

Scheme of B.Sc. Computer Maintenance

(Effective from 2010-11 for B. Sc. IIIrd Year and B. Sc. 1st Year;

Effective from 2011-12 for B. Sc. IInd Year)

Semester	B.Sc. Computer Maintenance	CCE 30%	Min. Marks	Term End Exam 70%	Min. Marks	Total 100%	Min. Marks
First Semester	CM-1101: Components and Electrical Networks, Paper-I	15	5	35	12	50	17
	CM-1102: Electronic Devices, Paper-II	15	5	35	12	50	17
	CM-1103: Practicals of Computer Maintenance	--	--	--	--	50	17
Second Semester	CM-1201: System and Application Software, Paper-I	15	5	35	12	50	17
	CM-1202: Electronics Instruments and Measurements, Paper-II	15	5	35	12	50	17
	CM-1203: Practicals of Computer Maintenance	--	--	--	--	50	17
Third Semester	CM-2101: Computer System Architecture-I, Paper- I	15	5	35	12	50	17
	CM-2102: Microprocessor-I, Paper-II	15	5	35	12	50	17
	CM-2103: Practicals of Computer Maintenance	--	--	--	--	50	17
Fourth Semester	CM-2201: Computer System Architecture-II, Paper-I	15	5	35	12	50	17
	CM-2202: Computer Peripherals and Maintenance, Paper-II	15	5	35	12	50	17
	CM-2203: Practicals of Computer Maintenance	--	--	--	--	50	17
First Semester	Internship (2 months) - Computer Maintenance (Marks distribution:-On Job Training-50 +Synopsis-25 +Presentation-15+ Guide-10)	--	--	--	--	100	33
	CM-3102: PC Assembly, Trouble Shooting and Computer Security, Paper-II	15	5	35	12	50	17
	CM-3101: Microprocessor-II, Paper-I	15	5	35	12	50	17

Sixth Semester	CM-3201: Linux Administration, Paper-I	15	5	35	12	50	17
	CM-3202: LAN Installation and Maintenance, Paper-II	15	5	35	12	50	17
	CM-3203: Practicals of Computer Maintenance	--	--	--	--	50	17

SEMESTER – I [2010-11 Onwards]**PAPER – I****CM-1101: COMPONENTS AND ELECTRICAL NETWORKS**

Maximum Marks: 35

Min Pass Marks: 12

Unit 1: Basic Components

Circuit symbols, working principle, classification according to construction, specifications, and applications of passive components – Resistors and Color Coding, Inductors, Transformers, Switches, Relays(Electromagnetic), Thermistor, LDR, Micro-Phone and Loud-Speakers.

Unit 2: Capacitors

Capacitors: - Capacitance, Capacitor Specifications, Classification of Capacitor- Fixed (Mica, Paper, Ceramic, Plastic, Electrolytic etc.), Variable capacitor (Trimmer, Padder, Gang). Stray Capacitance, Leakage Resistance, Testing of Condenser, Area of Application, Problems related to Electrical Energy Storage.

Unit 3: Basic Circuits

Concept of Ideal and Practical Voltage and Current Sources, Internal Resistance, AC and DC Sources, Ohms Law, AC Currents and Voltages, Expression for RMS value and Mean value, j Operator, study of LR, CR, Series and Parallel resonance circuit, Expression for Q factor and Band width in resonance circuit, Phase relationship between Current and Voltage in different circuits. Numerical on Quality Factor, Power Factor, Bandwidth Calculations.

Unit 4: Network Theorems

Kirchhoff's Current and Voltage Law, Application of KVL and KCL to simple DC Resistive Networks. Thevenin's and Norton's Theorems and corresponding equivalent of simple Resistive Networks. Superposition Theorem, Maximum Power Transfer Theorem, Loop Current and Node Voltage Analysis Methods.

Unit 5: Filters

Types of filters: Choke input (inductor) filter, Shunt Capacitor filter, L section, Pi section and T filters, Low Pass, High Pass, Band Pass and Band Reject Filters.

Text Book:

- A text book of Applied Electronics by R. S. Sedha, S. Chand and Company

Reference Books:

1. Electric Circuits: Schaum Series
2. Basic Electronics: Bernard Grob
3. Basic Electronics Solid State by B. L. Theraja, S. Chand and company.

