



Pimpri Chinchwad Education Trust's  
Pimpri Chinchwad College of Engineering



**Refrigeration and Air Conditioning (BME7418) (Course Meeting Report)**

<b>Department:</b>	Mechanical	<b>Academic Year:</b>	2023-2024	<b>Semester:</b>	2
<b>Ref. No.:</b>				<b>Date:</b>	28/12/2023

## Course Meeting Report

**Class:** Final Year. B. Tech.      **Name of the Course:** Refrigeration and Air Conditioning (BME7418)

### Meeting Details:

<b>Date:</b>	28/12/2023
<b>Time:</b>	03:30 PM
<b>Venue:</b>	9511LA Mechanical Engineering Department PCCoE Pune

**Prior knowledge:** Students are expected to have a good understanding of Engineering Thermodynamics, Applied Thermodynamics, Fluid Mechanics and Heat Transfer basic computer principles.

### A. Discussion on Course Outcome and Mapping with POs and PSOs

CO	Statement	Learning Level	No of hours	PO/ PSO Mapped	Mapping Level and Performance indicator as per Exam Reforms Document	Justification
1	Evaluate the performance of single/multistage Vapour Compression System	4	8	PO1:(3), PO2:(3), PO3:(3), PO5:(3), PSO1:(3)	1.3(1.3.1), 1.4(1.4.1), 2.2(2.2.2, 2.2.4), 3.1(3.1.6),3.2(3.2.3),5.2(5.2.1, 5.2.2)	Students will be able to analyse single and multi-stage refrigeration system for various applications. Students will also be able to iterate the existing design for any parameter modification using softwares.
2	Select refrigerants for various applications and analyze vapour absorption refrigeration system	4	8	PO1:(3), PO2:(3), PO3:(3), PO7:(3) PSO1:(3)	1.3(1.3.1), 1.4(1.4.1), 2.2(2.2.2, 2.2.4), 3.1(3.1.6),3.2(3.2.3), 7.1(7.1.1,7.1.2)	Students will be able to select refrigerants for various applications and analyse vapour absorption refrigeration system.
3	Select different components of refrigeration and air conditioning systems.	4	6	PO1:(3), PO2:(3), PO3:(3), PSO1:(3)	1.3(1.3.1), 1.4(1.4.1), 2.2(2.2.2, 2.2.4), 3.1(3.1.6),3.2(3.2.3)	Students will be able to compare types of compressors, condensers, evaporators and expansion devices.



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4	<b>Estimate</b> cooling load and heating load for different applications.	4	8	PO1:(3), PO2:(3), PO3:(3), PO12: (2) PSO1:(3)	1.3(1.3.1), 1.4(1.4.1), 2.1(2.1.1, 2.1.3),2.2(2.2.1, 2.2.2, 2.2.3), 3.1(3.1.6),3.2(3.2.2, 3.2.3),12.2(12.2.2)	Students are expected to estimate cooling load and heating load demand of a system.
5	<b>Design</b> air conditioning systems for comfort air conditioning.	4	8	PO1:(3), PO2:(3), PO3:(3), PSO1:(3)	1.3(1.3.1), 1.4(1.4.1), 2.2(2.2.2, 2.2.4), 3.1(3.1.6),3.2(3.2.3),	Students will be able to design air conditioning system for given design conditions.
6	<b>Design</b> air distribution system	4	7	PO1:(3), PO2:(3), PO3:(3), PSO1:(3)	1.3(1.3.1), 1.4(1.4.1), 2.2(2.2.2, 2.2.4), 3.1(3.1.6),3.2(3.2.3),	Students will be able to design air distribution system along with consideration of ventilation and infiltration

**B. Discussion on Course Content Delivery Methods**

CO	Statement	CDM 1	CDM 2	CDM 3	CDM 4
1	<b>Evaluate</b> performance of single/multistage Vapour Compression System	Presentation, ,	Chalk & Talk	Quiz	Software Demonstration
2	<b>Select</b> refrigerants for various applications and <b>analyze</b> vapour absorption refrigeration system	Presentation, ,	Chalk & Talk	Quiz	
3	<b>Select</b> different components of refrigeration and air conditioning systems.	Presentation, ,	Chalk & Talk	Quiz	Animated Videos
4	<b>Estimate</b> cooling load and heating load for different applications.	Presentation, ,	Chalk & Talk	Quiz	
5	<b>Design</b> air conditioning systems for comfort air conditioning.	Presentation, ,	Chalk & Talk	Quiz	
6	<b>Design</b> air distribution system	Presentation, ,	Chalk & Talk	Quiz	

**C. CO Assessment Tools used (Type Y if selected)**

Sr.No.	CO Assessment Tools	IE1	IE2	MTE	ETE
1	CO1	Y		Y	Y
2	CO2	Y		Y	Y
3	CO3	Y		Y	Y
4	CO4		Y		Y
5	CO5		Y		Y

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6	CO6		Y		Y
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#### D. Discussion on Innovative Assessment Tools and Rubric

	8-10	5-7	2-4	0-1
<b>Knowledge</b>	Exhibites clear understanding and ability to implement the concepts learnt	Exhibits clear understanding but unable to implement the concepts learnt	Exhibits the clear understanding and unable to apply the concept learnt	Able to explain a few questions.
<b>Completeness and Correctness</b>	Contents complete and correct	Contents complete with a few corrections	Contents complete with more than 4 corrections	Contents complete but not correct mostly
<b>Timely Submission</b>	Followed the submission time line	Late by one day	Late by two days	Late by one week

#### D. Discussion on Industrial Visit/ Project Based Learning Activities/ Internal Internship offered by the course faculty

Visit to centralized air conditioning facility or visit to Katraj Dairy

#### E. Discussion on Laboratory Utilization and Enrichment Plan (If Applicable)

- 1) Demonstration of research-based project setups on refrigeration and air conditioning
- 2) Session on "Analysis of passive measures for cooling and heating load reduction",
- 3) Expert session on Psychrometry

#### F. Discussion on Learning Resource Utilization and Enrichment/ Mook courses

Course Name	Organizer	Link
Refrigeration and Air Conditioning	IIT Roorkee, NPTEL	<a href="https://archive.nptel.ac.in/courses/112/107/112107208">https://archive.nptel.ac.in/courses/112/107/112107208</a>
Refrigeration and Air Conditioning	IIT Kharagpur, NPTEL	<a href="https://archive.nptel.ac.in/courses/112/105/112105128">https://archive.nptel.ac.in/courses/112/105/112105128</a>

#### G. Discussion on Bridging Content Video Development

Interactive pre-recorded videos to be shared with students

#### H. Discussion on Teaching Plan for Theory and Lab Sessions

Theory	3 Hrs/week
Lab	2 Hrs/week



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Teaching plan attached separately

**I. Discussion on availability and adequacy of library books (Central and Department Library)**

Sr. No.	Title	Author	No. of copies
1	Refrigeration and Air Conditioning, Tata McGraw-Hill	C P Arora	
2	Refrigeration and Air Conditioning, Willey Eastern Ltd	Manohar Prasad	

**J. Any other point**

Encourage students to attend ISHRAE knowledge-sharing programs and participate in ISHRAE competitions

**Name & Signature:**

Course Faculty	Course Coordinator	Module Coordinator
Mr. Nilesh Gaikwad	Mr. Nilesh Gaikwad	Mr. U I Shaikh