DR. A P J ABDUL KALAM UNIVERSITY, INDORE

SYLLABUS

For

DIPLOMA COMPUTER SCIENCE ENGINEERING

(SECOND YEAR, 3RD & 4TH SEM)

Dr. A P J Abdul Kalam University, Indore

DR. A P J ABDUL KALAM UNIVERSITY, INDORE

Syllabus for Diploma Computer Engineering

List of Subject (SECOND YEAR, 3RD & 4TH SEM)

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Unit 1: 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

Unit 6 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.

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

Unit.1 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.

Unit4: 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, index allocations), 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 Experiment:

[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 Simulation of CPU Scheduling Algorithms (FCFS, SJF, RR)
[4]. Simulation of Memory Allocation, Paging and fragmentation
[5]. Case study of UNIX, Linux, Windows Vista & Windows XP.

References:

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

Unit1: 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 Fibre – Multimode Fibres, Modal Dispersion, Mono Mode Fibre, Graded Index Fibres, Total Dispersion, Fibre Attenuation, Radio Media, Uhf & Microwaves, Satellite Link, Equalization.

Unit3: 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

Unit4: 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: 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

Unit 6: Telephone and Cable Networks Telephone Network: Major Components, Topology, Signalling, 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.

Unit 7: Cellular And Satellite Networks Satellite Networks: Orbits, Footprint, Three Categories of Satellites, GEO Satellites, MEO Satellites, LEO Satellites. Cable TV Networks and 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

Text Book

[1]. Behrouz A Forouzan, Data Communication and Networking, 4e, Tata McGraw-Hill, 2008. William Stallings,

[2]. Data and Computer Communications, 8e, Pearson Education, 2008.

References

[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

Unit1: 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.

Unit3: Symbol Tables Static Symbol Table. Hash Tables, Hashing Techniques. Collision Handling Techniques

Unit4: Stacks and Queues Representation of Stacks and Queues Using Arrays
Type Of Queues-Linear Queue, Circular Queue, De-Queue Applications Of Stacks: Conversion Form Infix To Postfix And Prefix Expressions, Evaluation Of Postfix Expression Using Stacks.

Unit5: Linked Lists Singly Linked List: Operations On List Linked Stacks And Queues.
Polynomial Representation And Manipulation Using Linked Lists Circular Linked Lists.
Doubly Linked Lists. Generalized Lists

Unit6: Basics of Trees: Binary Tree Traversal Methods, Preorder Traversal, In-Order Traversal, Post-Order Traversal, Representation Of Trees And Its Applications: Binary Tree. Threaded Binary Trees. Binary Search Tree, Heap Height Balanced (AVL) Tree, B-Trees

Unit 7: Basics of Graphs Graph Representation: Adjacency Matrix, Adjacency Lists. Minimum Spanning Trees, Prim's And Kruskal's Algorithm Traversal Schemes: Depth First Search, Breadth First Search. Shortest Path Algorithms: Single Source Shortest Path, All Pair Shortest Path.

List of Experiments:

[1]. Programme 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, Narosa.
[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.

List of Experiments:

[1]. Problems involving sequence, selection and iteration.
[2]. Small problems mainly computational to illustrate expression and operator precedence.
[3]. Programmes 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. Formatting a text, replacing a given word in a text with another, counting the number of words, in a text.

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 Programme.

7. Student Record System

REFERENCES:

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

Unit 1:Introduction:Basics Of Networks - Definition, Need, Usesandadvantages.Types Of Computer Networks-Local Area Networks(LAN), Wide Area Networks(WAN) , Metropolitan Areanetwork(MAN).Networkarchitectures- Peer To Peer , Client-Server,Hybrid, Intranet, Internet And Extranet.Different Topologies – Bus, Ring, Star, Hybrid Etc.