SEMESTER – I [2010-11 Onwards]
PAPER – II
CM-1102: ELECTRONIC DEVICES

Maximum Marks: 35

Min Pass Marks: 12

Unit 1:

Semiconductors: Conductors, Semiconductors and Insulators. Their classification on the basis of Band Theory, Intrinsic and Extrinsic semiconductor, Diode current equation (Derivation not required), Drift and Diffusion Currents

Unit 2:

P-N junction: P-N junction- Forward and Reverse bias of Diode. Concept of recombination of carriers, temperature variation of Forward and Reverse Current through the P-N Junction. Characteristics of Forward and Reverse Bias Diode, Dynamic and Static Resistances, Voltage dependent Junction Capacitance of a P-N junction.

Unit 3:

Special Diodes: Zener Diode, its construction and characteristics. Temperature coefficient of Zener Diode. Zener Diode as Voltage Regulator, Schottky Diode, Power Diode, Tunnel Diode, LED, Solar Cell, Photodiodes.

Unit 4:

BJT: BJT, construction and characteristics in different configuration, comparative merits and demerits, biasing of transistor: different methods, load line, Q point and thermal stability. Transistor as an ON/OFF switch. Transistor as a black box: h-parameter concept only. Qualitative analysis of h-parameter model in CE, CB and CC mode.

Unit 5:

Power Devices: Construction, characteristics and uses of SCR, DIAC, TRIAC, UJT and Optocoupler devices.

Text Book:

- A text book of Applied Electronics by R. S. Sedha, S. Chand and Company

Reference Books:

1. Electronic Devices and Circuit Theory: R. Boylestad, L.Nashelsky
2. Electronics Principles : Malvino
3. Basic Electronics: Bernard Grob

Scheme of Practical Examination [2010-11 Onwards]
CM-1103, Semester – I

This laboratory course will comprise of following exercises:

1. Identification of Components / Tools
 - Minimum 10 different types of components must be given.
 - Identification based on visual inspection / data sheets be carried out.
 2. Use of Multimeter (Analog and Digital)
 - Measurement of AC/DC voltage and Current – on different ranges.
 - Measurement of R.
 - Testing of L, C, Diodes and Transistors.
 3. Study of Function Generator / CRO
 - Understand how to use Function Generator / CRO.
 - Study of Front panel controls.
 - Measurement of Amplitude and Frequency of different Waveforms.
 - Demonstrate the use of Component Testing.
 4. Verification of KCL / KVL, Network Theorems: Thevenin's, Norton's, Maximum Power
 5. Transfer, Superposition Theorem.
 6. Design, build and test Low pass and High pass RC Filters.
 7. Charging and Discharging of Capacitors in R-C Circuits.
 8. Study of Forward and Reverse Bias characteristics of PN Junction Diode.
 9. Study of forward and Reverse Bias characteristics of LED.
 10. Study of Breakdown Characteristics and Voltage Regulation action of Zener Diode.
 11. Study of Forward and Reverse Bias Characteristics of Power Diode, SCR, DIAC, TRIAC, UJT.
- Note: More related practicals may be added.**

SEMESTER – II [2010-11 Onwards]**PAPER – I****CM-1201: SYSTEM and APPLICATION SOFTWARE**

Maximum Marks: 35

Min Pass Marks: 12

Unit 1

Computer software and its type, the operating system, user interfacing, system software- BIOS and drive programs, protected mode, the file system, the four disk areas, Loader and linker, Compiler, assembler and Interpreter.

Unit 2

Disk Operating system (DOS): Need for DOS, Choosing disks and drives, working with files and directories, MS-DOS commands: Internal and External commands, Hard disk partition using FDISK

Unit 3

Operating System: system software packages, function of operating system, processor management, Memory management, Virtual storage, Devices management, information management, Job control language, GUI and CLI, operating system example.

Unit 4

MS-Windows Xp: Operating system-Definition and functions, basics of Windows. Basic components of windows, icons, types of icons, taskbar, activating windows, using desktop, title bar, running applications, exploring computer, managing files and folders, copying and moving files and folders. Control panel – display properties, adding and removing software and hardware, setting date and time, screen saver and appearance. Using windows accessories.

Unit 5

Application software Documentation Using MS-Word - Creating and Editing Document, Formatting Document, Advance Features of MS-Word-Mail Merge, Tables, Printing, Styles, linking and embedding object, Electronic Spread Sheet using MS-Excel - Introduction to MS-Excel, Creating and Editing Worksheet, Formatting and Essential Operations, Presentation using MS-PowerPoint: Presentations, Creating, Manipulating and Enhancing Slides.

