GOVERNMENT OF TAMILNADU
DIRECTORATE OF TECHNICAL EDUCATION,CHENNAI
STATE PROJECT COORDINATION UNIT
(Established under Canada India Institutional Cooperation Project)

CURRICULUM

Course Name	PC HARDWARE & NETWORKING
Course Code	CSE/2020/021
Course Duration	80 Hours
Minimum Eligibility Criteria and Pre-requisites(if any)	ITI/10th/+2/Diploma/Graduates Basics Knowledge of computers
Course Objectives	The main objective of the course is to train the Students to acquire basic knowledge in Computer hardware and peripherals for installation, PC assembly, trouble shooting and maintenance including system management as well as concept of Networking.
Course Outcomes	At the end of training, the students will able to know the Basics of Computer assembling and trouble shooting. This course will provide the brief knowledge of Computer networking and trouble shooting.
Expected Job Roles	Service Technician

	TEACHING AND SCHEME OF EXAMINATION					
Course Code	Course Name	Hours		Assessment Marks		Duration of Examination
				Min	Max	
CSE/2020/021	PC Hardware and Networking	Theory	30	10	20	3 Hours
		Practical	50	40	80	
		Total	80	50	100	

CSE/2020/021 - PC HARDWARE & NETWORKING
DETAILED SYLLABUS

UNIT NO	MODULES	NO.OF.HOURS THEORY
I	INTRODUCTION TO PC HARDWARE	
1.1	INSIDE THE PC: Introduction: Evolution of Computer – Block diagram of Pentium - Inside the Pentium – Parts - Mother board, chipset, expansion slots, memory, Power supply, drives and connectors.	6
1.2	MOTHER BOARD: Evolution – Different forms of mother boards Chipsets: Introduction – 945 chipset. Bus Standards: Introduction – ISA Bus – PCI Bus – PCI Express, USB, High speed Bus,– Pin details and Architecture.	
1.3	Bios-setup: Standard CMOS setup, Advanced BIOS setup, Power management, Advanced chipset features, PC Bios communication – upgrading BIOS, Flash, BIOS - setup. Processors:	
II	INSTALLATION OF HARDWARE AND PHERIPHERALS	
2.1	HDD Installation – Partition – Formatting. Troubleshooting hard disk drives; problem diagnosis, typical problems and troubleshooting; Hard disk drive, components, Head Actuator mechanism Head positioning of a voice coil base system.	6
2.2	DVD: Introduction – Formats – cTechnology – DVD- ROM, DVD Video, ccDVD Audio – Recordable formats – DVD-R, DVD-RW, DVD-RAM.	
2.3	Installation of Scanners, web camera, modem.	
III	PCTROUBLESHOOTING AND MAINTENANCE:PROBLEM IDENTIFICATION.	
3.1	Installation and Troubleshooting: Formatting, Partitioning and Installation of OS –Trouble Shooting Laptop and Desktop computer problems.	6
3.2	POST: Error, Beep Codes, Error messages, Post – Faults related to Hardware – Faults related to Software.	
3.3	Installation and Troubleshooting: Formatting, Partitioning and Installation of OS – Trouble Shooting Laptop and Desktop computer problems	
IV	SOFTWARE INSTALLATION	
4.1	Software installation and Configuration: Driver installation, Os installation.	6
4.2	Application software installation, anti-virus installation.	
V	NETWORKING BASIC AND CONFIGURATION: LAN NETWORK IMPLEMENTATION.	
5.1	Types of network-networking components.	6
5.2	Topology-implementing LAN .	
	Total Theory Hours	**30**
	Total Practical Hours	**50**
	Total Hours	**80**

PRACTICAL (50 HOURS)

1. Identification of System Layout:
> a) Front panel indicators and switches
> b) Front side and rear side connectors

2. Familiarize the computer system Layout : Making positions of SMPS, Motherboard,FDD, HDD, CD, DVD and add on cards.

3. BIOS set up: Configuring bios setup program and practicing the trouble shooting of typical problems using BIOS utility.
4. a) Install Hard Disk.
> b) Configure CMOS-Setup
> c) Partition HDD using FDISK
> d) Format Hard Disk.

