/tutorials/linux/
www.yolinux.com/TUTORIALS/
www.linuxquestions.org/
http://bash.cyberciti.biz/guide/Main_Page
http://stommel.tamu.edu/~baum/programming.html
http://williamstallings.com/

DCSE-0404 Microprocessor & Interface

Unit-1
Microprocessor, Microcomputer & Assembly Language
Microprocessor as programmable device, memory, input, output, microprocessor as CPU, Organization of microprocessor based system, working of microprocessor. Microprocessor instruction set and computer languages, m/c language, assembly language, high-level language

Unit-2
Microprocessor architecture & microcomputer systems
Microprocessor architecture, Memory map & addresses, input & output device, peripherals mapped I/O & memory mapped I/O. Pin out details and the function of each pin. Microprocessor communication & bus timings. 8085 m/c cycle & bus timings, control signals, memory read & writes. Memory interfacing, basic concepts, address decoding, interfacing of 8155-memory section.

Unit -3
Assembly language program
Instruction classification, instruction format, 1,2,3 byte instructions, addressing modes, data transfer, arithmetic, logical, branch, input/output, m/c controls operation. Writing & executing assembly language programs.

Unit -4
Programming Techniques
Looping, counting, indexing, rotate, compare, 16-bit instruction, counters, time delays, stacks & subroutines. Interrupts: EI, DI instructions, RST instructions, Vectored interrupts & priorities. Microprocessor application Interfacing multiplexed displays, interfacing to a matrix keyboard, A/D converter, D/A converter ,stepper motor control

Unit -5
Peripheral chips & Interfacing
Functional block diagram, pin configuration & modes of operation IC chips 8255, 8275, 8279,8237. Comparison of 8085 to other microprocessor Comparison of 8085 to 8086,80186,80286,80386 and 80486, multicore technology.

LIST OF EXPERIMENTS

1. Introduction to Microprocessor kit, instruction manual, writing simple assembly language program.
2. Addition. Subtraction using 1's Complement
3. Multiplication of 16 bit numbers.
4. Finding smallest, largest numbers from given list of numbers
5. Arranging numbers in Ascending and descending orders
6. Display of real clock on microprocessor kit.

7. Interfacing of LED and relays using 8255
8. Interfacing with ADC
9. Interfacing of DAC.
10. Keyboard interfacing with 8085.
11. Interfacing with 8255.
12. Code conversion, program (Binary to BCD) (BCD to Binary)
13. Checking even or odd numbers finding numbers of zeros in a given no.
14. Demonstration of 8085 simulators and its feature.
15. Writing simple program using 8085 simulators.

REFERENCES :

1. Gaonkar, Microprocessor Architecture, programming and app.
2. B.Ram, Microprocessor & microcomputers
3. Ajit Pal, Microprocessor principle & application
4. Douglas Hall, Microprocessor interfacing and programming
5. Computer System Architecture (Third Edition),. Morris Mono - Prentice Hall of India Pvt. Ltd.,
6. Eastern Economy Edition, Sept. 2002
7. Peter Norton: Assembly Language for the PC, PHI.

DCSE-0405 Entrepreneurship

UNIT- I

INTRODUCTION TO ENTERPRENEURSHIP Definition of Entrepreneur / Entrepreneur. Difference between Entrepreneurship / Entrepreneurship. Need for Entrepreneurship qualities of successful entrepreneur. Myths about Entrepreneurship .Classification of entrepreneurs on the basis of different criteria. Reasons for the failure of entrepreneurs.

UNIT- II

INDUSTRIES AND BUSINESS ORGANIZATIONS Concept of Industry or Enterprise. Classification of Industries.(a) On the basis of capital investment. Tiny (Micro) Industry. Small Scale .Medium Scale .Large Scale.(b) Others. Rural Industry. Cottage Industry.(c) Forms of Business Organization. Proprietorship .Board & Co-operative .Partnership. Public Ltd..

INCENTIVES / CONCESSION / FACITLITIES AVAILABLE Seed money .Incentive subsidies. Others (Phones, Lands etc).

UNIT- III

PLANNING OF AN INDUSTRIAL UNIT (SSI)Pre- Planning Stage. Scanning the environment. Market survey. Seeking information. produce project selection. Implementation Stage.PPR Preparation.DIC registration. Arrangement of Land. Arrangement of Power. Obtaining NOC / Licenses from various departments. DPR Preparation .Seeking financial assistance. Commercial Production. Post Implementation stage. Permanent registration from D.I.C. Availing Subsidies. Diversification / Modification. Setting up of marketing channel / Distribution. Private Ltd. IT Sector. Government Co-operative / Undertakings.(d) Tiny small scale Industry. Definition Its significance in National Development .Govt. policies for SSI promotions

UNIT- IV

ACHIVEMENT MOTIVATION Historical perspective. Concept of achievement motivation. Significance of achievement motivation.Development of achievement motivation

UNIT- V

FINANCIAL MANAGEMENT OF AN INDUSTRIAL UNIT (SSI) Tools of financial analysis. Ratio analysis.Fund Flow / Cash flow analysis. Working capital and concepts. Financial accounting.

REFERENCES

1.Entreprenerial Development Vol. I,II,III
By Vasant desai Himalaya Publicaton
2.CEDMAP (Center of Entrepreneurial development Madhya Pradesh)
3.Udyamita Vikas By Anand Prakashan

DCSE-0407 PROFESSIONAL ACTIVITIES (PA).

