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Operating Systems
Module IV

Topic	Lecture No.
Introduction to Computers Basic building blocks of a computer system the CPU, the Arithmetic & Logical Unit. The binary numbers as a language which computer understands. Interprets and processes. The Input & Output devices as means of communication with a computer system.	(1-2)
Concept of hardware & software Two main components of a computer system. Definition of data and information. Importance of information flow & its impact on growth & productivity.	
Computer as an Electronic Machine The need for study of Electronics & Electronic components for understanding the working of a Computer & Peripherals such as Keyboard. Mouse etc. from hardware point of view.	
Introduction to Windows What is an operating system and basics of Windows, The user interface, Using mouse and moving icons on the screen, The My Computer Icon, The Recycle Bin, Status Bar, Start and menu & Menu-selection, Running an Application, Windows Explorer viewing of file, folders and directories, Creating and Renaming of files and folders, Opening and closing of different Windows	
Windows Setting Control Panels, Wall paper and screen savers, Setting the date and sound, Concept of menu using help **Advanced Windows** Using right button of the mouse, Creating short cuts, Basic of Window setup	
Windows Accessories Notepad, Calculator, Paint Brush	
Text creation and manipulation Paragraph and Tab setting, Text selection, Cut, Copy, and Paste, Font and size selection, Bold, Italic and Underline, Alignment of text: Centre, Left, right and Justify	

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Text creation and manipulation Paragraph and Tab setting, Text selection, Cut, Copy, and Paste, Font and size selection, Bold, Italic and Underline, Alignment of text: Centre, Left, right and Justify	
Formatting the Text Changing font, size and color, Paragraph indenting, Bullets and numbering, Use of Tab and Tab setting, Changing case **Handling Multiple documents** Opening and closing of multiple documents, Cut, Copy and Paste	
Formatting the Text Changing font, size and color, Paragraph indenting, Bullets and numbering, Use of Tab and Tab setting, Changing case **Handling Multiple documents** Opening and closing of multiple documents, Cut, Copy and Paste	
Special Features Header & Footer, Footnote, Comments, Page break, Date & time, Auto text, Autocorrect, Symbols, Picture & wordart, Spell Checker, Hyperlink	
Table Manipulation Concept of table: Row columns and cells, Draw Table, Changing cell width and height, Alignment of text in cell, Copying of cell, Delete/insertion of row and columns, Borders for table, Printing, Print Preview, Print a selected page	
Mail Merge	
Electronic Components: Active and Passive Components **Passive components**: Resistor, Capacitor & inductor Resistor: **Resistor**: Standardization color codes. Power rating specification, properties of fixed and variable resistors. Specifications and properties of thermistors.	
Capacitor: Introduction, color codes, type of capacitors.	
Inductor: Introduction, magnetic materials, type of inductors, features and specification	
Active components Introduction to Diodes, their characteristics and applications, Zener diodes and their characteristics and impendence, Introduction to Bipolar transistors and their applications, functions, specification, testing of Diodes and Transistors.	

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Introduction to operational amplifiers (OP AMPs) and simple circuits.	
Introduction to operational amplifiers (OP AMPs) and simple circuits.	
Digital and Integrated Circuits Introduction to logic levels & gates, Latches, unidirectional & bidirectional buffers, tristate devices, Clock generators, Flip-flop, Registers, Counters, Multiplexers & Demutiplexers.	
First Test	

Digital and Integrated Circuits (contd…) Introduction to various logic families and their characteristic, Bipolar Logic Family, Unipolar Logic Family – PMOS, NMOS, CMOS, Characteristics of Digital IC's	
Comparison of Digital Logic Families. Latest trends in packaging.	
Semiconductor Memories: Hierarchy of memories used in a computer, Classification of memories and trends in PC memory modules.	
Tools and Aids for PC Maintenance Test and measuring equipment like Cathode Ray Oscilloscope, Multimeter. Study of ammeter, digital multi-meter and how they are used. Tools used in maintenance like vacuum cleaner, brush, forceps, screwdriver set, cutter, pilers, and stripper, cleaning solutions.	
Review	
Final Test	

DCHN-12
PC Architecture
Module II

Topic	Lecture No.
The Computer Architecture The mother Board, Hard Disk drives, Floppy disk drives, display systems, Input & Output devices and their role in the functioning of Computer System	

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Study of PC/AT motherboards: Block diagram architecture of motherboard. CMOS setup and their features, configuring extended, expanded memory, cache memory, shadow memory, EDO RAM etc.	
Specifications of a latest Pentium –III based, motherboard (CUWE-RM)	
Buses Study of Bus Standards: Brief study of various bus standards: ISA, EISA, VL, PCI, PCMCIA etc	
Display Cards & Monitors Description of different types of display cards Monitors: CRT construction and working, vertical stage, horizontal state, 9 pin input type-monitor, block diagram & description of color monitor.	
Specifications & Troubleshooting guide for a latest color monitor Flat vision 38 cm model 38F1	
Drive Systems Various parts of FDD, types of floppies, geometry of floppy, various recording formats, interface signals, floppy drive alignment track 0, and adjustment, formatting of floppies.	
Types of hard disk drives, IDE, EIDE, SCSI, Geometry of hard disk drive, Interface signal, tape drives, DVD, introduction to RMD, various concepts of hard disk drives, types of formatting, partitioning and handling of hard disk drive.	
First Test	
Zip drive functioning, CD drive and CD writer functioning, handling and repair.	
Mouse and keyboard (wired and wireless): Types, basic functioning, interfacing and installation.	
Introduction To Microprocessors/Microcomputers Introduction to digital computer, microcomputer organization, machine language, architecture of an 16-Bit generic microprocessor, simplified memory organization, DMA, interrupts, 8086/8088 architecture and instruction set, steps for program development for 8086/8088.	
Features of Microprocessor: Introduction to 80286, 80386, 80486, numeric processor 80387, various version of 80386 and 80486 viz. 80386SX, 80386DX, 80486SX, 80486DX-2, 80486 DX-4, and their comparisons.	
Pentium Class of Processors Pentium processor, Pentium Pro processor, Pentium MMX processor, Pentium – II, Celeron processor, Pentium – III processor, Pentium-IV Processor, Introduction to Server class processor.	
Review	
Final Test	

