

Computer Hard Ware & Networking

BASIC ELECTRONICS

- ❖ **Fundamentals:** Voltage, Current, Resistance, Power, Conductors, Insulators, Semi Conductors, AC, DC, Power Distribution, Importance of Grounding
- ❖ **Electronic Components** - Resistors, Capacitors, Inductors, Semi Conductors.
- ❖ **Digital Electronics** - Logic Gates, Controlled Buffers, Decoders, Multiplexers, Flip Flops, Timers, Counters, Memories, RAM, ROM, PROM, UV EPROM, EEPROM, Flash ROM, Micro Processors, Micro Controllers.

SYSTEM ASSEMBLING

- ❖ **System overview** - Analog Vs. Digital Computers, Special Purpose Digital Computers & General Purpose Digital Computers, Importance & advantages of Binary system, ASCII Standards, Data Conversions, IBM / Non –IBM Standards.
- ❖ **SMPS** - Advantages of Switching Mode Technology, AT SMPS, ATX SMPS, P4 ATX SMPS.
- ❖ **Mother Board** – Types of Mother Boards, Processor Types & Sockets, RAM Types (SRAM , DRAM) & Sockets, RAM Banking, BIOS Categories, RTC, CMOS Chip, Key Board Controller, PPI , DMA, PIT, Interrupt Controllers, ports (Parallel , Serial , USB, IR, Fire Wire, Blue Tooth, IDE ports, FDC Ports, SCSI Ports, ESCSI Ports, SATA Port.
- ❖ **Add on Cards & I/O Cards** - Display Cards, Sound Cards, Modem Cards, LAN Cards, IDE Cards, TV tuner Cards, Video Editing Cards, PROM programmer Cards, Special Cards.
- ❖ **Secondary Storage Devices** - FDD, HDD, CD-R, CD R/W , DVD-R, Combo, DVD R/W, CTD, Zip Drives, Memory Sticks, Pen Drives.
- ❖ **Off Line Assembling** – Assembling computer by using non working components.
- ❖ **POST & CMOS Settings** – System Settings & Power ON Self Diagnostic.
- ❖ **On Line Assembling** - Assembling computer by using working components.

HARDWARE MODULES

- ❖ **SMPS** - Input section, Output section, Control section, PWM, PG generation, AC 230V & 115V conversion, trouble shooting, Internal Diagrams of TL 494 series, UC 3842 series, SG 3524, etc.,
- ❖ **Printers Impact & Non Impact** - Daisy wheel printer, Line Printer, Drum Printer, Dot Matrix Printer, Thermal printer, Ink Jet printer, Laser printer , Sensors (Mechanical, Magnetic, Optical, Thermal) Motor (Stepper / linear), Motor Drivers, Print head drivers, Parallel Port signals, BIOS, RAM, Printer Settings, Printer Mechanisms, Ribbon refilling, cartridge refilling, Toner Refilling, trouble shooting.

- ❖ **Mother Boards** - Power ON Logic ,Reset Logic, Power Regulators, Support Chips, BIOS, BIOS copying, Key Board Problems, Port Problems, I/O Socket Problems, Settings, Trouble Shooting.
- ❖ **Key Boards** - Scanning Techniques, Scan Codes, Matrix Formats, Synchronous Serial Data Transfers.
- ❖ **Monitors** - CRT Mono, CRT Color, SMPS section (Low Voltage), SMPS (High Voltage LOT Section), Horizontal section, Vertical Section, RGB Video Section, ADC , DAC, Micro Controllers used in different Monitors.
- ❖ **UPS** – on line UPS, OFF line UPS , Line Interactive UPS, Charger Sections, Inverters Sections, Protection Circuits.
- ❖ **Storage Devices** - Working Principles, Sensors, Optical Drive Technology, Motor & motor driven sections , data recovery by using different tools.

SOFTWARE INSTALLATION & NETWORKING

- Computer fundamentals and History of computers
- Introduction and types of software

MS – DOS

- Introduction and History of DOS [Versions]
- Installation of MS-DOS
- Internal and External commands
- Maintenance of DOS

WINDOWS XP [PROFESSIONAL / HOME]

- Introduction to Windows XP
- Features of Windows XP
- Installation of Windows XP
- Installation of Drivers and Software's
- Remote Desktop
- System tools
- Preparing Network

WINDOWS 7 [Ultimate]

- Introduction to Windows 7
- Features of Windows 7
- Installation of Windows 7
- Installation of Drivers and Software's
- System tools
- Preparing Network

WINDOWS 2000 [SERVER / PROFESSIONAL]

- Introduction to Windows 2000 family
- Installation of Windows 2000 server
- Installation of Drivers and Softwares
- Administrative Tools
- Creating and managing of users
- Working with Windows 2000 server workgroup model

WINDOWS 2003 [SERVER]

- Introduction about Windows 2003 server
- Installation of Windows 2003 server
- Installation of Drivers and Service packs
- Managing and maintaining of Windows 2003 server in workgroup model
- User Management b) Disk Management
- Network connectivity in workgroup model
- Introduction about domain model
- Advanced features of Windows 2003 server
(Remote desktop, Terminal services, DNS, DHCP, IIS, FTP)

NETWORK MANAGEMENT

- Introduction to Networking
- Advantages of Networks
- Types of Networks
- Network Topologies
- Media (Guided, Unguided)
- Data Transmission types
- Networking devices
- Cabling standards & Crimping techniques
(System to System, System to Hub)
- Introduction of IP Addressing system
- Different versions of IP classes
(Class A, Class B, Class C)
- Sharing and Mapping Drives & Sharing printers
- Introduction about WAN Technologies
- Connecting to internet using Dial-up, Network, DSL
- Internet Connection Sharing
- Browsing the Web

INSTALLATION AND TROUBLE SHOOTING OF DEVICE DRIVERS

- Network Adaptors, Wireless Network Adaptors
- Web Cam
- TV Tuner card
- Printers (Laser, InkJet, Dot Matrix, Thermal)
- Add-on cards like PCI-Express Graphic Adaptor, Sound Card
- Different Types of MotherBoard Onboard Device Drivers

INSTALLATION OF APPLICATION SOFTWARE

- Application Packages
- MS Office (Office XP, 2003, 2007)
- DTP (Adobe Page Maker, Photo Shop, Corel Draw)
- Anu Fonts
- Accounting Packages
- Installation and testing of languages
(C, C++, Oracle, Java)
- Antivirus Installation and Management
(McAfee, Norton, Kaspersky, AVG, Avast etc.)
- Third party Utilities (Winrar, Winzip, CD Burning features (Nero), Virtual drives)
- System Tuneup utilities.
- **Data Backup And Restore**
- **Network Monitoring Tools**
- **Data Recovery Tools**