GOVERNMENT OF TAMILNADU

DIRECTORATE OF TECHNICAL EDUCATION, CHENNAI-25

STATE PROJECT COORDINATION UNIT

(Established under Canada India Institutional Cooperation Project)

CURRICULUM

Course Name	INSTALLATION & MAINTENANCE OF PHOTOCOPIERS AND PRINTERS
Course Code	**EC/2020/027**
Course Duration	60 Hours
Minimum Eligibility Criteria	10th/+2/ITI/Diploma/Graduate
Pre-requisites (if any)	-
Course Objectives	Training module has been designed for the participants to • Provide introduction to installation and maintenance of Photocopiers and Printers. • Learn the troubleshoot the problems of Photocopiers and Printers
Course Outcomes	At the end of training, the trainees will be able to • Explain the concept of Basic Electricity • Perform Soldering and De-soldering of electronic components • Repair and maintain Photocopiers and Printers • Troubleshooting the problems in Photocopiers and Printers
Expected Job Roles	Photocopier and Printer Repair Technician

TEACHING AND SCHEME OF EXAMINATION						
Course Code	Course Name	Hours		Assessment Marks		Duration of Examination
				Min	Max	
EC/2020/027	INSTALLATION & MAINTENANCE OF PHOTOCOPIERS AND PRINTERS	Theory	24	10	20	3 Hours
		Practical	36	40	80	
		Total	60	50	100	

EC/2020/027 – INSTALLATION & MAINTENANCE OF PHOTOCOPIERS AND PRINTERS

DETAILED SYLLABUS

Unit No	Modules	No.of.Hours	
		Theory	Practical
I	**Electrical and Electronic components**	**15 Hours**	
1.1	Electric Charge, Voltage, Electric Current, Ohm's Law, Electric Potential, Serial and Parallel Circuit.	10	05
1.2	Active and Passive Components: Resistors, Capacitors and Inductors, their identification, types and application. Semiconducting Devices: Diodes, its type, characteristics and applications		
1.3	Transistors: Study of a transistor, use of a transistor as an amplifier and as a switch.		
1.4	Connectors, Fuse, types, Use of Fuses and its rating, Relays and Switches, Panel Components, Digital electronics – gates and its application, multiplexers, de-multiplexers, Counter		
1.5	Integrated Circuits: Analog ICs, 555 Timer, IC741, characteristics of 741, Digital ICs, ICs for logic gates, Truth table verification.		
II	**Photocopiers**	**30 Hours**	
2.1	Principle of Operation of Photocopier	10	20
2.2	Dismantling and assembling of paper feed mechanism, paper tray, Thermal unit and Toner Unit.		
2.3	Identify the various sensors used in the copier and their fixtures.		
2.4	Fault finding and repairing in electrostatic high voltage unit.		
2.5	Dismantling and fitting of drum unit- cleaning of drum unit		
2.6	Dismantling and refitting of Carriage unit , mirror unit and light unit		
2.7	Paper trays, Paper feed mechanism and the sensors used for paper movement		
2.8	Periodic cleaning and servicing of copier machines		
2.9	Overall fault finding and repair a photo copier machine.		
III	**Printers**	**15 Hours**	
3.1	Printers and their types: Thermal Printers and Inkjet Printer, their Working Principle	04	11
3.2	Laser Printers and its operation - Different Parts of Printer Cartridges, toner, drum, their use and its replacement.		
3.3	Overall fault finding and repair of Printers		
	Total Theory / Practical Hours	**24**	**36**
	Total hours	**60**	

HARDWARE REQUIREMENT

S.NO	LIST OF TOOLS /EQUIPMENTS
1	Active and Passive Electronic Components
2	Tool Kit
3	CRO and Digital Multimeter
4	Photocopier and Printers

SOFTWARE REQUIREMENT

S.NO	NAME OF THE SOFTWARE
1	Printer Driver Software

REFERENCE BOOKS

S.NO	NAME OF THE BOOK	AUTHOR	PUBLISHER
1	MES - Electronics - Repair & Maintenance of Photocopier and Fax Machine	NIMI	NIMI
2	Easy Laser Printer Maintenance and Repair Paperback	Stephen J. Bigelow	TMH

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
	Total Marks	**100**

THEORY MODEL QUESTION PAPER

EC/2020/027 INSTALLATION & MAINTENANCE OF PHOTOCOPIERS AND PRINTERS

(Maximum Marks: 20)

(N.B: Answer any Twenty questions)   **20x1= 20 Marks**

1. Define voltage.
2. What is Electric charge?
3. Define Ohms law.
4. What is Series Circuit with example?
5. What is Parallel Circuit with example?
6. What is the unit of Resistance?
7. Write any two Semiconducting Devices.
8. Write any two Active Components.
9. Write any two Passive Components.
10. What is Diode and draw the symbol?
11. What is Transistor?
12. What are the types of Transistor?
13. What is the purpose of fuse?
14. Write any two types of fuse?
15. What is Relay?
16. Draw the simple diagram of Relay?
17. List of the Logic Gates in digital electronics.
18. Write any two application of logic gates?
19. What is Multiplexer?
20. What is De Multiplexer?
21. What are the use of counter?
22. What is the Function of IC555?
23. What is the use of paper trays?
24. List the procedure on Periodic cleaning of copier machines.
25. List out the different parts of Printer.