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Topic	Lecture No.
Introduction To Networking: What is networking? Local area Network (LAN) Metropolitan Area Networks (MAN) and wide Area Networks. Network management, Network elements.	
Seven layer OSI model, TCP/IP model	
Topologies, installation of physical networks-HUB, Switches	
Cable types, NOS, NIC, connectors, crimping, Net BIOS.	
Transmission Media And Networking Connectivity Network interface cards- Ethernet, ArcNet, Cabling Concepts – thin Ethernet, thick Ethernet, Coaxial cables, STP, UTP, Fiber optic.	
T Connectors, BNC connectors, barrel connectors, terminators,	
Introduction to Repeaters, Bridges, Routers	
Networking Topologies – Bus, Star, Token Ring, Mesh etc	
First Test	
Wireless Networking Fundamental, RF behaviors, principles, modulations, antennas- types, coverage areas & mounting, cables and connectors, organizations,.	
Frequency ranges & channels, IEEE-802.11g & b, network module, wireless hardware- wireless LAN card, Access point, workgroup bridge, client server devices, residential gateways, enterprise gateways, etc	
Network architectural- connecting a wireless LAN under various NOS, Authentication & association, SSID, SID, internet server, file server, print server with wireless and wired network (33-37	
General Troubleshooting And Maintenance Type of maintenance: Preventive and break down maintenance, assembly and disassembly of PC and its various parts, startup problems, run problems their identification and remedy,	
Problem of keyboard, displays, printers, FDD's, HDD's, SMPS motherboard, their identification and remedy.	
Review	
Final Test	

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Topic	Lecture No.
Basics of Operating System Differences between DOS, Windows 2000 /XP and Linux operating systems, starting and exiting from a program in Windows 2003 / XP, Linux, files and folders in Windows 2003 / XP/ Linux copying and moving files under Windows 2003 / XP, the use of explorer, study of control panel and its settings.	
Installation and Administration of Windows 2003 and Linux The minimum hardware requirements for the installation, the steps involved in installation. Booting process of Windows 2003 /XP / Linux the plug and play feature of Windows 2003 / XP – the automatic detection of new hardware at booting time, the boot sector , Architecture of Windows 2003 / XP, the Recycle bins, DLL files,	
The Windows registry and its importance, the device drivers, the addition of new hardware and software to a Windows 2003 / XP system, the device manager of 2003/ XP, changing of display settings, setting of screen savers and their password protection, configuration of keyboard and mouse in Window 2003 /XP.	
Taking Care of System Health & Debugging System testing and diagnosis using available diagnostic programs like AMIDIAG, PC tools, Norton utilities etc and latest trends. Debugging Tools, procedures, features etc. and their use.	
Windows based back-up Procedures & Disaster Prevention Write protection of your software MS-Windows delete protection, crash recovery, preventing hard disk failure, Back-up & Restore procedures, types of back-up, media for back-up, Raid systems. Preparation of bootable CD and FD.	
First Test	
Installation of Network Operating System in a Client-Server Model Client and Server Configuration of Win-2000 Introduction to Windows 2000 and Windows XP. The minimum hardware requirements for installation, Server installation, Configuring a Windows 2000/XP system as a client to Windows 2000 network and Password security in Windows 2000. Peer to Peer Networking in Windows 2000/2003, sharing the files and folder level security.. Users Rights available in Windows 2000 and their functions, Right assigned to built in groups. Password Security, account restrictions, Audit Policy. The TCP/IP protocol suit, TCP/IP core protocols, TCP/IP diagnostic utilities, IP addressing, TC/IP addressing, TC/IP configuration,	

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Installation of TCP/IP protocol.	
Client and Server Configuration of Linux Installation of Linux in a Client-Server configuration, Minimum hardware requirement for installation, Server configuration, Client configuration, Peer to Peer Networking in Linux, Sharing the files and folders levels security, Users rights available in Linux, Password security/Account restriction.	
Introduction to Internet, Connectivity and Peripheral Configuration The internet as a source of information, The domain names in the internet, world wide web, configuring Windows as a station for accessing Internet using dial up networking, Modern Configuration and connectivity using ISDN, leased line, obtaining information, connection from the Internet service provider, using of internet for obtaining information, chatting / searching of information using search engine, using various browsers and configuration E-mail, Uploading / Downloading, Tips for increasing speed of internet etc.	
Various Antivirus Software and their Installation: Virus prevention and removing, Different types of Viruses and their removal using Antivirus programs and installation, Introduction to firewalls.	
Review	
Final Test	