Unit 2: 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 Subnetting and Supernetting, VLAN

Unit 3: 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 Link (DSL), Asynchronous digital Subscriber Link (ADSL) , Leased Line Non Exchange , Cable Net , WI-FI, WIMAX, CDMA, GSM. Introduction to Network Operating System (NOS):

Unit 4: 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. IProuting Algorithm. IP Checksum. ICMP And IGMP : Introduction And Message Format

Unit 5: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 Endpoints, TCP Segment Format, Checksum Computation, Establishing A TCP Connection

Unit 6: **Application Layer Protocol** Introduction To Ftp, Telnet, NFS, SMTP, Rlogin, SNMP DNS Applications: Concept Of DNS, Mapping DNS Resource Record, DNS Resolution, DHCP, VPN, Ipv6, Icmpv6

Unit 7: Routing and Multicasting Vector Distance & Link State Routing Protocol
Routing Information Protocol Open SPF Protocol Gateway To Gateway Protocol, Hardware Broadcast, Hardware Multicasting 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

List of Experiments:

[1]. Observation and Study of Various Network component and Devices.
[2]. Study of Various Type of Network Topologies
[3]. Crimping of UTP Cable (cross, straight) and testing of cables.
[4]. Installation of Various types of Network Devices
[5]. Identifying valid IP Addresses, Defining Subnet IDs and Host IDs.
[6]. DNS Configuration
[7]. Designing a network system for an organization using TCP/IP Network
   a. Class A address
   b. Class B address
   c. Class C address
   d. d Telnet
   e. FTP
   f. Ping
[8]. Configuration of wireless network on mobile phone and notebook/netbook

References

[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.

Unit1. 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 relation 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 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().

Unit 5: 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

References:

1. Silberschatz A., Korth, Sudarshan 6th edition, Database System Concepts, TMH New Delhi.

2. Schaum's Outlines, Database Management System, TMH.

Unit1: 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.

Unit2 : Linux Basics and File System Running Commands and Getting Help Running Commands, Some Simple commands, Getting Help, The what is 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 & unmounting 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 .Getting system information – host name, disk partitions & sizes, users, kernel. Backup and restore files, linuxconf. Utility in GUI, reconfiguration hardware with kudzu.

Unit 6 networking services on LINUX: Server –side setup, configuration, and basic administration of common networking services: Sambha, DNS, NIS, Apache, SMB, DHCP, Sendmail, FTP other common services: TFTP, PPPD, proxy

List of Practical's :

[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.

[3]. Emacs, ex, edit, gedit, nedit, xemacs, emacs, dtpad, pico, vi,Manipulating data,

[4]. 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,

[5]. Compressed files, Files may be compressed to save space. Compressed files can be created and 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.
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

[8]. 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.

References:

[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.

Sub Code: CSD 404 **Sub Name: Microprocessor and Interfacing** **6 Credits**

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.

Unit 5 Peripheral chips & Interfacing Functional block diagram, pin configuration & modes of operation IC chips 8255, 8275, 8279,8237.

Unit 6 Microprocessor application Interfacing multiplexed displays, interfacing to a matrix keyboard, A/D converter, D/A converter ,stepper motor control

Unit 7 Comparison of 8085 to other microprocessor Comparison of 8085 to 8086,80186,80286,80386 and 80486, multicore technology.

List of Practical's:

[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.,Eastern Economy Edition, Sept. 2002
[6]. Peter Norton: Assembly Language for the PC, PHI.

Unit 1. Introduction to Entrepreneurship

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 2. Industries and Business Organizations

Concept Of Industry Or Enterprise, Classification Of Industries- On The Basis Of Capital Investment-Tiny (Micro) Industry, Small Scale **,** Medium Scale, Large Scale, Others -Rural Industry, Cottage Industry, Forms Of Business Organization-Proprietorship, Board & Co-Operative, Partnership, Public Ltd. **,** Private Ltd. **,** It Sector, Government Co-Operative / Undertakings **,**Tiny Small Scale Industry Definition **,** Its Significance In National Development. **,** Govt. Policies For SSI Promotions **,** Sector / Product For SSI.