Text Book:

- **Fundamentals of Computers and Information Technology:** A. Jaiswal, Dreamtech Press.

Reference Books:

1. Fundamentals of Information Technology Including MS-Office by Maidasani, Laxshmi Publication.
2. Comdex Computers Course Kit by Vikas Gupta, Dreamtech Press

SEMESTER – II [2010-11 Onwards]**PAPER – II****CM-1202: ELECTRONICS INSTRUMENTS AND MEASUREMENTS**

Maximum Marks: 35

Min Pass Marks: 12

UNIT 1

Basic of measurements: Factor in making measurements of instruments- accuracy, precision, sensitivity, resolution range etc. Measurement and categories of errors. **Measuring instruments:** Working principles and construction of ammeters and voltmeters (moving coil and moving iron type), difference between ammeter and voltmeter,

UNIT 2

Multimeter: Construction and various functions of multimeter and the various measurements that are made using multimeter, Specification of multimeter and their significance and its limitations. **Electronic voltmeter:** Advantages over conventional multimeter for voltage measurement with respect to input impedance and sensitivity. **Digital Voltmeter and Digital Multimeter:** Block diagram of DVM (digital voltmeter) and Digital Multimeter, Specification of digital multimeter.

UNIT 3

Cathode Ray Oscilloscope: Block diagram, Basic Operation. Cathode Ray tube: CRT circuits, Vertical deflection system, Delay line, Horizontal deflection system, Introduction to Dual trace and Dual beam CRO, Sampling CRO, Sweep-Frequency Generator.

UNIT 4

Transducer: Classification of transducers, qualitative treatment of Strain Gauge, Various types of transducers: Capacitive transducer, Inductive transducer, Oscillation transducer, Piezoelectric transducer. Linear Variable Differential Transducer (LVDT), Thermistor and its applications, Thermocouples.

UNIT 5

Data Acquisition: Recorders and their necessity, Basic knowledge of graphic recorders, strip chart recorders, magnetic tape recorders and digital type recorders.

Text Book:

- **Elements of Electronic Instruments and Measurements** by Joseph J. Carr, Pearson.

Reference Books:

1. Electronics Measurement and Instrumentation: by AK Sawhney, Dhanpat Rai and Sons, New Delhi.
2. Electronics Instrumentation: by JB Gupta, Satya Prakashan, New Delhi.
3. Electronic measurement and Instrumentation: U.A. Bakshi, A.V. Bakshi, Technical Publication, Pune

Scheme of Practical Examination
CM-1203, Semester – II [2010-11 Onwards]

This laboratory course will comprise of following exercises:

1. BIOS and drive programs
2. Working with files and directories in DOS.
3. MS-DOS commands.
4. Basic components of windows, icons, types of icons of Windows
5. Managing files and folders in Windows.
6. Adding and removing software and hardware in Windows.
7. Creating, Editing and Formatting Document using MS-Word.
8. Advance Features of MS-Word-Mail Merge.
9. Creating and formatting of Tables.
10. Presentations creating using MS-PowerPoint.
11. MS-Excel - Introduction to MS-Excel, Creating, Editing and Formatting worksheet.

Note: More related practicals may be added.

**SEMESTER – III [2011-12 Onwards]
PAPER – I**

CM-2101: COMPUTER SYSTEM ARCHITECTURE-I

Maximum Marks: 35

Min Pass Marks: 12

Unit 1

Principles of Computer Design: Types of computer organization, Classification of computer architectures, Non-von Neumann machine: Flynn's classification, Classification of Computer architecture design,

Unit 2

Register Transfer and Micro-operations: Register transfer language, Bus and memory transfer, arithmetic micro-operations, Logic micro-operations, shift micro-operations, Arithmetic logic shift unit.

Unit 3

Basic Computer Organization and Design: Basic Components of a digital computer, instruction codes, Computer registers, Computer instructions, Timing and control, Instruction cycle, Input-output and interrupt, Design of basic computer, Design of Accumulator logic.

Unit 4

Micro-Programmed Control And Hard-Wired Control: Machine language, Assembly Language, Assembler, Control Memory, Address Sequence and Structure of Control Unit, Hard-wired control, Micro program, Micro instruction, Micro Program sequencer.

Unit 5

Central Processing Unit: Introduction, general register organization, Stack organization-register stack and memory stack, Instruction formats, Different address types instruction, Addressing modes, Data transfer and data manipulation instructions, Program control.