Unit-1
PRESENTATION SKILLS
Oral Presentation : Need of effective oral presentation. Characteristics of good oral presentation. Ways of Oral Presentation (Seminar, Viva-voce, Interview, Group Discussion, Lecturing, Power Point Presentations etc.) Gestures/Mannerism during oral presentation Media, methods used for effective oral presentation. Assessment of oral presentation. Written Presentation : Need and characteristics of written presentation. Ways of written presentation (Report writing, manual, handout, notes etc.). Grammar, Punctuation, referencing paragraphing during written presentation.

Unit -2
LEARNING TO LEARN SKILLS
Need of Learning to Learn Skills. Type of Learning Skills (Learning face to face, Individualized learning, Distance learning, Self- learning). Developing Learning to Learn Skills.

Unit -3
STUDY SKILLS :
Methods of Good Study Habits Note Taking Developing Reading Skills. PERSONAL GROOMING : Posture and Health. Types and importance of posture. Importance of yoga and meditation. Factors affecting good health-diet, exercise personal cleanliness, sleep and rest. Use of cosmetics. Dress Code Physical Fitness and Inner Strength.

Unit- 4
INFORMATION SEARCH
Objectives of information search. Ways of information search (Internet surfing, Library search, Abstracts, Journals, books etc.) Assimilation and presentation of information.

Unit -5
TIME MANAGEMENT
Principles of Time Management. Time Management matrix. Criteria governing Time Management. Possible time waster PERSONALITY **:**Concept and meaning of personality. Characteristics of good personality. Factors influencing personality. Types of personality. Need for desirable personality for success. Qualities of complete personality.

REFERENCES
How to achieve success and happiness : Sultan Chand and Sons,New Delhi
How to develop effective personality : Dr Mittal and Agarwal CS
The Art of Public Speaking : Stephen E Lucas

DCSE-0501 WEB TECHNOLOGY

Unit -1
Introduction To Web Design
Web page and Web site - Web publishing Process of Web, publishing, planning, rganizing, Hierarchical, Linear, Webbed. Implementing, Testing, Maintenance

Unit -2
HTML
Introduction Head section – Prologue, Link, Base, Meta, Script, Style Body Section – Header, Paragraphs, Text Formatting, Linking, Internal Linking, Embedding Images, Lists, Tables, Frames. Other Special Tags and Characters HTML Forms

Unit -3
Java Script
Introduction Language Elements – Identifiers, Expressions, Keywords, Operators, Statements, Functions Object of Java Scripts – Window Object, Document Object, Forms Objects, Text Boxes and Text Areas, Buttons, Radio Buttons and Check Boxes, The Select Object Other Object – The Date Object, The Math Object, The String Object, Regular Expressions, Arrays, Worked Examples

Unit -4
DHTML
Introduction Cascading Style Sheet (CSS) – Coding, Properties of Text, Property Values, Other Style Values, In-Line Style Sheet, Embedded Style Sheet, External Style Sheet, Grouping, Inheritance, Classes as Selector, ID as Selector, Contextual Selector, Pseudo Classes and Pseudo Elements, Positioning, Backgrounds, Element Dimensions DHTML Document Object Model and Collections – Using the Collection all, Moving object around the documents Event Handling – Assigning Event Handlers, Even Bubbling Filters and Transactions Data Bindings – Using Tabular Data Control, Sorting Data, Dynamic Sorting, Filtering

Unit- 5
XML Basics
Introduction HTML vs XML Syntax of the XML Document XML Attributes Publishing The Site Uploading Web pages - Using FTP and using Web Page Editors Web hosting - Shared hosting Running a Local Web server.

LIST OF PRACTICALS

1. Design a Home Page of Website using HTML Tags.
2. Write an HTML Document to provide a form that collects names and phone numbers.
3. Write a program in Java Script to compare numbers whose inputs will be taken from HTML Form.
4. Write a JAVA Script function to display current date and time using Date Object.
5. Write a Java Script to generate Random Numbers
6. Design three pages of your Home Page and link all of them to a single style sheet.
7. Design a web page that demonstrates blinking and scrolling text.\

8. Design a e Commence Site displaying the detail of the items that are sold in that store. The Site should provide a feature to sort the items based on the prize of the Items.
9. Design a XML document using basic syntax.
10. Uploading websites on FTP and Local Server.

REFERENCE BOOKS:

1. Web Technology – A Developer's Perspective – PHI by N. P. Goplan and J. Akilandeswari
2. Allen D.W. & Steve Johnson; the Learning Guide to Internet; B.P.B. Publication.
3. Alexis Leon and Matthew Leon; Internet for every one; Vikas publishing house Pvt. Ltd.New Delhi
4. Internet for Dummy, Pustak Mahal, New Delhi
5. Dixit Manish (1999); Internet, An Introduction, CI Stems TMH Series , Tata McGraw Hill publishing company limited, New Delhi.
6. Design Web Pages, BPB Publication.

DCSE-0502 JAVA PROGRAMMING

Unit -1
OVERVIEW OF JAVA LANGUAGE
JAVA and its support systems, JAVA environment. JAVA program structure, Tokens, Statements, JAVA virtual machine, C++ Versus JAVA, Constants & Variables, Data Types, Declaration of Variables, Scope of Variables, Symbolic Constants, Type Casting , Operators: Arithmetic, Relational, Logical Assignments, Increment & Decrement, Conditional, Bit wises, Special, Expressions & its Evaluation. Control statements: If statements and its variant, Switch statement,? Operator, While loop, Do while loop, For loop, Break and continue, Labeled Loops

Unit -2
CLASSES, OBJECTS & METHODS
Defining a Class, Adding Variables & Methods, Creating Objects, Accessing Class Members , Constructors, Methods Overloading, Static Members, Nesting of Methods,
Inheritance: Extending a Class, Overriding Methods, Concept of public, private and protected, Final Variables & Methods, Final Classes, Finalizer Methods, Abstract methods & Classes, Static class, Visibility Control.

