Ramgarhia Polytechnic College, Phagwara

Computer Science Engineering Department

Head of Department:	Er. Poonam Rana
Name of the Faulty:	Er. Sangita Salhan
Discipline:	Computer Science Engineering Department
Semester:	5th
Subject:	Computer Peripherals and Interfacing
Lesson Plan Duration:	16 Weeks

RATIONALE

A computer engineer should be able to interface and maintain key-board, printer, mouse monitor etc along with the computer system. The course provides the necessary knowledge and skills regarding working construction and interfacing aspects of peripherals. The students will get to know how various peripherals communicate with central processing unit of the computer system and pattern their respective operations. The student will be able to maintain keyboard, printer, monitors and Power Supplies (CVTs and UPSs) along with computer system. This subject provide the required background of computer installation, maintenance and testing of peripheral with microcomputers So a course on Computer Peripherals and Interfacing Devices is required to develop such skills.

Course Outcomes

After undergoing this course, the students will be able to:

CO1. Identify various types of display devices/technologies.

CO2. Describe different types and various parts of motherboard.

CO3. Define and describe various types of processors.

CO4. Use and describe various storage devices.

CO5. Identify, various input-output devices and explain their . working

CO6. Change various BIOS features.

CO7. Assemble/maintain and troubleshoot a system.

PO ⇨ / CO ⇩	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1		✓			✓		
CO2	✓						
CO3	✓						
CO4				✓			
CO5		✓		✓			
CO6							✓
CO7				✓		✓	

Syllabus

Units	Details	Hours
1.	Video Display The basic principle of working of video monitors (CRT, LCD,LED), video display adapters, video modes, Video display EGA/VGA/SVGA/PCI adapters and their architecture, Overview of raster scan, vector graphic, their main difference and relative advantages, Concept of reduction and bandwidth of monitors refreshing of screen	(08 hrs)
2.	Hardware Organization of PCs Types of motherboard and their details (Form Factor, Chipset), types of processors (INTEL, AMD) and their compatibility with motherboards, serial and parallel ports, PS/2, USB Ports, Interconnection between units, connectors and cables.	(07 hrs)
3.	Storage Devices Types of Hard Disk Drives- EIDE, SATA, SCSI, SAS External Hard Disk. Constructional features and working of hard disk drive, optical (CD, DVD, and Blue Ray) disk drive and Flash Drive, Logical structure of Hard Disk and its organization, boot record.	(06 hrs)
4.	Input Devices Detailed working principle and troubleshooting of various input devices such as keyboard, mouse, scanner. Basic principle of touch screen, light pen, digitizers. Drivers for various input devices and their role.	(06 hrs)
5.	Output Devices Overview of printer and its classification, impact and non-impact printer, principle and working of desk Jet, dot matrix, line Printer and laser printers (Monochrome and Colour), plotter (Piezoelectric and Thermal), and modems. Software drivers for various output devices and their role.	(06 hrs)
6.	Power Supplies Explain the working of SMPS used in computers. On-Line/Off-Line/Line- Interactive/uninterrupted power supplies (UPS), basic principle of working their importance and maintenance	(06 hrs)
7.	The Basic Input/output System What is BIOS? Function of BIOS, software interrupts, testing and initialization, configuring the system	(05 hrs)
8.	Introduction to Raspberry Pi	(04 hrs)

LIST OF PRACTICALS

1) To study the construction and working of CRT, LCD, LED (colored and black and white monitor) and it's troubleshooting.
2) To Study the components and internal parts, working of hard disk and CDROM, DVD, Flash Drives
3) To study the operations and components and internal parts of Key Board, mouse and their troubleshooting
4) Study of components and internal parts and working of DMP, Inkjet printer and Laser printer and various installation of printers
5) To study the SMPS circuit and measure its various voltages. Connecting SMPS to mother- board and other devices.
6) Study the operation and maintenance of UPS.
7) Exercise on assembling a PC with peripherals and testing the same.
8) Setup and configuration of ROM BIOS
9) Visit to nearby industry

Reference Books:

1. Hardware Trouble Shooting and Maintenance by B. Govinda Rajalu, IBM PC and Clones, Tata McGraw Hill 1991
2. The waite group writing MS DOS Device, Drives byRobert, S Lai: Addison, Wesley Publishing Co. 2nd Ed. 1992.
3. Hardware and Software of Personal Computers by SK Bose; Wiley Eastern Limited, New Delhi.
4. Microprocessors and Interfacing by Hall, Douglas: McGraw Hill
5. Microprocessors and Interfacing by Uffenbeck.
6. Fundamentals of Computers by Sukhvir Singh; Khanna Publishers, New Delhi
7. Computer Peripherals for Micro Computers, Microprocessor and PC by Levis Hahensteu
8. Inside the PC (Eight Edition) by Peter Norton; Tech Media Publication, New Delhi
9. Upgrading and Preparing PC

Delivery/Instructional Methodologies

Sr.No.	Description
1.	Chalk and Talk
2.	PowerPoint Presentation

Assessment Methodologies

Sr. No.	Description	Type
1.	Student Assignment	Direct
2.	Test	Direct
3.	Board Examination	Direct
4.	Student Feedback	Direct

Gaps in the syllabus - to meet industry/profession requirements

S.NO.	DESCRIPTION	PROPOSED ACTIONS	PO MAPPING
	N/A	N/A	N/A

Topics beyond syllabus/advanced topics

Units	Details	Hours
N/A	N/A	N/A

Web Source References

Sr. No.	URL
1.	

