Diploma, Anna University-UG, PG., HSC & SSLC

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34682- COMPUTER HARDWARE AND NETWORKS

DETAILED SYLLABUS

UNIT I MOTHERBOARD COMPONENTS AND MEMORY STORAGE DEVICES

Introduction: Parts - Mother board, sockets, expansion slots, memory, power supply, drives and front panel and rear panel connectors – Hardware, Software and Firmware. Processors: Architecture and block diagram of multi core Processor(any one), Features of new processor(Definition only)-chipsets (Concepts only) Bus Standards Overview and features of PCI, AGP, USB, PCMCIA, Processor BUS – High Primary Memory: Introduction-Main Memory, Cache memory –DDR2- DDR3, RAM versions – 1TB RAM – Direct RDRAM Secondary Storage: Hard Disk – Construction – Working Principle – Specification of IDE, Ultra ATA, Serial ATA; HDD Partition - Formatting. Troubleshooting hard disk drives. Removable Storage: CD&DVD construction – reading & writing operations; CD-R,CDRW; DVD-ROM, DVD-RW; construction and working of DVD Reader / Writer. Blue-ray: Introduction – Disc Parameters – Recording and Playback Principles – Solid state memory devices.

UNIT II I/O DEVICES AND INTERFACE

Keyboard and Mouse: Keyboard: Signals – operation of membrane and mechanical keyboards–troubleshooting; wireless Keyboard. Mouse- types, connectors, operation of Optical mouse and Troubleshooting. Printers: Introduction – Types of printers– Dot Matrix, Laser, line printer, MFP (Multi Function Printer), Thermal printer - Operation –Construction – Features and Troubleshooting I/O Ports: Serial, Parallel, USB, Game Port, Bluetooth interface, IR connector, fire ware, Signal specification problems with interfaces. Displays and Graphic Cards: Panel Displays– Principles of LED, LCD and TFT Displays. SVGA Port signals – common problems and solutions. Power Supply: SMPS: Principles of Operation and Block Diagram of ATX Power Supply, connector specifications

UNIT III BIOS, POST and Mobile Phone Servicing

BIOS: Standard CMOS setup, Advanced BIOS setup, Power management, advanced chipset features, PC Bios communication – upgrading BIOS, Flash BIOS - setup. POST: Definition – IPL hardware – POST Test sequence – beep codes and error messages. Mobile phone components: Basics of mobile communication. Components - battery- antenna-ear piece-microphone -speaker-buzzer-LCD- keyboard. Basic circuit board components – Names and functions of different ICs used in mobile phones. Tools & Instruments used in mobile servicing: Mobile servicing kit – soldering and de-soldering components using different soldering tools -

Use of multimeter and battery booster Installation & Troubleshooting: Assembling and disassembling of different types of mobile phones – Installation of OS - Fault finding & trouble shooting Jumpering techniques and solutions. Software and Antivirus: Flashing- Formatting- Unlocking -Use of secret codes Downloading- Routing; Mobile Viruses – Precautions – Antivirus Software.

UNIT – IV COMPUTER NETWORK DEVICES AND OSI LAYERS

Data Communication: Components of a data communication – Data flow: simplex – half duplex – full duplex; Networks – Definition - Network criteria – Types of Connections: Point to point – multipoint; Topologies: Star, Bus, Ring, Mesh, Hybrid – Advantages and Disadvantages of each topology. Types of Networks: LAN – MAN – WAN – CAN – HAN – Internet – Intranet Extranet, Client-Server, Peer to Peer Networks. Transmission Media: Classification of transmission media - Guided – Twisted pair, Coaxial, Fiber optics; Unguided – Radio waves– Infrared – LOS – VSAT – cabling and standards. Network devices: Features and concepts of Switches – Routers (Wired and Wireless)– Gateways. Network Models: Protocol definition - standards - OSI Model – layered architecture– functions of all layers.

UNIT V 802.X AND TCP/IP PROTOCOLS

Overview of TCP / IP: OSI & TCP/IP – Transport Layers Protocol – connection oriented and connectionless Services – Sockets – TCP & UDP. 802.X Protocols : Concepts and PDU format of CSMA/CD (802.3) – Token bus (802.4) – Token ring (802.5) – Ethernet – type of Ethernet (Fast Ethernet, gigabit Ethernet) – Comparison between 802.3, 802.4 and 802.5 Network Layers Protocol: IP –Interior Gateway Protocols (IGMP, ICMP, ARP, RARP Concept only). IP Addressing : Dotted Decimal Notation –Subnetting & Super netting – VLSM Technique-IPv6 (concepts only) Application Layer Protocols: FTP– Telnet – SMTP– HTTP – DNS – POP