Unit -3
ARRAYS, STRINGS & VECTORS
Arrays : One Dimensional & two Dimensional, strings, Vectors, wrapper Classes, Defining Interfaces, Extending Interfaces, Implementing Interfaces, Accessing Interfaces Variables, Systems Packages, Using System Packages, Naming Conventions, Creating Packages, Accessing a Package, Using Package, Adding a Class to a Package, Hiding Classes.

Unit-4
MULTITHREADED PROGRAMMING
Creating Threads, Extending the Threads Class, Stopping & Blocking a Thread, Life Cycle of a Thread, Using Thread Methods, basic exception handling ,Threads Exceptions, Thread Priority, Synchronization, Implementing the Runnable Interface. Understanding JDBC, JDBC Architecture, types of JDBC driver, Register JDBC driver, establish a database connection, execute an SQL statement, process the result, close the data base connection.

Unit-5
APPLET PROGRAMMING
Local & Remote Applets, Applets Vs Applications, Writing Applets, Applets Life Cycle, Creating an Executable Applet, Designing a Web Page, Applet Tag, Adding Applet to HTML File, Running the Applet, Passing Parameters to Applets, Aligning the Display, HTML Tags & Applets, Getting Input from the User. **File handling and simple GUI Design** Introduction, Data records, reading and writing to text files, simple GUI design joption pane class, message dialog-presenting information to user, input dialog-reading data from the user, confirmation dialog - getting confirmation from user.

LIST OF EXPERIMENTS

1. Programs using various decision making & looping statements of JAVA.
2. Programs to demonstrate the use of array, Class & packages.
3. Programs using Concept of public, private and protected, Final Variables & Methods.
4. Programs using Final Classes, Finalizer Methods, Abstract methods & Classes, Static class, Visibility Control.
5. Program for creating & extending thread.
6. Programs to demonstrate the use of multiple threads.
7. Programs to create an applet for "HELLO " & call this in HTML.
8. Programs to demonstrate the use of various applet tags, Designing data entry forms using various building blocks at client side.
9. Program to connect single & multiple databases using JDBC concept.
10. Program to read & write a text file.
11. Program for GUI design using option pane class.

REFERENCE BOOKS:

1. E. Balaguruswami, Programming in Java, 2nd Edition, TMH Publications
2. Herbert Shield, java complete reference TMH publication
3. Peter Norton , Peter Norton Guide to JAVA Programming, Techmedia Publications.
4. Stroker, Plew, 1998, An introduction to JAVA, Thomson learning.

DCSE-0503 HARDWARE INSTALLATION AND MAINTENANCE

Unit-1
PC FUNDAMENTALS
Elements of Computers Processors Specifications SMPS Types of data cables and power cables Types of connectors, headers I/O Ports:- Serial, Parallel USB Chipset, Video system, sound system, Drive system, MODEM, USB Printers.

Unit-2
MOTHERBOARD
Motherboard Controllers & System Resources, Memory Mapping Interrupts Request Line (IRQ) - Purpose, Standard Assignments, Conflicts, Sharing & ISA, PCI, PnP Configuration of IRQ System Buses - Industry Standard Organization, Micro Channel Architecture, Enhanced Industry Standard Architecture, UESA Local Bus, Peripheral Component Interconnect, Accelerated Graphics Ports, PCI-X. Chipsets - Northbridge & South Bridge, Function of Chipset Motherboard form factor & Power supplies - AT, ATX, LPX & NLX, Voltage & Signal Lines, Power Supply Quality & Specifications, Form Factors, Ribbon Cable and Adopter Card Installation Batteries - charging, rating, CMOS backup Batteries, Backup Battery replacement.

Unit -3
MICROPROCESSOR
Processor Specification - Clock Speed, FSB, L1, L2 & L3 cache, Processor over clocking CPU - RISC & CISC Microprocessor CPU Packaging - DIP, PGA, SPGA, MCM, LCC, PLCC & Tape Carrier Package. Intel CPU Family - Fifth generation & Sixth Generation P6, Xeon, Celeron Processor AMD CPU Family - Fifth, Sixth, & Seventh Generation K Series, Athlon, Thunderbid & Duron Processor Handling & Replacement of CPU, CPU Configuration FSB, Core Speed, Core Voltage Configuration

Unit-4
MEMORY
Logical Organization of Memory - Real Mode, Protected Mode, Lower, BIOS Data Area, Upper Memory, High Memory Area, Frame Buffer, Shadow & Cache Memory Packaging - DTPP, STPP, SIMM, DIMM, RIMM RAM Types - EDO, SDRAM, VRAM, SGRM, RDRAM, DDRAM, PPRAM, DDR 1, DDR 2, DDR 3 Memory Performance - Speed, Inter living & Caching Interfaces - IDE, ATA 1 to 6, Mater Slave Configuration, SCSI, SATA, PATA.SCSI Interface - BUS ID, Logical Unit Number, Termination, Signaling Types, SCSI Standards, Comparison between IDE & SCSI Optical Storage Devices - CD, DVD, and Blu-ray Disc Error Codes- Beep Codes, Post Codes Windows System Tools – Back Up, Disk Clean Up, Disk Defragmenter, Files and Settings Transfer Wizard, Scheduled Tasks, Security Center, System Information, System Restore Antivirus and Other Complete Security Tools.