Text Book:

- **Computer System Architecture**, by M.M. Mano, 3rd Edition, Prentice-Hall of India, 2002.

Problems' Book:

Computer Architecture and Organisation, Schaum Series TMH Adaption, 2010

Reference Books:

1. Computer Organization and Architecture: by William Stallings, 6th edition, Pearson Education, 2002.
2. Structured Computer Organization: by A.S.Tannenbaum, Prentice- Hall of India, 1999

SEMESTER – III [2011-12 Onwards]
PAPER – II
CM-2102: MICROPROCESSOR-I

Maximum Marks: 35

Min Pass Marks: 12

UNIT 1

Microcomputers, Microprocessors:

Microprocessor architecture and Microcomputers System, 8085 based Microcomputer system. Architecture and Pinout diagram of 8085, ALU and Control Unit, Microprogramming, Concept of Fetch cycle, Execution cycle, Machine cycle and Instruction cycle.

UNIT 2

Assembly language Programming:

Introduction to 8085 basic Instructions: Data transfer, Arithmetic and Logical, Branch, I/O and Machine Control Instructions and their Timing diagrams, Addressing modes, Looping, Counting and 16 bit Arithmetic instructions. Assembly Language Programs related to above topics.

UNIT 3

Stack and Subroutines:

Stack, Stack Pointer, Stack related instructions: PUSH, POP, XTHL, XCHG, SPHL, etc.; Subroutines, Unconditional/Conditional Call and Return instructions, Code conversion, BCD Arithmetic. Assembly Language Programs related to above topics.

UNIT 4

Interrupts:

Hardware and Software, Maskable and Non-Maskable, Vectored and Non-Vectored Interrupts. Priority of Interrupts and Interrupt Service Subroutines.

UNIT 5

Memory and I/O Interfacing:

Memory: Primary and Secondary Memory, Memory Mapping, Serial and Parallel I/O and Memory Interfacing with 8085, Programmable I/O and DMA, Memory Mapped I/O and I/O Mapped I/O techniques.

Text Book:

- **Microprocessor Architecture, Programming and Applications with the 8085:** R. Gaonkar

Reference Books:

1. Digital Computer Electronics: Malvino
2. Fundamentals of Microprocessors and Microcomputers: B.Ram

Scheme of Practical Examination
CM-2103, Semester – III [2011-12 Onwards]

This laboratory course will comprise of following exercises using Microprocessor 8085

1. Addition of two 8-bit numbers.
2. Subtraction of two 8-bit numbers.
3. Addition of two 16-bit numbers.
4. Subtraction of 16-bit numbers.
5. Addition of two 16-bit numbers using DAD instruction.
6. Division of two 8-bit numbers.
7. Find the smallest number of a given series of n numbers.
8. Find the largest number of a given series of n numbers.
9. Write a program for forward block data transfer.
10. Write a program for reverse block data transfer.
11. Write a program for BCD addition.
12. Write a program on 1's & 2's complement.

Note: More related practicals may be added.

**SEMESTER – IV [2011-12 Onwards]
PAPER – I**

CM-2201: COMPUTER SYSTEM ARCHITECTURE-II

Maximum Marks: 35

Min Pass Marks: 12

Unit 1

Input -Output Organization: Peripheral Devices, Input-Output interface, Different modes of communication: synchronous, asynchronous, simplex, duplex, serial and parallel. Data transfer modes: Priority Interrupt, Direct Memory Access (DMA), DMA Transfer, Input-Output Processor.

Unit 2

Memory Organization: Memory Hierarchy, Main Memory- RAM and ROM chips, memory address maps, memory connection to CPU, Auxiliary Memory- Magnetic disk and magnetic tape Associate Memory- Hardware organization, match logic, read and write operations, Cache Memory- associative, set –associative, direct mapping, Virtual Memory- address space, memory space, memory mapping, memory page table, memory management hardware.

Unit 3

Reduced Instruction Set (RISC) and Complex Instruction Set (CISC) Computer: Characteristics of RISC and CISC, Use of large register file, RISC Versus CISC Controversy, Pipeline and Vector Processing- Parallel processing, Arithmetic Pipeline, Instruction pipeline, RISC pipeline, Vector processing, Array Processor.

