

Subject Code : 1CS2010310	Subject Title: WORKSHOP-III (INTRODUCTION TO COMPUTER HARDWARE, PERIPHERALS & NETWORKING DEVICES)
Pre-requisite :	-

Course Objective:

This course aims to make students familiar with configuration and installation of hardware components and computer system parts. Students are expected to learn various basic concepts of internet connectivity, CCTV camera, router, switch, network cable, etc.

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture	Tutorial	Practical	Credit	Theory		Practical		Total
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
-	-	2	2	-	-	-	50	50

Subject Contents			
Sr. No	Topic	Total Hours	Weight (%)
1	Hardware Fundamentals: To identify the different parts of computer and peripherals. Function of various parts of Computer. Power Supply Unit, Motherboard , Central Processing Unit with heat sink, Other Chipset, RAM – Random Access Memory & ROM – Read Only Memory, BIOS – Basic Input / Output System, CMOS IC, Different types of Buses (ISA & PCI) and Connectors, Different types of I/O Ports, Jumpers, Display Card. HDD – Hard Disk Drive, CD-ROM Disk & Disk Drive, DVD – Digital Versatile Disk. NIC – Network Interface Card, Sound Card, Other Add-ON Cards, Keyboard & Mouse, MODEM, Printers & Plotters , Scanner ,PDA and gadgets	2	9
2	Overview Of Network Concept: Network Cable:- Ethernet/cat 6, fiber optic, Straight Cable / Crossover Cable. Switches:-Layer 2, Layer 3, Fiber Switches. Routers:-Home Router, Enterprise Router	2	9
3	Overview of Internet Connectivity: Different types of Internet connections, Gateway Access, Dial-up Connection, Radio-link connectivity, Leased line, VSAT, Types of Servers. Distributing Internet bandwidth	2	9
4	Surveillance Systems: CCTV camera, types of Camera, cabling, console management CCTV: Requirement analysis, Cabling, Installation CCTV camera, Install/Managing CCTV network through PC/PDA. Peripheral Installation and maintenance: Printer, Scanner, CD Drive	5	20
5	Computer Assembling and Configuration: Collect the proper/required computer parts and tools, Sequence steps to assemble a computer as per guidelines provided by the expert, Steps to upgrading a computer system , Run CMOS setup utility and configure computer system, To identify the basic feature of different types of Operating Systems , (DOS, Windows XP, Windows7, Windows8, operating System Installation	5	20
6	Troubleshooting and Preventive Maintenance: To identify the proper area of error / trouble / Fault, To identify the software / Hardware error. , Software Error, Installation Problem Booting Problem , Device Driver Problem , File Corruption , Virus Problem Memory Problem , Hardware Error, Power Problem , Short-Circuit , Fusing / Burning Problem , Display Problem, Memory Problem , CMOS problem.	5	20
7	UTM/Firewall: Load Balance, Bandwidth Management, Application Filter, Web based filter, Routing. Various Connectivity: Radio link, Fiber link, Leased line. Fiber optic cabling. Introduction to structured cabling. Peripherals (Printer/Scanner etc) installation and maintenance.	3	13

Course Outcome:

After completion of this course student should be able:

- To have fundamental knowledge on computer hardware.
- To understand the basic terminology used in computer peripheral devices.
- To get the knowledge of working of different hardware components.
- To install different Operating Systems and different device drivers.
- To troubleshoot and Repair various Operating Systems.
- To install drivers and software of Web Camera and CCTV Camera.
- To Install and Troubleshooting of Printer (Dot-Matrix and Laser Printer)
- To Install and Troubleshooting of Scanner (Photo & Bar Code Scanner)

List of References:

1. Windows XP Professional edition complete BPB Publication
2. Computer today -By Donald (Mc Graw Hill)
3. Servicing personal computers- By Michael H Tooley.
4. PC AND CLONES Hardware, Troubleshooting and Maintenance B. Govindarajalu, TMH
5. PC Troubleshooting and Repair Stephen J. Bigelow Dream tech Press, New Delhi

List of Experiments:

Note: The experiment list provided beneath is for reference only. The course teacher may change/formulate it as per his/her methodology and requirement.

1. To implement POST (power on self test) operation.
2. Identify various input and output devices and connect the same with cabinet.
3. Identify various components within the cabinet (on the motherboard) and learn the interconnections among them.
4. Identify various components within the cabinet (off the motherboard) and learn the interconnections among them.
5. Connect various computer parts to SMPS (Switch mode power supply).
6. Connect and Configure RAM, ROM and HDD on mother board.
7. Identify various components used in networking in your laboratory. Learn the interconnection between the component, computer and server.
8. Connect and Configure processor on motherboard.
9. Connect and Configure NIC CARD, VGA CARD, SOUND CARD and all DATABUS cable on mother board.
10. Connect and Configure printer and Scanner to CPU.
11. Connect and Configure MODEM to CPU.
12. Assembling and Disassembling Of a Computer System
13. Format the hard disk, create partition on the hard disk and install the operating system in hard disk.
14. Configure and install the drivers of motherboard.
15. Configure and install the driver of input and output devices.
16. Configure and install the driver of network devices.
17. To solve the software error problem.
18. To solve the hardware error problem.
19. Installing different Operating Systems (with dual OS option).
20. Data Backup and System Formatting
21. Installation of Drivers and Software of Web Camera and CCTV Camera
22. Installation of DTP Application
23. Installation of CD-DVD Burning Software
24. Installation and Troubleshooting of Different types of Antivirus Software
25. Installation and Troubleshooting of Peripheral (Printer/Scanner)
26. Troubleshooting of SMPS, Monitor, Printer and Motherboard
27. To configure all types of connectors and converters