Unit-5
BIOS
BIOS Functions Cold & Warm Booting BIOS Error Codes BIOS Interrupts Identification of Different BIOS (AMI & AWARD BIOS) BIOS Memory Assignments, BIOS Advance setup **ASSEMBLING THE COMPUTER** PC Case/Cabinet Preparation, Mounting process of the Motherboard, CPU Installation , Attaching Heat sink and Cooling Fan, RAM installation, Connecting

SMPS to different devices, Connecting Hard-drive and its cables, Installation of optical drives, video card, sound cards, PCI cards and Expansion cards.

LIST OF PRACTICALS

1. Preparing the case
2. Installation and troubleshooting the Motherboard
3. Installation and troubleshooting the CPU
4. Installation and troubleshooting the heat sink and cooling fan
5. Installation and troubleshooting RAM
6. Installation and troubleshooting SMPS to different devices
7. Installation and troubleshooting the hard-drive and its cables
8. I Installation and troubleshooting optical drives
9. Installation and troubleshooting the video card, sound cards and other cards
10. Installation and troubleshooting PCI
11. Installation and troubleshooting Expansion cards
12. Operating System Installation i.e. Windows and Open Source OS (Linux, SUN)
13. Device Driver Installation

REFERENCE BOOKS:

1. Stephen J. Bigelow, Troubleshooting, Maintaining and Repairing PCs, Fifth edition TMH.
2. Subhadeep Choudhary, The A-Z of PC Hardware & Maintenance part I and II.
3. Govindrajalu, IBM PC and Clones.
4. Balasubramanyam, Computer Installation and Servicing.

DCSE-0504 Software Engineering

Unit-1

INTRODUCTION TO SOFTWARE ENGINEERING Software characteristics, Software myths. Components, application; process, methods, tools & view of S/E; software process Capability Maturity Model, life cycle models (water fall, incremental, spiral, RAD, prototyping, object oriented) fourth generation model.

Unit-2

SOFTWARE PROJECT PLANNING Responsibilities of Software Project manager, Project planning Objective, Software scope, Software project estimation technique, Decomposition techniques, Estimation models, Scheduling, staffing, Risk Management, Software configuration Management.

Unit-3

SOFTWARE REQUIREMENT ANALYSIS, SPECIFICATION & MODELING Analysis principles, system specification, software requirement specifications, functional specifications, software prototyping, specification, data modeling, data flow diagrams, ER Diagram, Mechanics of structured analysis, data dictionary.

Unit-4

OBJECT –ORIENTED CONCEPT Object Oriented Concepts, Unified Modeling language Diagram(Use Case Diagram, Class Diagram, Sequence Diagram, State Chart Diagram)Elements Of Object Modeling, Management Of Object Oriented Software Projects, Object Oriented Analysis, Domain Analysis, OOA Process Conventional v/s OO Approach, Object –Relationship Model SOFTWARE IMPLEMENTATION AND MAINTAINANCE Characteristics, reverse engineering, maintenance process model, estimation of maintenance cost.

Unit-5

DESIGN CONCEPT PRINCIPLE AND METHODS

Design Process, Design Principles, Design Concepts, Effective Modular Design, Design Documentation, Architectural Design, and Architectural Design Process - Optimization, Procedural Design. Software Testing Fundamentals: Principles & objectives, V model. Testing Methodology: Unit Test, Integration Test, Functional testing, System Testing, Acceptance test, White Box & Black Box testing techniques Gray box testing, Retesting and Regression testing, Debugging & reliability Analysis. Testing Documentation: Test Requirement, Test Plan, Test case design and execution(Study of manual testing tool : Quality center) Software Reliability And Quality Management: Concepts of S/W Quality Control and Assurance, Software Reliability, ISO 9000 & 9001, Standard SEI –CMM

REFERENCE BOOKS:

1. Software engineering A Precise Approach by Pankaj Jalote's ,Wiley India.
2. Rajib Mall, Fundamental of Software Engineering, PHI.
3. Software Engineering by Kassem A. Saleh J.Ross Publishing
4. Ron Patton, Software Testing, BPB.
5. Gazzi, Fundamental of Software Engineering, PHI

DCS-505 Wireless and mobile computing

Unit-1

Introduction to wireless technology

Comparison of wired and wireless mechanism, Basic equipments in wireless communication: Wireless access point, Wireless access cards, routers etc. Various types of wireless communication technologies used in Mobiles, Antennas etc. Concept of spread spectrum, various types of spread spectrum Spreading sequences.

Unit-2

Wireless LAN Wireless local loops Wireless access protocols Various types of wireless LAN technologies like infrared, microwave LANs etc .IEEE 802.11x standards for wireless LANs.

Unit-3

Cellular system infrastructure Cell fundamentals: Cell site, cell capacity, frequency reuse clustering, co channel interference ,Cell splitting ,cell sectoring .Mobile station(MS),Base transceiver station (BTS),Mobile switching center(MSC),Functions of MSC, Base station system, Base station control, HLR, VLR Mobile station(MS) registration.

Unit-4

GSM Technology GSM network architecture GSM channel concepts: logical channels, Broadcast channel, Common control channel & dedicated control channel. GSM identities: Mobile station associated numbers, Network Numbering plans, mobile station roaming number. GSM system operation: GSM call setup phase, GSM call confirmation and call accepted GSM location updating, GSM Connection release. Overview of CDMA technology.

