

**COURSE TITLE** : COMPUTRE SYSTEM HARDWARE  
**COURSE CODE** : 4131  
**COURSE CATEGORY** : A  
**PERIODS/WEEK** : 4  
**PERIODS/SEMESTER** : 60  
**CREDITS** : 4

**TIME SCHEDULE**

MODULE	TOPICS	PERIODS
1	Inside PC	15
2	Power supply & Storage devices	15
3	External Peripherals	15
4	Laptops and other Portable devices	15

**Course General Outcomes:**

Sl.	G.O	On completion of this course the student will be able :
1	1	To understand the working of Personal Computer
	2	To understand the working and the components of Motherboard
2	1	To understand Powering up of Computer
	2	To understand Secondary Storage Devices
3	1	To understand Different Peripherals and Expansion
	2	To understand Different custom configuration PCs and Workstations
	3	To understand the Installing and Configuring Printers
4	1	To understand Laptops
	2	Describe portable computing devices

**Specific Outcomes:**

**MODULE –I Inside PC**

**1.1 To understand the working of Personal Computer**

- 1.1.1 To describe the working of Personal Computer
- 1.1.2 To list the major connectors and services of a typical PC

**1.2 To understand the working and the components of Motherboard**

- 1.2.1 To explain how the motherboard works
- 1.2.2 To explain the components of Motherboard
- 1.2.3 To explain the characteristics of Memory
- 1.2.4 To identify the different types of DRAM packaging
- 1.2.5 To explain the varieties of RAM
- 1.2.6 To explain the varieties of a modern CPU

- 1.2.7 To describe the relationship of CPU & Memory
- 1.2.8 To explain the function of BIOS
- 1.2.9 To distinguish among various CMOS setup utility options
- 1.2.10 To describe option ROM and device drivers

## **MODULE – II Power supply & Storage devices**

### **2.1 To understand Powering up of Computer**

- 2.1.1 To describe the Purpose and characteristics of Power Supplies
- 2.1.2 To explain the details about powering the PC

### **2.2 To understand Secondary Storage Devices**

- 2.2.1 To describe the Purpose and characteristics of Storage Devices
- 2.2.2 To explain how hard drives work
- 2.2.3 To explain the PATA and SATA hard drive interfaces
- 2.2.4 To explain SCSI hard drive Interface
- 2.2.5 To describe how to protect data with RAID
- 2.2.6 To describe the procedure for partitioning and formatting HDD
- 2.2.7 To list the variations among flash drives and other tiny devices
- 2.2.8 To describe Disk mirroring and disk duplexing

## **MODULE – III External Peripherals**

### **3.1 To understand Different Peripherals and Expansion**

- 3.1.1 To explain the Installing and Configuring Expansion Cards
- 3.1.2 To list the characteristics of Connectors and Cables
- 3.1.3 To explain the operation of various Input Devices
- 3.1.4 To explain the operation of various output Devices
- 3.1.5 To describe the Display types and its settings

### **3.2 To understand Different custom configuration PCs and Workstations**

- 3.2.1 To explain the organisation of CAD/ CAM design Workstations, Audio Video editing Workstations, Virtualisation Workstations, Gaming PCs, Hometheatre PCs, Standard Thick clients, Thin clients, Home Server PCs, etc.

### **3.3 To understand the Installing and Configuring Printers**

- 3.3.1 To list and explain the printer types and the process involved
- 3.3.2 To describe the installation and configuration of printers

## **MODULE –IV Laptops and other Portable devices**

### **4.1 To understand Laptops**

- 4.1.1 To describe the Laptop architecture
- 4.1.2 To explain the procedure for Disassembling and Reassembling of laptops

### **4.2 To Describe portable computing devices**

## **CONTENT DETAILS**

## **MODULE –I Inside PC**

Working of PC- Motherboard- Form factors-Components of Motherboard- Bus Architecture- Chipsets- Expansion Slots- Memory slots and Cache- CPU and Processor socket- BIOS and POST- CMOS and CMOS Battery- Purpose and characteristics of

Processors- Characteristics of Memory- types of memory- different types of DRAM-varieties of RAM- Memory packaging

#### **MODULE – II Power supply & Storage devices**

Purpose and characteristics of Power Supplies- power connectors- Replacement of Power Supplies

Purpose and characteristics of Storage devices- HDD Systems- Solid state Drives- Optical storage drives-Drive interfaces and RAID- SCSI Drives- Removable storage and media- Flash memory- Externally attached drives- Installing, Removing, and configuring storage devices

#### **MODULE – III External Peripherals**

Installing and Configuring Expansion Cards- Video- Multimedia- I/O- Communications- Characteristics of Connectors and Cables- Device connector types- Common peripheral Cables and their Interfaces- Video display Cables and connectors- Input devices- Mouse- Keyboard- scanner- Barcode reader-digitizer-Biometric devices- Touch screens- Gamepads and Joysticks- Multimedia input devices- Web cams- MIDI devices- Digital Cameras and Camcoders- Output devices- Printers- Speakers- Display devices- Display types and settings- Video display Types- Adjusting display settings- Video standards and Technologies- Advanced Video resolutions and concepts

CAD/ CAM design Workstations-Audio Video editing Workstations- Virtualisation Workstations- Gaming PCs- Home theatre PCs- Standard Thick clients- Thin clients- Home Server PCs

Printer types- Impact Printers- Inkjet- Laser Printers-Installing and configuring printers

#### **MODULE –IV Laptops and other Portable devices**

Laptop architecture- Laptop vs. Desktops- Motherboards and Processors- Memory- Input devices- Expansion Buses and Ports- Docking stations- Power systems- Laptop displays- Disassembling and Reassembling of laptops

Netbooks- Ultrabooks- Tablet PCs- Features and capabilities of Mobile Devices- Touchscreen technology- Enhancing Hardware- Configuration- Security

#### **TEXT BOOK(S)**

1. Computer Installation and Servicing D.Balasubramanian TataMc-Graw Hill, New Delhi 2010
2. Troubleshooting, Maintaining and Repairing PCs Stephen J.Bigelow TMH, New Delhi Fifth Edition

#### **REFERENCES**

1. PC Repair and Maintenance Joel Rosenthal- Fire wall Media,First Edition
2. Comdex Hardware and Networking Course Kit Vikas Gupta DreamTech Press -2011
3. Modern Computer Hardware Course Manahar Lotai,Pradeep Niar,BPB Publication ,2011
4. Troubleshooting, Maintaining and Repairing PCs Stephen J.Bigelow TMH, New Delhi Fifth Edition
5. PC Hardware in a nutshell Robert Bruce and Co O' Reilly, Shroff Publishers and Distributors -2008.