Unit 4

Multiprocessors: Characteristics of multiprocessors, Interconnection Structures- Time-shared common bus, Multiport memory, Crossbar switch, multistage switching network, Hypercube interconnection, Interprocessor arbitration- system bus, serial arbitration procedure, parallel arbitration logic, Dynamic arbitration algorithms, Interprocessor communication and Synchronisation- Interprocessor synchronization, Mutual exclusion with a semaphore, Cache Coherence- condition for incoherence, solution to the cache coherence problem.

Unit 5

Parallel Computer Architecture: Design issues for parallel computers- communication models, Interconnection networks, performance, software, taxonomy of parallel computers. SIMD computer, shared memory multiprocessors- memory semantics, UMA bus based SMP architecture, UMA multiprocessor using crossbar switches, UMA multiprocessors using multistage switching network, NUMA multiprocessors, cache coherent multiprocessors, COMA multiprocessors, Message Passing Multicomputers-MPPs COWs, Scheduling.

Text Book:

- **Computer System Architecture**, by M.M. Mano, 3rd Edition, Prentice-Hall of India, 2002.

Reference Books:

1. Computer Organization and Architecture: William Stallings, 6th edition, Pearson Education, 2002.
2. Structured Computer Organization: A.S.Tannenbaum, Prentice- Hall of India, 1999
3. Problem Book: Computer Architecture, TMH, Schaum Series Adaptation, 2010

**SEMESTER – IV [2011-12 Onwards]
PAPER – II**

CM-2202: COMPUTER PERIPHERALS and MAINTENANCE

Maximum Marks: 35

Min Pass Marks: 12

Unit 1

Monitors: Block diagram of monochrome monitors. Pixels and resolution, Sync section, Position video amplifier, Display basics, Display adapter cards, VGA and super VGA, How they fail, trouble shooting and elimination, maintenance chart, Monitor adjustments, size, brightness, focus etc, Fault in various sections of monochrome monitors, Block diagram of color monitors, basic color theory, faults in color section.

Unit 2

Keyboards: Study of keyboards, types, interface 8048, Interconnection to PC, Common faults and diagnostics, Introduction to mouse on serial ports, Parallel port card, serial port card, integrated card, Joy stick, light pen.

Unit 3

Printers: Types of printers (DMP, INKJET, LASER), Construction and Working of DMP, INKJET, LASER Printers, Connecting printers to computers, Preventive maintenance of printers. Scanner Working Principle and its types.

Unit 4

Memories: Reading memory error messages, adding RAM, Tips on installing memory chips, Static and handling precautions. **Disk structure:** Cylinders, heads, platters, tracks and sectors, structure of a disk. **Cluster Performance:** Access time, seek time, latency period, data transfer rates, and interleave factors, hard disk controllers. Types of interface between controller and drives. **Hard disk software installation:** Physical formatting, partitioning, high level formatting, Hard disk installation

Unit 5

Floppy Disks: Types, structure, working principles. Removing, configuring and installing floppy disk drive, Floppy drive testing, IDE controller card. CD-ROM drive:- CD drives mechanism installation of CD drive. Drive technologies: CD-ROM: SCSI\CD-R, CD-RW, DVD-ROM. Working Principals, **Mouse and Modem:** Types and installation of mouse, Fault Finding, Repairing, modem Circuit Diagram, Repairing MODEM, Circuit Diagram, Fault Finding and Repairing.

Text Book:

- **IBM PC and Clones: Hardware Trouble Shooting and Maintenance** by B. Govindarajalu, Tata McGraw Hill

Reference Books:

1. PC Systems, Installation and Maintenance, Second Edition by R. P. Beales,
2. PC Upgrade and Repair Black Book by Ron Gilster.
3. Inside the PC by Peter Norton's.

Scheme of Practical Examination
CM-2203, Semester – IV [2011-12 Onwards]

This laboratory course will comprise of following exercises:

1. Testing and Analysis of various parts of computer.
2. Computer assembly
3. Setting up BIOS
4. Analysis of various types of Motherboards
5. Measurement of voltage at different section of motherboard
6. Jumper setting / Dip switch setting
7. Measurement of voltage at different color wires of SMPS
8. Measurement of Power good signal.
9. Analysis of power supply, Horizontal and Vertical sections of monitor.
10. Simulated faults on above section and their rectification.
11. Analysis of various types of printers (Ink Jet, DMP, Laser etc.)
12. Analysis of various types of connections (USB, Serial, Parallel)
13. Preventive maintenance of printer.
14. Installing RAM
15. Installation of HDD, FDD, CD drives.
16. Partitioning and formatting hard disk drives.