Unit-5

Reflection & Propagation models Mobile radio propagation Ground reflection model Diffraction sculpturing Indoor propagation models Outdoor propagation models Ray tracing **Evolution and Deployment of cellular system** Short Message Services (SMS),Enhanced Message services(EMS), Multimedia Message Services (MMS) & Mobile Instant Messaging(MIM) 1G cellular Systems 2G cellular Systems 2.5G cellular Systems 3G cellular Systems 4G cellular Systems Emerging wireless technologies

REFERENCES

1. “Wireless Communication and Networks” by William Stallings, 1st edition.
2. “Wireless and Mobile Network Architectures” by Yi-Bing Lin and Imrichchlamtac
3. Wireless & Cellular Telecommunications, 3/e,Dr. William C.Y. Lee,TMH
4. Introduction to Wireless telecommunication systems and networks, Mullett, cengage learning
5. Wirless Communication : Principle and practice – T.S. Rapp port
6. Mobile Communication – Schwartz
7. “Introduction to wireless and mobile systems” -2nd edition by Dharmprakash Agrawal & Qing-An Zeng, Cengage Learning, Indian edition.
8. “Wireless Communication T.L.SINGAL TMHI NEW DELHI

DCSE-0506 PROFESSIONAL ACTIVITIES (PA)

Unit -1

PRESENTATION SKILLS *:*

Oral Presentation : Need of effective oral presentation. Characteristics of good oral presentation. Ways of Oral Presentation (Seminar, Viva-voce, Interview, Group Discussion, Lecturing, Power Point Presentations etc.) Gestures/Mannerism during oral presentation Media, methods used for effective oral presentation. Assessment of oral presentation. Written Presentation *:* Need and characteristics of written presentation. Ways of written presentation (Report writing, manual, handout, notes etc.). Grammar, Punctuation, referencing paragraphing during written presentation.

Unit- 2

LEARNING TO LEARN SKILLS : Need of Learning to Learn Skills. Type of Learning Skills (Learning face to face, Individualized learning, Distance learning, Self- learning). Developing Learning to Learn Skills.

Unit- 3

STUDY SKILLS : Methods of Good Study Habits Note Taking Developing Reading Skills.

Unit- 4

INFORMATION SEARCH : Objectives of information search. Ways of information search (Internet surfing, Library search, Abstracts, Journals, books etc.) Assimilation and presentation of information. PERSONALITY :Concept and meaning of personality. Characteristics of good personality. Factors influencing personality. Types of personality. Need for desirable personality for success. Qualities of complete personality.

Unit -5

TIME MANAGEMENT : Principles of Time Management. Time Management matrix. Criteria governing Time Management. Possible time waster. PERSONAL GROOMING : Posture and Health.Types and importance of posture. Importance of yoga and meditation. Factors affecting good health-diet, exercise personal cleanliness, sleep and rest. Use of cosmetics. Dress Code Physical Fitness and Inner Strength.

REFERENCES

1. How to achieve success and happiness : Sultan Chand and Sons,New Delhi
2. How to develop effective personality : Dr Mittal and Agarwal CS
3. The Art of Public Speaking : Stephen E Lucas

DCSE-0601 Computer Graphics Multimedia and Animation

Unit-1

Introduction to Computer Graphics Definition of Computer Graphics Application of Computer Graphics Hardware Input and Output Devices Display Devices Refreshing Display Devices Raster-Scan Random-Scan. **Basics of Multimedia Technology** Concepts of Multimedia: Types, Data Streams, Hardware and Software Requirements and Applications, Multimedia Authoring. Digital Audio: Audio Sampling, Recording Digital Audio, Audio Standards for Multimedia Applications, MIDI File Formats, MIDI Hardware and Software. Image Compression Standards: Types. Video Compression and Standards: Compression Standards, MPEG Compression Basics, MPEG-1, MPEG-2, and MPEG-4 Hypertext and Hypermedia.

Unit -2

Points and Lines Line-drawing Algorithms DDA Algorithm Bresenham's line Algorithm Circle-generating Algorithm Midpoint Circle of Algorithm Polygon Filling Algorithm: Scan-Line. **Graphics Image File Formats** Raster Format, Bitmap (BMP) Format, Graphics Interchange Format (GIF), Joint Photographic Experts Group (JPEG), Tagged Image File Format (TIFF), Portable Network Graphics (PNG) and their differences

Unit -3

Transformation, 2-D Viewing and Clipping Basic Transformations (2D and 3D) Translation Rotation Scaling Shear Reflection Composite Transformations Rotations about a point Reflection about a line Homogeneous Coordinate Systems Clipping Point Clipping Line Clipping -Cohen-Sutherland Clipping algorithm. Polygon Clipping: Sutherland Hodgeman Algorithm

Unit- 4

Projection: Parallel Projection: Orthographic, Axonometric, Oblique Perspective Projection: Standard Perspective Projection General Perspective Projection,Vanishing Points. **Graphics Image File Formats** Raster Format, Bitmap (BMP) Format, Graphics Interchange Format (GIF), Joint Photographic Experts Group (JPEG), Tagged Image File Format (TIFF), Portable Network Graphics (PNG) and their differences.

Unit -5

Shading, Colour model and Illumination Chromaticity diagram-RGB, CMY, HSV, HLS, CIE models- Realism in rendering, Image manipulation: Illumination models, shading models for polygons, Gouraud and Phong shading , shadows, Transparency, Image Filtering, image processing, geometric Transformation of images. Development of Animations: Non Computer and Computer Based Animations, Different Types of Animations. Flash Basics: Flash Work Flow, Animation Using Flash.The Flash Work Environment: The Stage and the Time Line, Symbols and Instances, Symbols and Interactive Movies, Using the Tool Box, Using Panels, Using Context Menus, Moving the Play Head, Working the Frames using time line.Drawing Overview: Flash Drawing and Painting Tools, Working With Color, Using Imported Art Work, Adding Sound, Representation of Animation. Using Layers: Adding and Deleting Layers, Viewing Layers. Creating Text Boxes for User input. Creating Animations: Creating Key Frames, Layers in Animations, Frame Rates, Frame Rates, and Steps for creating animations. Frame by Frame Animations. Publishing and Exporting.