Unit 3. Institutional Assistance

Types Of Institutional Assistance - Infra - Structural Assistance, Technical Assistance, Financial Assistance, Marketing Assistance
Information / Guidance & Training- Sisi - Ask - Mpcon - Csir - Ced- Ma - Nrdc
Infrastructure - D/C - Avn/Akvn
Finance - Sidbi - Kvib Mpfc - Nabard - Mpwdc Nsic M.P.A.V.V.N.
Marketing - Mp- Agro - Nsic - Pm.Lun - Export Copporation - Kvip - Mphsvn Mpldc
Quality Control - Bis - Fpo - Mplun F.D.A. - Ag. Mkt. Board

Unit 4. Incentives / Concession / Facitlities Available

Seed Money, Incentive / Subsidies, Others (Phones, Lands Etc)

Planning of an Industrial Unit (SSI)

Pre- Planning Stage - Scanning The Environment - Market Survey - Seeking Information - Product /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.

Unit 5. Achivement Motivation

Historical Perspective. Concept Of Achievement Motivation. Significance Of Achievement Motivation Development Of Achievement Motivation.

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) .Udyamita Vikas By Anand Prakashan

Project Work/Assignment (411)

[1]. To Prepare Chart To Showing Various Factors Affecting Entrepreneurship.
[2]. To Collect Details Related To Various Schemes Run By The Govt. For Self-Employment And Entrepreneurship.
[3]. To Identify And Select A Project And Conduct Market-Survey Thereof.
[4]. To Collect Various Formats Used In Industries & Departments/Institutions Working In The Field Of Entrepreneurship.
[5]. Visit Few Small Scale Industries Situated In City, Nearby Industrial Area.
[6]. Discuss The Problems Related To SSI (Small Scale Industries) With An Entrepreneur.
[7]. Collect Information About Market Rates Quality And Quantity Of Goods For Their Choice.
[8]. Develop Logical And Analytical Approach To Purchase The Raw Material / Finished Goods
[9]. To Prepare Case Study Of Successful Entrepreneurs.
[10]. Preparation Of Project Report For The Industry/ Business They Are Willing To Start.

Unit 1 : Marketing & Concept ,Evolution of marketing-a historical background ,The stage of barter The stage of money economy The stage of industrial revolution ,The stage of competition , The emergence of marketing , Selected definitions of marketing , Different concept of marketing , The exchange concept , The production concept , The product concept ,The sales concept , The marketing concept . Difference between selling & marketing. Benefits & significance of marketing. Helps to remove causes for under development. Improve productivity & efficiency. Canalize country's economic resources properly. Insure better deal for consumer. Make economic planning meaningful & relevant etc.

Unit :2 Marketing environment, Internal & external factors ,Demographic environment , Economic environment ,Political environment, Physical environment, Technological environment , Competitive environment, Social & cultural environment, Micro & macro environment

Unit :3 Marketing planning & organization, Scope & importance of planning, Steps in marketing planning process, Purpose & principle of organization, Models of marketing organization, Line & staff type, Product based organization, Territory oriented organization Complex organization, Task of chief marketing executive, Decentralization

Unit:4 Market segmentation, Types of market, Definitions & benefits of segmentation Methods of segmentation, Geographic, segmentation, Demographic, segmentation Psychographic segmentation ,Buyer behavior Segmentation ,Volume segmentation, Steps in market segmentation, Market targeting

Unit 5 Market mix Definition of market mix, Elements of marketing mix-Product, Place, Price, Promotion Environmental variable (uncontrollable variables),Customer variable, Competition variable trade variable, Environmental variable, Product management Components of product, The core or basic constituent ,The associated features, The brand names, package, label, Types of product ,The generic product, The branded product, The differentiated product, The customized product, The augmented & potential product, The product line & product mix, New product development (NPD) , Significance & classification of new product, Stages in NPD, Estimating the demand for new product, Test marketing, Product life cycle (PLC),Concepts & benefits of PLC, Different stages in PLC, Strategies used in different stages, Place management, Physical distribution, Definitions & importance of physical distribution, Designing the physical distribution system ,The distribution channel, The role & importance of distribution channel, Planning & designing of distribution channel, Types of distribution intermediaries ,Price management ,The meaning & importance of pricing ,Objectives of pricing ,Factors affecting pricing –Internal & external ,Pricing methods , Cost based pricing, Break even pricing , Demand based pricing ,Competition based pricing, Product line pricing, Tender pricing, Affordability pricing Differentiated pricing ,Pricing policies & setting the price.

