

1.	Title of the course	Refrigeration and Air-Conditioning
2.	Course number	ME533L
3.	Structure of credits	2-1-0-3
4.	Offered to	PG
5.	New course/modification to	Modification To ME5040/21
6.	To be offered by	Department of Mechanical Engineering
7.	To take effect from	July 2022
8.	Prerequisite	CoT
9.	<b>Course Objective(s):</b> To introduce refrigeration principles, methods and design of system components, psychrometry, heat load calculations for design of Heating Ventilation and Air Conditioning (HVAC). To discuss about refrigerants, their environmental effects and need for natural refrigerants.	
10.	<b>Course Content:</b> Introduction to refrigeration system; Carnot cycle, gas cycle, vapour-compression cycles; Analysis of multi pressure cascade vapor refrigeration systems; Refrigerants: designation policies, environmental issues; Absorption refrigeration – Lithium-Bromide & Water, Water & Ammonia, electrolux systems, thermodynamic analysis; Compressors: types and selection; Condensers: water and air-cooled types, selection of condensers, dry flooded types; Evaporators; Expansion device; Cooling tower: types and thermodynamic analysis; Psychrometry; Heating and cooling load calculations of a typical building; Design of air-conditioning systems; Duct design; Thermal comfort; Cooling and dehumidifying coils; Air-conditioning controls.	
11.	<b>Textbook(s):</b> 1. Stoecker W F and Jones J W, <i>Refrigeration and Air Conditioning</i> , 2nd Edition, McGraw Hill International Editions (1982).	
12.	<b>Reference(s):</b> 1. Arora C P, <i>Refrigeration and Air Conditioning</i> , 3rd Edition, Tata McGraw Hill (2017). 2. Threkeld J L, <i>Thermal Environmental Engineering</i> , 2nd Edition, Prentice Hall Inc (1970).	