LIST OF EXPERIMENTS

1. Write a program for 2D line drawing as Raster Graphics Display
2. Write a program for circle drawing as Raster Graphics Display
3. Write a program for polygon filling as Raster Graphics Display
4. Write a program for line clipping.
5. Write a program for polygon clipping.
6. Write a program for displaying 3D objects as display using perspective transformation.
7. Devise a routine to produce the animation effect of a square transforming to a triangle and then to a circle
8. Write a program to show a bitmap image on your computer screen.
9. Write a program to play “wave” or “midi” format sound files.
10. Create animations using Adobe FLASH. Flash Drawing and Painting Tools. Flash Drawing Modes. Pencil Tools Importing artwork into Flash (Working with Photoshop PSD files (PSD file import preferences)

BOOKS RECOMMANDED.

1. Computer Graphics, Multimedia and Animations by Malay K. Pakhira, PHI Learning.
2. Computer Graphics by Donald Hearn and M.Pauline Baker, PHI
3. Computer Graphics Principles and Practices second edition by James D. Foley, Andeies van
4. Dam, Stevan K. Feiner and Johb F. Hughes, 2000, Addition Wesley. Introduction to Computer Graphics By N. Krishnamurthy T.M.H
5. Graphics, GUI, Games• & Multimedia Projects in C by Pilania & Mahendra, Standard Pub Newman W.M. and Sproull R.F., " Principles of Interactive Computer Graphics ", Second
6. Edition, Tata McGraw Hill Publishing Company Limited, New Delhi, Multimedia on the PC, Sinclair,BPB

Swami Vivekanand University, Sagar (M.P.)

Diploma In Computer Science And Engineering
2016-2017

DCSE-0602(A) Advanced Web Technology

Unit- 1
INTRODUCTION
History, Current and Future Versions of MySQL and PHP, How to Get MySQL, Installing MySQL on Windows, Trouble Shooting your Installation, Basic Security Guidelines, Building PHP on Windows with Apache, Windows, php.ini. Basics, The Basics of PHP scripts. The Building blocks of PHP: Variables, Data Types, Operators and Expressions, Constants. Flow Control Functions in PHP: Switching Flow, Loops, Code Blocks and Browser Output.

Unit -2
BASIC WORKING
Working with Functions: What is function?, Calling functions, Defining Functions, Returning the values from User-Defined Functions, Variable Scope, Saving state between Function calls with the static statement, more about arguments. Working with Arrays: What are Arrays, Creating Arrays, Some Array-Related Functions.

Unit -3
WORKING WITH OBJECTS
creating Objects, Object Instance Working with Strings, Dates and Time: Formatting strings with PHP, Investigating Strings with PHP, Manipulating Strings with PHP, Using Date and Time Functions in PHP. Working with Forms: Creating Forms, Accessing Form Input with User defined Arrays, Combining HTML and PHP code on a single Page, Using Hidden Fields to save state, Redirecting the user, Sending Mail on Form Submission, Working with File Uploads.

Unit -4
MYSQL BASICS
Understanding the database design process: The Importance of Good Database Design, Types of Table Relationships and Understanding Normalization. Learning basic SQL Commands: Learning the MySQL Data types, Learning the Table Creation Syntax, Using Insert Command, Using SELECT Command, Using WHERE in your Queries, Selecting from Multiple Tables, Using the UPDATE command to modify records, Using the DELETE Command, Frequently used string functions in MySQL, Using Date and Time Functions in MySQL.

Unit- 5
PHP WITH MYSQL
Interacting with MySQL using PHP: MySQL Versus MySQLi Functions, Connecting to MySQL with PHP, Working with MySQL Data. Creating an Online Address Book: Planning and Creating Database Tables, Creating Menu, Creating Record Addition Mechanism, Viewing Records, Creating the Record Deletion Mechanism, Adding Sub-entities to a Record.

BOOKS RECOMMANDED

1. Sams Teach Yourself PHP in 24 Hours, Third Edition
2. Wrox, Beginning PHP, Apache, MySQL Web Development
3. Web enabled commercial application development using HTML,DHTML,JavaScript, Perl CGI, Ivan Bayross, BPB.
4. Learning PHP & MySQL: Step-by-Step Guide to Creating Database-Driven Web Sites by Michele Davis and Jon Phillips. Web Technologies by Godbole, Tata Mc Graw .
5. Html: Css/ Javascript/ Dhtml (I Performance Series) by Steven E.
6. Callihan Web programming Building Internet Applications, Chris Bates, Wiley

DCSE-0602(B) Network Security And Management

Unit -1

Introduction Security overview, Computer security, network security, Key principles of Network security-Confidently, Integrity, Availability. Threats to security need of security, types of security, Security issues.

Unit- 2

Information System Security Management Security Polices, Security Awareness, security control - Physical Controls, Procedural Controls, Technical Controls and Legal and liability. Identification and Authentication- Password, Biometrics, Single Sign On.

