



GOVERNMENT OF TAMILNADU

DIRECTORATE OF TECHNICAL EDUCATION, CHENNAI-25

**STATE PROJECT COORDINATION UNIT**

*(Established under Canada India Institutional Cooperation Project)*

**CURRICULUM**

Course Name	<b>COMPUTER HARDWARE SERVICING</b>
Course Code	<b>EC/2020/003</b>
Course Duration	60 Hours
Minimum Eligibility Criteria	10 <sup>th</sup> +2 /ITI/Diploma/Graduate
Pre-requisites (if any)	-
Course Objectives	<p>Training module has been designed for the participants to</p> <ul style="list-style-type: none"> <li>• Understand the Components of Motherboard in Computer</li> <li>• Assemble/setup and upgrade personal computer</li> <li>• Diagnose and isolate faulty components; optimize system performance; and install/connect peripherals.</li> <li>• Assemble PC system and checking the working condition.</li> </ul>
Course Outcomes	<p>At the end of training, the trainees will be able to</p> <ul style="list-style-type: none"> <li>• Explain the functions of components in Motherboard</li> <li>• Identify the I/O Devices</li> <li>• Perform installation, configuration, and upgrading of Computer hardware and software.</li> <li>• Diagnose and troubleshoot Computer systems hardware and software, and other peripheral equipment.</li> </ul>
Expected Job Roles	Computer Hardware Service Engineer

<b>TEACHING AND SCHEME OF EXAMINATION</b>						
Course Code	Course Name	Hours		Assessment Marks		Duration of Examination
				Min	Max	
EC/2020/003	COMPUTER HARDWARE SERVICING	Theory	24	10	20	3 Hours
		Practical	36	40	80	
		Total	60	50	100	

**EC/2020/003 - COMPUTER HARDWARE SERVICING**  
**DETAILED SYLLABUS**

Unit No	Modules	No.of.Hours	
		Theory	Practical
I	Motherboard Components and Memory Storage Devices	20 Hours	
1.1	Parts of Motherboard, Expansion slots, Memory, Power Supply, Drives	08	12
1.2	Front Panel and Rear Panel Connectors		
1.3	Hardware, Software Firmware		
1.4	Architecture and block diagram of Multicore Processor		
1.5	Features of PCI, AGP and USB		
1.6	Different types of memory		
1.7	Hard Disk, CD, DVD and Blu-ray		
1.8	Reading and Writing Operations, DVD reader and writer, solid state memory devices.		
II	I/O Devices and Interface	20 Hours	
2.1	Keyboard Signals, Troubleshooting of Wireless Keyboard	08	12
2.2	Types of Mouse, Types of Connectors, Operation of Optical mouse and Troubleshooting.		
2.3	Types of Printers, Dot Matrix, Inkjet, Laser, Line printer, MFP (Multi-Function Printer), Thermal printer – Operation,Construction, Features and Troubleshooting.		
2.4	I/O Ports: Serial, Parallel, USB , Game Port, Bluetooth interface, IR		
2.5	Connector, Fire wire, Signals specification, Problems with interfaces.		
2.6	Displays and Graphic Cards: Panel Displays, Principles of LED, LCD and TFT Displays, Common problems and solutions		
2.7	Working principles of Broad band Modems, common problems and solutions.		
III	Maintenance and Troubleshooting	20 Hours	
3.1	Standard CMOS setup, Advanced BIOS setup, Power management, Advanced Chipset features, PC Bios communication, Upgrading BIOS, Flash BIOS setup	08	12
3.2	Adapter types, Types of Battery and basic problems		

3.3	RAM types , CPU types		
3.4	Lap top Mother Board, Laptop Keyboard		
3.5	Mouse and Touchpad		
3.6	Ports, Installation and Troubleshooting, Formatting, Partitioning		
3.7	Installation of OS, Trouble Shooting Laptop Hardware Problems, Preventive maintenance techniques for PC		
<b>Total theory / Practical Hours</b>		<b>24</b>	<b>36</b>
<b>Total hours</b>		<b>60</b>	

### HARDWARE REQUIREMENT

S.NO	LIST OF TOOLS /EQUIPMENTS
1	Micro screw driver
2	CD, DVD, Bluray Disc
3	Printer

### SOFTWARE REQUIREMENT

S.NO	LIST OF SOFTWARE
1	Different types of OS
2	Printer Software
3	Bluray Disc Software

### REFERENCE BOOKS

S.NO	NAME OF THE BOOK	AUTHOR	PUBLISHER
1	Essential Computer Hardware	Kevin Wilson	Elluminet Press, 2018
2	Computer Installation and Servicing	D Balasubramanian	Tata McGraw-Hill Education
3	The principles of Computer Hardware	Alan Clements	Oxford University Press
4	PC Hardware: A beginners Guide	Ron Gilster	Tata McGraw Hill Publishing Company Ltd, New Delhi
5	Hardware and Computer Organization	Arnold Berger	Newness

## 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 CIICP 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 CIICP Project Polytechnic and assessed by the Examiners approved by Strategic Plan Implementation Committee (SPIC) of the project polytechnic.
5.	The passing 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 Polytechnics.

## END EXAMINATION

### ALLOCATION OF MARKS

S.NO	Description	Max. Marks
1.	Theory Examination	20
2.	Practical Examination	
	a)Objective and Circuit Diagram	20
	b)Procedure and Connections / Execution	20
	c)Result and Viva	20
	d)Record	20
<b>Total Marks</b>		<b>100</b>

# THEORY MODEL QUESTION PAPER

## EC/2020/003 – COMPUTER HARDWARE SERVICING

(Maximum Marks: 20)

(N.B: Answer any Twenty questions)

20x1= 20 Marks

1. What are the components of a computer?
2. Define mother board.
3. List the difference between computer hardware and computer software.
4. Define SMPS.
5. Expand SDRAM and DDR RAM.
6. Expand the term UPS.
7. What is Multi-Function Printer?
8. List out the types of printers.
9. Define: BIOS.
10. What is CMOS?
11. Give an example for anti-virus software.
12. What is firewall?
13. List the components of data communication.
14. What is data flow?
15. What is simplex?
16. What is full duplex?
17. What is topology? List its types.
18. Define : networks
19. List the types of topology.
20. What is intranet?
21. List the types of networks.
22. What is protocol?
23. What is TCP/IP?
24. What are IP address and MAC address?
25. What is HTTP?