Note: More related practicals may be added.

SEMESTER – V [2010-11 Onwards]
PAPER – I
CM-3101: MICROPROCESSOR-II

Maximum Marks: 35

Min Pass Marks: 12

UNIT 1

Introduction: Features of 8086, Comparison between 8085 and 8086, internal architecture of 8086, register organization, minimum and maximum modes, memory segmentation.

UNIT 2

8086: Addressing modes, instruction format, Memory Interface: Introduction, memory devices, address decoding, 8086 8-bit and 16-bit memory interface.

UNIT 3

32-bit microprocessors: Introduction to 80386, 80486 and Pentium Microprocessors, Processor Terminology, Processor speed, Data bus, Address bus, Registers, Cache memory, Early Intel Processors, Pentium Microprocessors, Pentium-MMX Technology, Processor packaging styles,

UNIT 4

Support Chips: Dumb and Smart Chips, Introduction to I/O interface, The Programmable Peripheral Interface (8255), Coprocessor Organization, DMA Controller, Bus Controller.

UNIT 5

Interrupts: Basic Interrupt processing, Interrupt Handling, Types of Interrupts- Hardware interrupts and Software Interrupts, 8259A Programmable Interrupt Controller.

Text Book:

- **The Intel Microprocessors, Architecture, Programming and Interfacing** By Barry B. Brey, PHI

Reference Books:

1. IBM PC and Clones: Hardware Trouble Shooting and Maintenance by B. Govindarajalu, Tata McGraw Hill
2. Microprocessors, PC Hardware and Interfacing By N. Mathivanan, PHI

**SEMESTER – V [2010-11 Onwards]
PAPER-II**

CM-3102: PC ASSEMBLY TROUBLE SHOOTING and COMPUTER SECURITY

UNIT 1

Hardware Basics: Basic terms, concepts, and functions of system modules (System board, firmware, storage devices, monitor, boot process, ports). Overview of system components, Knowing mother board of PC, Identifying types of motherboard, Understanding BUS architecture.

UNIT 2

Performing Preventative Maintenance:

Preventative Maintenance, Using Preventative Maintenance Tools, Materials and equipment, Software utilities, Maintaining Environmental Controls, Ventilation and airflow, Humidity and liquids, Dirt and dust EMI, Power, UPS, and suppressors, Completing Maintenance Tasks, Case and components, Power supplies.

UNIT 3

Troubleshooting Procedures and Guidelines:

Identifying Troubleshooting Tools, Hardware tools, Diagnostic software, The Art of Troubleshooting, Troubleshooting basics, Physical environment, troubleshooting by visual Inspection, CMOS and BIOS.

UNIT 4

Troubleshooting Procedures and Guidelines:

Motherboard, Processor/memory, Floppy drive, Hard drives, CD/DVD-ROM, Keyboard and mouse, Sound card/audio, Monitor/video, Modem, Serial and parallel ports, USB, Power supplies.

UNIT 5

Switch Mode Power Supply: Circuit diagrams and pin assignments, working of SMPS Input and load requirements, connecting a PC and peripherals to power supply. Power Supply Maintenance: Cautions about opening power supply, over voltage and over current protection. Upgrading power supply, Viruses and malicious software.

Text Book:

- **CompTIA A+ Certification All-in-One Desk Reference for Dummies** by Glen Clarke

Reference Books:

1. IBM PC and Clones: Hardware Trouble Shooting and Maintenance by B. Govindarajalu, Tata McGraw Hill
2. PC Upgrade and Repair Bible, Wiley India.

Internship (Comp. Maint.)
Semester – V
Duration - 2 months Marks : 100
[2010-11 Onwards]

Guidelines for Internship

1. Understanding of FAT32 & NTFS files system.
2. Installation of Windows 2000 server
3. Setup and configuration of network settings.
4. Study of CAT5 and CAT6 Network cable.
5. Installation of MS-office packages.
6. Installation of Visual Studio.
7. Installation of Oracle.
8. Installation of SQL server.
9. Installation of Windows XP.
10. Installation of Security Softwares.

SEMESTER – VI [2010-11 Onwards]
PAPER-I
CM-3201: LINUX ADMINISTRATION

UNIT 1

Administration: Add and remove Users, Modify User Configuration, creating groups and delete groups, Mounting and Unmounting file systems The Multi-User system, Common shell Usage. Connecting to Remote systems telnet, the tar command. The tar Command, The Run Levels of Init, Starting and stopping services, print spools and Queues, gzip, gunzip command, setting system name.

