



Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	P	OJT		Theory		Tutorial/ Practical		
			University exams (ESE)	Progressive Assessment (PA)	External Practical /viva Exam(ESE)	Internal evaluation Practical /viva Exam(PA)		
0	2	0	1	0	0	30	20	50

L- Lectures; P- Practical; OJT- On Job Training; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment

Course Content: Practical

Sr. No.	Experiment /Practical Exercises	Hrs.
1	Identification and Study of Soldering and De-Soldering Tools, Materials, and Safety Equipment.	02
2	Demonstration of Safety Practices during Soldering and De-Soldering in RAC Systems.	02
3	Preparation of Copper Surfaces and Proper Application of Flux for Soldering.	02
4	Practice of Soft Soldering on Copper Pipes Used in Refrigeration Systems.	02
5	Practice of Hard Soldering (Brazing) on Copper Tubes and RAC Joints.	02
6	Study and Demonstration of Heating Techniques and Temperature Control in Soldering.	02
7	Identification and Rectification of Common Soldering Defects.	02
8	Inspection and Quality Checking of Soldered Joints in RAC Components.	02
9	Practice of De-Soldering Techniques Using Manual, Pump, and Wick Methods	02
10	Removal and Replacement of a Faulty or Damaged Joint in a Refrigeration Circuit	02

Note: Minimum Eight Experiments should be performed by the students from the above given list. Or any other experiments related to above topics.

List of Laboratory/Learning Resources Required: Soldering iron / soldering gun, Solder wire (tin-lead / lead-free), Emery paper / wire stripper, Desoldering pump / wick, Hand magnifying glass, Tongs / pliers, PCB board (copper clad), PCB layout sheet / marker pen, Drill machine.

References/Suggested Learning Resources:

(a) Books:

1. Electrical Technology by **B.L.Therja**, S.Chand Publication
2. Workshop Technology (Soldering, Brazing & PCB) by **Raghuwanshi & Gupta** – Dhanpat Ra

(b) Open source software and website:

1. <https://nptel.ac.in/>

