INSTITUTE OF HUMAN RESOURCES DEVELOPMENT

Short-term Course on COMPUTER HARDWARE AND NETWORK MAINTENANCE

[Scheme 2018]

Duration : 90 Hrs. Course Fee: Rs. 4,000/-+GST

Module 1: Basic Electricity (20Hrs. 6 hrs. Theory + 14 hrs Practical)

a. Measuring of AC supply voltage - Phase/Neutral/Earth Voltage
b. Measuring DC Voltage
c. Need for proper Earthling
d. Power Sources
e. UPS (Online and Offline) and invertors
f. identify fuses, types of switches, checking of fuses, switches, lamps
Importance of Electrostatic Discharge (ESD) - Methods to avoid Electrostatic charge.
g. Familiarization and handling of tools - Hand tools (Screw drivers, Spanners, Pliers, Hammers, Cable crimping tools, strippers, Drilling tools etc) necessity of using proper tools
h. Familiarization and handling of Equipments - MultiMate, DSO, Cable Tester etc.

Module 2 : Basic Electronics (10 Hrs. - 4hrs.Theory + 6hrs Practical)

a) Identity, testing and measuring of different types of resistors, capacitors, inductors
b) Soldering and disordering of components in PCB.
c) Identify and testing of diodes, transistors, construct bridge rectifier, half wave and full wave reciters.
d) Filters for rectifiers, voltage regulator circuits.
e) Assemble and test a unregulated and regulated power supply working of SMPS and testing.

Digital Electronics - Binary Number system and Logic gates AND, OR, NOT, OR, NAND, NOR and XOR gates. Basics of flip-flops.

Module 3 : Computer Fundamentals & Assembling (20Hrs. - 8 hrs. Theory + 12 hrs Practical)

Introduction to Computer, Functional Blocks of a computer
Identification and Handling of different hardware components - SMPS, MBD, Processor, Memory Modules, Hard Disk, CD/DVD Drives, and USB drives, Mouse, Keyboard, Printers, Scanners, Monitor etc.

a. Processor Makes, Slot Types,
b. Memory makes Slot type, Size, Category, and Frequency
c. Hard disk makes, Connector type, RPM, Data rate, Redundancy
d. SMPS form factor, pin Voltages, Connectors, measuring Voltages
e. Motherboard form factor, I/O ports, Data ports, interface connectors
f. Monitor interfacing (VGA, HDMI, AV etc.)
g. Speaker and headphone interfacing
h. Printer and Scanner Interfacing

Assembling of Desktop Computer

a. Preparation of Configuration
b. Preparation of Work Place for assembling computer
c. Assembling Steps

Module 4 Operating Systems (20Hrs. - 4 hrs. Theory + 16 hrs Practical)

Installation and Configuration of Operating System

a. File system type - FAT16, FAT32, exFAT, NTFS, EXT3, EXT4
b. Partitioning the hard disk
c. installation of OS - Windows 7, Win 8, Win 10, Linux different distributers
d. Device Driver installation
e. Peripheral installation and Configuration
f. Application software installation and configuration
g. OS licensing and updating
h. User Creation
i. Network Configuration
j. Installation of antivirus software

Linux operating system - Installing LINUX - Adding new users, software, material components
Installing a printer and carrying self- test. Scanner –Installation, configuration
Trouble Shooting

a. Hard ware and peripheral
b. Operating system

Module 5 : Networking (20Hrs. - 8 hrs. Theory + 12 hrs Practical)

a. Components of the Computer Networks wired and Wi-Fi.
b. Familiarization with various Network devices, Connectors and Cables. Understanding the Layout of network. Crimping and practice with straight and cross CAT 6 cables.
c. Install & configure a Network. Network Components –Modems, Firewall, Hubs, Bridges, Routers, Gateways, Repeaters, Switches, Access point, etc.– their types, functions, advantages and applications.
d. IP Routing in Network .IP Addressing & TCP/IP. IP addressing technique (IP4/IP6) and Subnetting and Supernetting the network.
e. Installation and Configuration of TCP/IP Protocol.
f. Practice TCP/IP Utilities : PING,IPCONFIG,HOSTNAME,ROUTE, TRACERT
g. Protocols, TCP/IP, FTP, Diagram Telnet etc., Theory on subnet Setting IP Address (IP4/IP6) super net & Subnet Mask, Classes of IP Addressing .
h. Simple Mail Transfer Protocol (SMTP), Telnet, File Transfer Protocol (FTP), Hyper Text Transfer Protocol (HTTP), Simple Network Management Protocol.
i. Sharing Resource &Internet connection. Sharing Resource and Advance Sharing Setting. Basics of Proxy Server. Exposure and using Internet. Setting E-mail accounts. Installing and Configuring Internet Connection on a PC using Broadband or Dongle.
j. Network Security Practice on firewall technologies to secure the network perimeter.
k. Internet and Web Browser Practice web browsing using popular web browsing software, Configuring web browser. Search for content using popular search engines.

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Note: Student shall have minimum 75% attendance in the course and shall pass the evaluation test conducted by the training centre to become eligible for course certificate.

Thiruvananthapuram
February 21, 2018

Sd/-
Director