CHM-O level

H1: PC Hardware & Components (Duration 60 Hours)

Course Prerequisites:

Basic electricity and digital electronics, basic knowledge about the computer systems (identification with/ without working units) will be an added advantage.

Learning outcome of the Course

On completion program the students will be able to understand the fundamentals of Hardware, handling, testing & troubleshooting of personal computer problems.

Course details

Section	Brief Contents	Duration
PC hardware	The PC hardware consisting input, processing and output sections and basic building components. Introduction to computer hardware components of mother boards, CPU, chip-set, various ports, slots, connectors, addon cards, etc., Protection of PC hardware, anti static wrist band, protection and safety devices.	6
Primary Memory	ROM,PROM, EPROM, EEPROM, L1, L2 RAM, types of memory, static, dynamic, DRAM, SDRAM, DDR2, DDR3. Virtual memory, Cache memory, Linear & Physical memory, video memory.	6
Secondary storage	HDD like IDE, SATA, e-SATA, SCSI, Introduction to HDD controllers like SCSCI controllers and RAID controllers their requirement and configuration. Backup devices magnetic tape drives, UBS Pen-drives, External HDDs, CDROM, CDRW, DVD, Blue-Ray Discs, etc.	6
Power Supply	Switched Mode Power supply block diagram, working principles, testing and troubleshooting, power rating, requirement of SMPS wattage depending parameters like processor, HDDs used, etc.	6
Cabinet types	Various types of cabinets of PCs & it's handling, servers, gaming PCs. Introduction to server cabinets, Rack mount and blade servers.	6
Practical's	Practical-I (Hardware Components Identification): Identify and handling of Internal components in the PC Cabinets like SMPS and its connection to Motherboard and various devices, Motherboard, CPU, Chipset, Slots, Memory modules, memory slots, Hard Disc Drives, CDROM/DVD/Blue-Ray Disc, etc.	5
	Practical-II (System Integration) : Assembly of PC using various parts, Interconnection between devices, cable polarities and connections, SMPS installation and power connection. Various types of Add-on Cards, Motherboard slot and their application.	5
	Practical-III (OS and Application Software Installation) : Multiple HDD installation and creation single large volume out of it, Installation of Operating System like Windows7, Windows8, Windows 2008, various Linux flavors like Ubantu, SUSE, RedHat, Introduction to VMware Virtualization etc.	10
	Practical-IV (Troubleshooting) : Troubleshooting of various hardware problems like SMPS failure, Display not there, missing OS or re-installation of user software or system software. CDROM, DVD lens cleaning or replacement, CMOS setup, Battery replacement on motherboard in case BIOS is not retaining correct values. Driver software Downloading and installation, Antivirus Software installation, scanning for viruses, removing .tmp files from WINDOWS machine, etc	10