



CDL State Institute of Engineering and Technology
Panniwala Mota (Sirsa)
Mechanical Engineering Department
REFRIGERATION AND AIR-CONDITIONING (LAB)

General Course Information

Course Code: PCC-ME401-P Course Category: Professional Core Course Course Credits: 1.0 Mode: Practical Contact Hours: 02 hours per week	Course Assessment Methods (internal: 30; external: 70): Internal practical evaluation is to be done by the course coordinator. The end semester practical examination will be conducted jointly by external and internal examiners.
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Course Outcomes

Sr. No.	Course Outcome	RBT Level
CO1	Student will be able to describe the components of the Refrigeration and air-conditioning systems	L1
CO2	Student will be able to compare the performance of refrigeration system at different load conditions.	L2
CO3	Student will be able to apply the knowledge of refrigeration and air conditioning principles to conduct experiments.	L3
CO4	Student will be able to analyze and evaluate the performance of refrigeration and air conditioning systems.	L4

Experiments in RAC Lab

1. To study the vapour compression Refrigeration System and determine its C.O.P. and draw P-h and T-S diagrams.
2. To study the Mechanical heat pump and find its C.O.P.
3. To study the Air and Water heat pump and find its C.O.P.
4. To study the cut- sectional models of Reciprocating and Rotary Refrigerant compressor.
5. To study the various controls used in Refrigerating & Air Conditioning systems.
6. To study the Ice- plant, its working cycle and determine its C.O.P and capacity.
7. To study the humidification, heating, cooling and dehumidification processes and plot them on Psychrometric charts.



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8. To determine the By-pass factor of Heating & Cooling coils and plot them on Psychrometric charts on different inlet conditions.

9. To determine sensible heat factor of Air on re-circulated air-conditioning set up.

10. To study the chilling plant and its working cycle.

Course Articulation Matrix (CO to PO/PSO Mapping)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	1	1	-	1	1	-	-	2	-	3	3	2	1
CO2	3	-	1	2	2	1	1	2	1	2	-	3	3	2	1
CO3	3	1	2	3	2	2	2	2	2	2	2	3	3	3	2
CO4	3	2	2	3	3	2	2	2	2	2	2	3	3	3	3

1 : (Slight /Low), 2: (Moderate/Medium), 3 : (Substantial/High)

List of Equipments in RAC Lab

Sr. No.	Name of Equipment	Qty.
1	Refrigeration Test Rig Apparatus	01



Refrigeration Test Rig Apparatus