UNIT 2

Configuration installing Xfree86: Installing Xfree86 manually, installing Xfree86 using script, Set up Remote access, set Environment Variables, configure Basic Network Services, Configure Network Services, configure internet Services, Check and Size Swap space, Manage printing, boot loader Lilo, grub, The Basic Configuration Files, Configuration of Access Rights. Install and Uninstall Modules.

UNIT 3

System Maintenance: Device Nodes, Making disk Partitions, Making a file system, crontab, core files, Processes system log files, Backup and Restore. **LAN with Linux:** Choosing NIC, selecting boot protocol, static IP and DHCP, testing network, manual network configuration, configuring samba.

UNIT 4

Connecting: Linux to internet, PPP, PPP connection, Point to Point network, Server Client network, Linux File server, Linux print server, Linux.

UNIT 5

Web Server: What is web server, Linux web server, installing Apache, configuring Apache, managing web server, Mail serve, Firewall testing and troubleshooting, netstart command, ping, trace route commands, FTP.

Text Book:

Red Hat Enterprise Linux and Fedora Edition: The Complete Reference by Richard Petersen

Reference Books:

1. Professional Linux Kernel Architecture by Wolfgang Mauerer.
2. The Linux Networking Architecture by Klaus Wehrle.

SEMESTER – VI [2010-11 Onwards]
PAPER-II
CM-3202: LAN INSTALLATION and MAINTENANCE

UNIT 1

Understanding network : Knowing network types, peer to peer and client server network, comparison between peer to peer and client server, Network features- file sharing, printer sharing, application services, remote access, Gateways, network security, network hardware components overview- servers, hubs, routers, switches, cables.

UNIT 2

Understanding networking protocols- Understanding TCP and UDP, TCP and UDP ports, IP packets and IP addressing, IP subnets, subnet masks, Domain Name System (DNS), Dynamic host control protocol (DHCP), Hypertext Transfer Control Protocol (HTTP), File Transfer Protocol (FTP), Netnews transfer protocol (NNTP), Telnet, Simple Mail Transfer protocol (SMTP), Comparing Important proprietary protocols-NOVELL's IPX/SPX, NetBIOS/NetBEUI protocols, TELNET, VOIP, AppleTalk,.

UNIT 3

Internet addresses: Universal identifiers, three primary classes of IP addresses, Addresses specify network connections, Network and Broadcast addresses, Limited Broadcast, Weakness to internet addressing, Dotted decimal notation, Loopback address, Internets addressing authority, Network byte order. Mapping of network addresses to physical address, Mapping Internet addresses to physical addresses (ARP), Determining an Internet Address at Startup (RARP).

UNIT 4

Data Delivery: Addressing, Routing and multiplexing, The IP address, Internet routing architecture, The routing Table, Protocols, ports and Sockets, The Host tables, Configuring server, Bootstrap and Autoconfiguration (BOOTP, DHCP), Configuring DNS name service, Troubleshooting TCP/IP- Approaching a Problem, Diagnostics tools, Testing basic connectivity, Troubleshooting Network Access, Checking routing, checking name service, Simple Network Management Protocol.

UNIT 5

Network Security: Managing User and computer accounts, Enabling and disabling users, Rights and permissions to user accounts, event logs, Network security- security planning, User authentication, application security, access control, encryption, Firewalls-The details of firewall architecture, accessing services through firewall.

Text Book:

- **TCP/IP Network Administration**, By Craig Hunt, O'REILLY

Reference Books:

1. Internetworking with TCP/IP Volume 1, Douglas E. Comer, PHI
2. SAMS Teach yourself TCP/IP, Joe Casad,
3. TCP/IP For Dummies, By Candace Leiden, Marshall Wilensky

Scheme of Practical Examination
CM-3203, Semester – VI [2010-11 Onwards]

This laboratory course will comprise of following exercises:

1. Creating and deleting user accounts.
2. Creating and deleting groups.
3. Creating and deleting user accounts.
4. Mounting and unmounting in Linux.
5. Installing and configuring Xfree86.
6. Managing network using Linux.
7. Configuring samba.
8. Setting up Linux file and print server.
9. Installing and configuring Apache web server.
10. Using FTP in Linux.

Note: More related practicals may be added.