

DEPARTMENT OF MECHANICAL ENGINEERING
SYLLABUS FOR B.E IV Semester (2018-19)
Basics of Refrigeration and Air Conditioning (Open Elective III)

Instruction: 1 Hours / week	SEE Marks : 40	Course Code : OE430ME
Credits: 1	CIE Marks : 30	Duration of SEE : 2 Hours

Course Objectives	Course Outcomes
<p>The objectives of this course are</p> <ol style="list-style-type: none"> To discuss the basics of refrigeration and air conditioning and working of vapor compression refrigeration & its applications. To describe principles of psychrometry and working of various air conditioning systems. 	<p>On completion of the course the student will be able to:</p> <ol style="list-style-type: none"> Explain the working principles of vapor compression refrigeration system & its applications. Define different properties of psychrometry and list & Identify different air conditioning systems.

UNIT-I

Introduction to basic laws of thermodynamics and heat transfer. Reversed Carnot cycle, Refrigeration, Refrigerant, Refrigerator & Heat pump. classification of refrigerants, eco friendly refrigerants, COP, Ton of refrigeration. Difference between Refrigeration & Air conditioning. Vapor compression system, COP. Working of domestic refrigerator and water cooler, equipment used in vapour compression refrigeration systems.

UNIT– II

Introduction to Psychrometry ,Psychrometry properties, psychrometers, psychrometry chart and Psychrometry processes. Summer air conditioning and winter air conditioning systems. Working of window air conditioning system split air conditioning system and centralized air conditioning systems, equipment used in air conditioning system. Introduction to estimation of cooling loads.

Suggested Reading:

1. Stocker W.S., "Refrigeration & Air Conditioning", McGraw Hill, New Delhi, 2004.
2. Arora S.C. and Domkundwar S., A course in refrigeration and air conditioning – Dhanpat Rai and sons, 2004.
3. Manohar Prasad.,Refrigeration and Air conditioning,New Age International publishers, New Delhi.
4. Prof Ramgopal, IIT Kharagpur .,Web and Video material of NPTEL.