5. a) Install and Configure a CD-Writer and a DVD writer.
> *b)* Recording a Blank CD and DVD.

6. Printer Installation and Servicing:
> a) Head Cleaning
> b) Install and configure Dot matrix printer and Laser printer
> c) Troubleshoot the above printers.
> d) Check and connect the data cable connectivity

7. Install and configure Internal and External Modem

8. a) NIC, Router Installation
> b) Installing NIC, router and Modem for Windows environment.
> c) Configuring using device drivers
> d) Diagnosis and trouble shooting.

9. a) Install audio/video devices – microphone, speaker and head set and Digital camera.
> b) Trouble shoot the audio-video devices.

10. a) Install and configure Scanner . Trouble shoot the problems..
> b) Install and configure Web cam.

11. Practice with scan disk, disk cleanup, disk De-fragmenter, Virus Detecting and Rectifying Software.

12. Practice with back up and restoring data in a network server using external storage Device.

13. Assemble a system with add on cards and check the working condition of the system and Install dual OS.

NETWORKING

14.   Do the following Cabling works in a network

   a) Cable Crimping b) Standard Cabling and c) Cross Cabling

15. Establish a LAN connection using three systems using any topology.

HARDWARE REQUIREMENT

S.NO	LIST OF TOOLS /EQUIPMENTS
1	COMPUTER SYSTEM / LAPTOP & TOOL KITS
2	DIGITAL MULTIMETER
3	CASE OPENING TOOLS
4	SOLDERING TOOLS

SOFTWARE REQUIREMENT

S.NO	LIST OF SOFTWARE
1	OPERATING SYSTEM
2	DRIVERS

REFERENCE BOOKS

S.NO	NAME OF THE BOOK	AUTHOR	PUBLISHER
1.	Laptop Repair Complete Guide: Including ...	Garry Romaneo	Createspace Independent Pub
2.	The Laptop Repair Workbook: An Introduction to Troubleshooting and Repairing Laptop Computers	Morris Rosenthal	Foner Books

ASSESSMENT AND CERTIFICATION

S.No	Criteria for assessment
1.	A trainee will be assessed based on the performance in End Examination for Theory and Practical conducted internally in the Project Polytechnic College for a duration of 3 hours
2.	A trainee must have 75% of attendance to appear for End examination in Theory and Practical.
3.	The assessment for theory part will be based on the marks scored in the end examination on the knowledge bank of questions (1 word/objective type questions)
4.	The assessment for practical part will be based on the marks scored in the end examination conducted by the Project Polytechnic and assessed by the Examiners approved by Strategic Plan Implementation Committee (SPIC) of the project polytechnic.
5.	The criteria for successful completion of training is every trainee should score 50% of marks in theory and practical examination.
6.	On successful completion of training , Certificate will be issued to the participants by the Directorate of Technical Education through the Project Polytechnic.

END EXAMINATION

ALLOCATION OF MARKS

S.No	Description	Max.Marks
1.	Theory Examination	20
2.	Practical Examination	
	a)Procedure	10
	b)Execution	30
	c)Output	20
	d)Record	20
	Total Marks	**100**

THEORY MODEL QUESTION PAPER

CSE/2020/021 - PC HARDWARE & NETWORKING

(Maximum Marks : 20)

(N.B: Answer any **twenty** questions)   **20 x 1 = 20 Marks**

1. What is Computer Hardware?

2. What is firmware?

3. What is RAM?

4. What is meant by non-volatile memory?

5. What is POST?

6. What is driver software?

7. What is BIOS?

8. What is SATA?

9. What is operating system?

10. What is the application software?

11. What is HDD?

12. What is the surface of DVD ?

13. How to protect the computer?

14. What is meant by peripherals?

15. What is computer network?

16. What is the NIC?

17. What is LAN?

18. What are the networking components?

19. What is MODEM?

20. What is meant by guided media?

21. What is topology?

22. What is ip address?

23. What is protocol?

24. What is DHCP?

25. Which is wi-fi?