Unit -3

Secrete Communication Introduction to secrete communication, Basics of Cryptography – Substitution cipher, Cryptographic primitives. Encryption, Symmetric Encryption- Stream cipher, Block cipher, Sharing Keys. Asymmetric Encryption- Using Certificate Authority, Digital signature, SSL (Secure Socket Layer), TLS (Transport Secure Layer), Hashing algorithms. **Troubleshooting Tools and Strategies-** Overview of TCP/IP Troubleshooting Tools, Identify the TCP/IP Configuration by Using IPConfig ,Test Connection to the TCP/IP Network by Using Ping, Understanding Address and Name Resolution Test IP- address-to- MAC-address Resolution by Using ARP Understanding IP Routing for Windows NT - The Route Table, Display Current TCP/IP Connections and Statistics by Using Netstat, Using Performance Monitor, Troubleshooting Other Connection Problems – Error 53, Cannot Connect to a Specific Server ,Troubleshooting Telnet.

Unit- 4

Network management Definition need and advantages. Windows NT Networking Architecture, Windows NT Operating System Design and Basics, Open Systems and Industry Standards, Client/Server Computing, Interoperating with Other Networks, Remote Access Service-Point to point protocol, Network Security and Domain Planning- Security Model Architecture, Controlling Access- User Accounts, User Rights.

Unit -5

Network Services Enterprise Level- Installing and Configuring TCP/IP, Configuring TCP/IP Clients, Dynamic IP Addressing Configuring DHCP, Accessing the DHCP Manager, Managing DHCP Scopes Reserving IP addresses Installing and Configuring WINS, Installing DNS Service. **Simple Network Management Protocol (SNMP) for Network Management**- Overview of SNMP, SNMP Registry, Management Information Base, Object Identifiers, SNMP Installation, Starting and Stopping the SNMP Service Troubleshooting SNMP .

RECOMMENDED BOOKS

1. Fundamentals of Network Security by John E. Canavan
2. Network Security Bible by Dr. Eric Cole, Dr. Ronald Krutz, and James W. Conley
3. Network Management: A Practical Perspective by Allan Leinwand and Karen Fang
4. Forouzan, TCP/IP Protocol Suite 4th edition, TMH
5. J.Richard Burkey, Network Management Concept and Practice, PHI

DCSE-0603(A) -ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEM

Unit -1
INTRODUCTION TO AI
Meaning and definition of Artificial Intelligence Characteristics of AI Problems Scope and Future Expectation of AI Application of AI

Unit- 2
PROBLEM SOLVING AND CONTROL STRATEGIES
State Space Representation Problem Characteristics Production System and its type Characteristics of Production System Breadth First Search and Depth First Search Forward and Backward Chaining

Unit- 3
HEURISTIC SEARCH TECHNIQUES Hill Climbing Branch and Bound Technique Best First Search Technique and algorithm A* Algorithm and AO* Algorithm Constraints Satisfaction and related numeric problems. **GAME PLAYING** Introduction to Game Playing Mini max Search Procedure Alpha-Beta Cut offs

Unit-4
KNOWLEDGE REPRESENTATION
Mapping Approaches to Knowledge Representation Issues in Knowledge Representation Knowledge Representation using Predicate Logic and Prepositional Logic Resolution and Refutation
Deduction, Theorem Proving Procedural Knowledge and Declarative Knowledge Introduction to Reasoning Various types of Reasoning methods like Forward, Backward, monotonic, non-monotonic, probabilistic Reasoning Baye's Theorem, Bayesian Network Semantic Networks, Frames Conceptual Dependency, Scripts

Unit -5
LEARNING AND NATURAL LANGUAGE PROCESSING
Introduction to Learning Types of Learning in neural network Learning Processes :- Error Correction Learning, Memory based Learning, Hibbing Learning, Competitive Learning with teacher, Learning without teacher Introduction to NLP and its different Phases Parsing Techniques, Context Free Grammar Recursive Transition nets (RTN), Augmented Transition nets (ATN) CSE and Logic Grammars, Semantic Analysis.

EXPERT SYSTEM Definition and Characteristics of Expert System Rule Based System Architecture Non- Production System Architecture Knowledge Acquisition and Validation Expert System Life Cycle and Expert System Tools MYCIN and DENDRAL examples of Expert System.

REFERENCE BOOKS:

1. Introduction to AI & ES by DAN W. Patterson, PHI learning
2. Introduction to Artificial Intelligence by Eugene Charniak and Drew McDermott,
3. Addison Wesley.
4. Principles of Artificial Intelligence by Nils J. Nilson.Artificial
5. Intelligence by Elaine Rich and Kerin Knight, Tata McGraw Hill Edition

DCSE-0603(B) Data Mining and Data Warehousing

Unit -1

FUNDAMENALS OF DATA MINING Data mining The history of the data mining Data Mining strategies Popular data mining techniques Data mining applications Challenges of data mining The future of data mining.

Unit- 2

DATA PROCESSING AND DATA WAREHOUSING Data, information and knowledge Types of data Data warehouses Data cleaning Data de-normalization Data transformation Data quality measure OLAP(Online Analytical Processing) Data Sampling.

Unit -3

WEKA AN ATTRACTIVE DATA MINING TOOL Introduction Installing Weka Weka data file format Starting Weka Data Visualization Data filtering Selecting Attributes Data Mining with Weka. MINING OF TIME SERIES Introduction Fundamental of times series analysis Time Series models Regression Model Periodic Model Strengthens and weakness of times series analysis Application of times series analysis

Unit -4

ASSOCTIATION RULE MINING Transaction data Concepts of association rules Relevance of association rule mining Functions of association rule mining Improvement and share The problem of large datasets Apriority algorithm Strengthens and weakness of Association Rule Mining Application of Association Rule Mining.