Lesson Plan

Week	Theory		Practical	
	Lecture Day		Practical Day	
1st	1st	Video Display The basic principle of working of video monitors (CRT, LCD,LED) video display adapters, video modes	1.	1. To study the construction and working of CRT, LCD, LED (coloured and black and white monitor) and it's troubleshooting.
	2nd			
	3rd			
2nd	4th	Video display EGA/VGA/SVGA/PCI adapters and their architecture Overview of raster scan, vector graphic, their main difference and relative advantages	2.	Revision 1st Practical
	5th			
	6th			
3rd	7th	Concept of reduction and bandwidth of monitors refreshing of screen	3.	2. To Study the components and internal parts, working of hard disk and CDROM, DVD, Flash Drives
	8th			
	9th	**SEMINAR**		
4th	10th	Hardware Organization of PCs Types of motherboard and their details (Form Factor, Chipset)	4.	Revision 2nd Practical
	11th			
	12th			

5th	13th 14th 15th	Types of processors (INTEL, AMD) and their compatibility with motherboards, serial and parallel ports, PS/2, USB Ports Interconnection between units, connectors and cables.	5.	3. To study the operations and components and internal parts of Key Board, mouse and their troubleshooting
6th	16th 17th 18th	**REVISION** **PTM** **1st Sessional Test (Tentative)**	6.	Revision 3rd Practical
7TH	19th 20th 21th	Storage Devices Types of Hard Disk Drives- EIDE, SATA, SCSI, SAS External Hard Disk. Constructional features and working of hard disk drive	7.	4. Study of components and internal parts and working of DMP, Inkjet printer and Laser printer and various installation of printers
8th	22th 23th 24th	optical (CD, DVD, Blue Ray) disk drive and Flash Drive, Logical structure of Hard Disk and its organization, boot record.	8.	Revision 4th Practical

9th	25th 26th 27th	Input Devices Detailed working principle and troubleshooting of various input devices Keyboard,mouse,scanner Basic principle of touch screen light pen Digitizers.Drivers for various input devices and their role.	9.	5. To study the SMPS circuit and measure its various voltages. Connecting SMPS to mother-board and other devices
10th	28th 29th 30th	Output Devices Overview of printer and its classification, impact and non-impact printer principle and working of desk Jet, dot matrix, line Printer and laser printers (Monochrome and Colour), Plotter (Piezoelectric and Thermal), and modems. Software drivers for various output devices and their role.	10.	Revision 5th Practical
11th	31st 32nd 33th	Power Supplies Explain the working of SMPS used in computers. On-Line/Off-Line/Line-	11.	6. Study the operation and maintenance of UPS.
12th	34th 35th 36th	**REVISION** **PTM** **2nd Sessional Test (Tentative)**	12.	Revision 6th Practical

13th	37th 38th 39th	Interactive/uninterrupted power supplies (UPS), basic principle of working their importance and maintenance	13.	7. Exercise on assembling a PC with peripherals and testing the same.
14th	40th 41st 42nd	The Basic Input/Output System What is BIOS? Function of BIOS, software interrupts, testing and initialization, configuring the system	14	Revision 7th Practical
15th	43th 44th 45th	Introduction To Respberry Pi	15.	8. Setup and configuration of ROM BIOS
16th	46th 47th 48th	**REVISION** **PTM** **3rd Sessional Test (Tentative)**	16.	9. Visit to nearby industry

NBA has defined the following seven POs for an Engineering diploma graduate:

i) **Basic and Discipline specific knowledge**: Apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the engineering problems.

ii) **Problem analysis:** Identify and analyze well-defined engineering problems using codified standard methods.

iii**)** **Design/ development of solutions**: Design solutions for well-defined technical problems and assist with the design of systems components or processes to meet specified needs.

iv) **Engineering Tools, Experimentation and Testing**: Apply modern engineering tools and appropriate technique to conduct standard tests and measurements.

v) **Engineering practices for society, sustainability and environment**: Apply appropriate technology in context of society, sustainability, environment and ethical practices.

vi) **Project Management**: Use engineering management principles individually, as a team member or a leader to manage projects and effectively communicate about well-defined engineering activities.

vii) **Life-long learning**: Ability to analyze individual needs and engage in updating in the context of technological changes.

Program Specific Outcomes (PSOs)

PSOs are a statement that describes what students are expected to know and be able to do in a specialized area of discipline upon graduation from a program. Program may specify 2-4 program specific outcomes, if required.

These are the statements, which are specific to the particular 11 program. They are beyond POs. Program Curriculum and other activities during the program must help in the achievement of PSOs along with POs.