INSTITUTE	DIPLOMA STUDIES
PROGRAM	DIPLOMA ENGINEERING (COMPUTER ENGINEERING)
SEMESTER	1
COURSE TITLE	COMPUTER HARDWARE SKILL
COURSE CODE	09CE2103
COURSE CREDITS	2

Objective:

1 Through this course Computer Hardware Skills, students will acquire knowledge about basic peripherals of computer system which will helpful them in their day-to-day use of computer. The main objective of this course is students understand the hardware parts and working of it. It will help students at industrial level to apply hardware skills.

Course Outcomes: After completion of this course, student will be able to:

1 Understand the basic organization and Structure of computer hardware
2 Identify types of peripherals devices of computer
3 Upgrading the hard drive and partition of it.
4 Apply their knowledge about computer devices to identify / rectify problems

Pre-requisite of course:NA

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
0	0	4	0	30	20	25	25

Contents : Unit	Topics	Contact Hours
1	**Introduction to Computer Organization** Computer Introduction and its Classification, Basic Computer System-Input, Output Peripherals, Power System of Computing-Power in Socket, Power Out socket, Male–Female Connectors, Power Supply Fan Outlet, Motherboard-CPU, Memory, Expansion Slots to Connect Peripherals, Bus System and BIOS, Configuring OS: Installation of Single OS, Dual OS Installation	9

Contents : Unit	Topics	Contact Hours
2	**Computer Peripherals** Types of Computer Peripherals, Computer Ports to Connect Peripherals- Serial Port, Parallel Port, Understanding Function of Keyboard, Mouse, Monitor, Printer, Speakers and Mic, Working of Keyboard: Types of Keyboard Switch (Membrane, Mechanical, Rubber Dom), Types of Keyboard(PC-XT,PC-AT, Enhanced PC-AT), Interfaces and Connectors, Disassembly-Cleaning-Reassembly of Keyboard, Working of Monitor: Types of Monitor (CRT,LED,LCD), Resolution, Size, Interfaces and Connectors, Disassembly-Cleaning-Reassembly of Monitor, Working of Mouse: Types of Mouse (Mechanical, Opto-Mechanical, Optical), Swapping Mouse Buttons, Interface and Connectors (Serial, Bus, PS/2 Port, USB, Wireless), Disassembly-Cleaning-Reassembly of Mouse, Working of Printer: Types of Printing Mechanism (Impact ,Non-Impact), Types of Printer (Daisy-Wheel, Dot- Matrix, Inkjet), Working of Speaker and Mic: Interface, Connectors, Disassembly-Cleaning-Reassembly of Speaker	12
3	**Different Storage Components** Types of Storage Devices: Magnetic Storage Devices, Optical Storage Devices, Flash Memory Devices, Types of Magnetic Storage Devices: Hard Disk Drive, Magnetic Card, Working of Hard Disk Drive, Components of Hard Disk Drive: Disk Platter, Head Arm, Logic Board, Air Filter, Features of Hard Disk Drive: Storage Capacity, Access Time, Data Transfer Rate, Installing and Upgrading of Hard Disk Drive, Remove Old Hard Disk Drive - Installation of Hard Disk, Installation of Second Hard Disk Drive, Partition and Format Hard Disk, Types of Optical Storage Devices: CD-ROM Disc, CD-R Disc, CD-RW Disk, DVD-R, DVD+R, DVD-RW, DVD+RW, its Connections and Drivers, Types of Flash Memory Devices: USB Flash Drive, Memory Card (Compact Flash Memory Card, SD(Secure Digital) Card, Memory Stick, Multimedia Cards (MMC), Smart Media Flash Cards)	12
4	**Assembly of Laptop and Study its Organization** Introduction to Laptop, Input-Output Peripherals, Battery and Power Supply, Power Supply Fan Outlet, Configuration of Laptop, Processor, Different Ports, Graphics Card	8
	Total Hours	**41**

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	**Practical List** To define the Front Panel Indicators, Switches and Rear Side Connector in a CPU. (USB Hub, HDMI Port, CD/DVD Tray, COM Port), Study the Short Conventions and Abbreviations of Computer., To define Computer Internal Components. (Motherboard, FDD, HDD, CD/DVD and Add-On Cards), Prepare a summary report about Computer System, Power System of Computing, Motherboard and BIOS., To configure BIOS Setup. (POST, Bootstrap Loader)., Install Windows Operating System to your PC., Install Dual OS (Windows and Linux) to your PC., Study different Monitors, Keyboard Devices and prepare a short Report about it., Study different Mouse, Printer and Speaker Devices and prepare a short Report about it., To install and configure a Printer, Scanner, Webcam, Biometric Devices and use its services., To study how to Data can be Transferred between different devices. (Bluetooth and PC), To study the use of 3-D Printer., Study different Storage Components and prepare a short Report about it., Study how to install Hard Drive to your PC and partitioning of it., Demonstrate how to format Hard Drive., Study different format of CD and copy data into it., To install and configure a DVD Writer and demonstrate to write DVD., To create Cross Wires and Direct Cables., Prepare a summary report about Laptop and its peripherals., To study some CMD Prompt's commands. (HDD Open, Folder Creation etc.)	40
	Total Hours	**40**

Textbook :

1   Modern Computer Hardware Course, M Lotia, P Nair, P Lotia, ., .

References:

1   1. Modern Computer Hardware Course by M Lotia, P Nair, P Lotia 2. Hardware Bible by Winn L. Rosch 3. Hardware and Software of Personal Computers by Sanjay K. Bose 4. Fundamentals of Computers by V. Rajaraman 5. Computer Studies - A first course by John Shelley and Roger Hunt 6. Computer Fundamentals, MS Office and Internet & Web Technology by Dinesh Maidasani

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking
40.00	40.00	20.00	0.00	0.00	0.00

Instructional Method:

1   a. The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc. b. The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory and class-room. c. Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory. d. Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory

Supplementary Resources:

1   https://nptel.ac.in/courses/106/105/106105084/

2   http://nptel.ac.in/courses/106105081/

3   https://www.coursera.org/learn/internet-history

4   https://support.microsoft.com/en-us/windows?ui=en-US&rs=en-US&ad=US

5   http://www.karbosguide.com/

6   https://www.youtube.com/watch?v=ZOKsmiLcSlo

7   https://www.youtube.com/playlist?list=PLA1DC661DCF743F70

8   http://study-ccna.com/

9   http://technet.microsoft.com/library/ee532075.aspx