Unit- 5

THE CLUSTERING TASK Introduction Distance Measure Types of clustering Clustering through Weka: K-Means algorithms Clustering Validation Strengthens and weakness of Clustering algorithms Applications of Clustering algorithms. THE ESTIMATION TASK Introduction Scatter plots and correlation Linear regression Models Logistic regression analysis Strengthens and weakness of estimation Application of estimation

RECOMMENDED BOOKS

1. Data Mining and Data Warehousing by Bharat Bhushan Agarwal

Swami Vivekanand University, Sagar (M.P.)

Diploma In Computer Science And Engineering
2016-2017

DCSE-0605 -PROJECT

GUIDELINES

Project Guidelines: The focus of the Project is on preparing a working system (e.g. software system/Interface, hardware/software interface design etc.), using system analysis tools and design techniques and submit it in the form of a write-up i.e. detail project report. The student should select some real life problems for their project and maintain proper documentation of different stages of project such as requirement specification, objectives, work plan, analysis, design, implementation and test plan. Each student is required to prepare a project report and present the same at the final examination with a demonstration of the system. The faculty and student should work according to following schedule:

i) Each student undertakes substantial and individual project in an approved area of the subject and supervised by a member of staff.
ii) The student must submit outline and action plan for the project execution (time schedule) and the same be approved by the concerned faculty.
iii) The project development must be carried out according to following steps and final write-up should have the same sequence.

- Project objectives.
- Requirement gathering.
- Modeling of project should be done in any well-known modeling tools like Flow Chart, DFD, UML, E-R etc.
- Analysis of project.
- Design of project.
- Implementation of project.
- Testing of project.
- Quality consideration of software/interface
- Designing a small user manual.
- System requirement for designed software/interface.
- Estimating the cost of the project.
- Future scope and suggestions.

iii) The above project should be implemented by using Languages, Visual tools, Graphic tools, DBMS, AI systems, Web Design supporting packages and tools etc.
iv) Suggested areas of project

- Web Technology based applications
- Database management systems
- Communication and Network
- Graphic based application
- System software
- Automation
- Embedded systems
- Data acquisition systems
- AI based systems
- Control systems etc.
- Net Working

ACTION PLAN FOR PROJECT WORK

- Orientation of students by HOD/Project supervisor
- Literature survey and resource collection
- Selection and finalization of topic before a committee*
- Detailing and preparation of project
- (Modeling, Analysis and Design of Project work) Development stage
- Testing, improvements, quality control of project
- Acceptance testing
- Report writing
- Presentation before a committee (including user manual)

*Committee comprises of HOD, all project supervisors including external guide from industry (if any).

DCS-605 PROFESSIONAL ACTIVITIES (PA)

Unit -1

PRESENTATION SKILLS: **Oral Presentation :** Need of effective oral presentation. Characteristics of good oral presentation. Ways of Oral Presentation (Seminar, Viva-voce, Interview, Group Discussion, Lecturing, Power Point Presentations etc.) Gestures/Mannerism during oral presentation Media, methods used for effective oral presentation. Assessment of oral presentation. Written Presentation: Need and characteristics of written presentation. Ways of written presentation (Report writing, manual, handout, notes etc.). Grammar, Punctuation, referencing paragraphing during written presentation.

Unit -2

LEARNING TO LEARN SKILLS: Need of Learning to Learn Skills. Type of Learning Skills (Learning face to face, Individualized learning, Distance learning, Self- Learning). Developing Learning to Learn Skills.

Unit -3

STUDY SKILLS : Methods of Good Study Habits Note Taking Developing Reading Skills. **INFORMATION SEARCH :** Objectives of information search. Ways of information search (Internet surfing, Library search, Abstracts, Journals, books etc.) Assimilation and presentation of information.

Unit -4

PERSONAL GROOMING: Posture and Health. Types and importance of posture. Importance of yoga and meditation. Factors affecting good health-diet, exercise personal cleanliness, sleep and rest. Use of cosmetics. Dress Code Physical Fitness and Inner Strength.

Unit- 5

TIME MANAGEMENT : Principles of Time Management. Time Management matrix. Criteria governing Time Management. Possible time waster **PERSONALITY :** Concept and meaning of personality. Characteristics of good personality. Factors influencing personality. Types of personality. Need for desirable personality for success. Qualities of complete personality

A) SUGGESTED IMPLEMENTATION STRATEGIES :

1. Students should be made to listen to effective presentations of experts, comprehend that and then summarize that orally and in writing. Feedback should be given immediately after each task.
2. Also they should be given certain task/assignment on which they need to collect new information in specified time.
3. Students should be able to take decision that the particular information can be gathered from such and such sources and should be able to present that confidently in verbally or in writing.

In this particular subject only practical hours are allotted, but, it may be essential to take up certain inputs followed by assignments this may include expert lectures, group discussion, plenary session etc.

B) SUGGESTED LIST OF EXPERIENCES/TUTORIALS :

1. Seminar Presentation on Specific topic for fixed time duration.
2. Information Collection on a particular topic followed by presentation in specified time duration.
3. Visit to multinational outlet for observing personality traits of officials and preparing detailed report. Demonstration exercise by personality experts.
4. Arranging expert lecturers of well known personality like Shiv Khera etc.
5. Selected Book Review.

C) EVALUATION :

Following grade scale of evaluation of performance in PA has been established.

Grades	Level of performance
A	Excellent
B	Good
C	Fair
D	Average
E	Below Expectations

RECOMMENDED BOOKS

1. How to achieve success and happiness Sultan Chand and Sons ,New Delhi.
2. How to develop effective personality Dr Mittal and Agarwal CS.
3. The Art of Public Speaking Stephen E Lucas.
4. Public Speaking and Influencing Business Dale Carnegie.