Promotion management. Sales promotion, Importance & objectives of sales promotion. Tools &techniques of sales promotion ,Advertising, Role & importance of advertising Types of advertising , Deciding on the advertising budget , Evaluating advertising effectiveness Difference between sales promotion & advertising.

Unit-6 Understanding consumer , Factor influencing buyer behavior ,Information from variety of sources, Socio-cultural environment of buyer, Group influence, Religion & language ,Concern about status, Buying motives –Product & patronage motive, Buying habits – Convenience, shopping and spatiality goods

Unit 7 Marketing research & sales forecasting, Definition & importance of marketing research, Steps in marketing research ,Defining problem, Problem analysis, Developing research design, Developing research procedure, Data collection –Primary & secondary, Analyzing & interpretation, Summarizing & preparing the research report, Method of market research, Necessity & purpose of sales forecasting ,Methods of sales forecasting

Unit 8:Sales management Designing the sales force, Managing the sales force, Recruitment & selection, Training, compensation, control, Supervision & direction, Motivation of salesman , Fixing sales quota, Duties & responsibilities of sales manager.

References:

[1]. Marketing management - Analysis, Planning & Control - Philip Kotler
[2]. Principles & practice of Marketing in India - C.B.Memoria & R.L.Joshi
[3]. Contemporary Marketing – Louis & Bone & David L. Kurtz
[4]. Essential of Management –Koontz
[5]. Marketing management- S.A. Sherlekar

Sub Code: DE9999P **Sub Name: Professional Activities** **0Credits**

Unit1: Social Skills Society, Social Structure, Develop Sympathy And Empathy, Swot Analysis – Concept, How To Make Use Of Swot, Inter Personal Relation Sources Of Conflict, Resolution Of Conflict, Ways To Enhance Interpersonal Relations.

Unit2 : Problem Solving I)Steps In Problem Solving, 1)Identify And Clarify The Problem, 2)Information Gathering Related To Problem, 3)Evaluate The Evidence, 4)Consider Alternative Solutions And Their Implications, 5)Choose And Implement The Best Alternative, 6)Review

Unit3: Problem Solving Technique. (Any One Technique May Be Considered)

1) Trial And Error, 2) Brain Storming, 3) Lateral Thinking

Presentation Skills Body Language -- Dress like The Audience Posture, Gestures, Eye Contact and Facial Expression. Presentation Skill – Stage Fright, Voice And Language – Volume, Pitch, Inflection, Speed, Pause Pronunciation, Articulation, Language, Practice Of Speech. Use Of Aids –Ohp, Lcd Projector, White Board

Unit4: Industrial Visits Structured Industrial Visits Be Arranged And Report Of The Same Should Be Submitted By The Individual Student, To Form A Part Of The Term Work. TWO Industrial Visits May Be Arranged In The Following Areas / Industries:

I) Manufacturing Organizations For Observing Various Manufacturing Processes Including Heat Treatment

II) Material Testing Laboratories In Industries Or Reputed Organizations Iii) Auto Workshop / Garage Iv) Plastic Material Processing Unit V) ST Workshop / City Transport Workshop

Unit 5: Lectures by Professional / Industrial Expert Be Organized From Any Three of the Following Areas:

I) Use of Plastics in Automobiles.
II) Nonferrous Metals And Alloys For Engineering Applications
III) Surface Treatment Processes like Electroplating, Powder Coating Etc.
IV) Selection of Electric Motors.
V) Computer Aided Drafting.
VI) Industrial Hygiene.
VII) Composite Materials.
VIII) Heat Treatment Processes.
IX) Ceramics
X) Safety Engineering And Waste Elimination