AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Industrial Refrigeration								
Course Code	MME538		Couse Level	Second Cycle (Master's Degree)					
ECTS Credit	8	Workload	197 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	The aim of the course is to give detailed information about the industrial cooling systems that student will encounter very frequently during his / her career. To give information about problems and solutions of industrial cooling systems.								
Course Content	It is aimed to give information about the problems and solutions of the applications of industrial cooling systems and It is aimed to give information about the theory of industrial cooling systems.								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Demonstration, Discussion, Problem Solving								
Name of Lecturer(s)	Lec. Sinan GÜÇLÜER								

Assessment Methods and Criteria		
Method	Quantity	Percentage (%)
Midterm Examination	1	15
Final Examination	1	60
Quiz	4	15
Assignment	5	5
Term Assignment	1	5

Recommended or Required Reading	
1	Stoecker, W. F. (1998). Industrial refrigeration handbook. McGraw-Hill.
2	Handbook, A. S. H. R. A. E. (2001). Fundamentals. American Society of Heating, Refrigerating and Air Conditioning Engineers, Atlanta, 111.

Week	Weekly Detailed Course Contents	
1	Theoretical	Application areas of industrial refrigeration.
2	Theoretical	Cycles, Thermodynamic Analysis, Multi Stage Systems.
3	Theoretical	Piston Compressors, Screw Compressors.
4	Theoretical	Evaporators, Condensers
5	Theoretical	Chillers.
6	Theoretical	Refrigerants
7	Theoretical	Fluid Circulation, Refrigeration System Rigging, Piping in Cooling Fluid Systems.
8	Intermediate Exam	Midterm Exam
9	Theoretical	Valves and Coller Control
10	Theoretical	Safety Rules, Electrical Control and Instruments ,Greasing and Grease Assurance
11	Theoretical	Storage and Conservation of Energy
12	Theoretical	Freezing and Refrigerating Foods
13	Theoretical	Refrigeration load calculation
14	Theoretical	Cooling Store, Brine for Pickling
15	Theoretical	Cryogenic applications
16	Final Exam	Final Exam

Workload Calculation				
Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	16	4	3	112
Assignment	5	0	3	15
Term Project	1	15	10	25
Quiz	4	3	1	16
Midterm Examination	1	15	2	17

Final Examination	1	10	2	12
			Total Workload (Hours)	197
			[Total Workload (Hours) / 25*] = **ECTS**	8
**25 hour workload is accepted as 1 ECTS*				

Learning Outcomes	
1	To gain knowledge about systems componenets like reciprocating and screw compressors,condensers, evaporators.
2	To learn energy storage and conservation.
3	To learn application areas of industrial refrigeration
4	To learn cycles and thermodynamic analysis
5	To learning about industrial cooling system equipment

Programme Outcomes *(Mechanical Engineering Master's Without Thesis)*	
1	To be able to access wide and deep information with scientific researches in the field of Engineering, evaluate, interpret and implement the knowledge gained in his/her field of study
2	To be able to complete and implement “limited or incomplete data” by using the scientific methods
3	To be able to consolidate engineering problems, develop proper method(s) to solve and apply the innovative solutions to them
4	To be able to develop new and original ideas and method(s), to develop new innovative solutions at design of system, component or process
5	To be able to gain comprehensive information on modern techniques, methods and their borders which are being applied to engineering
6	To be able to design and apply analytical, modeling and experimental based research, analyze and interpret the faced complex issues during the design and apply process
7	To be able to gain high level ability to define the required information and data
8	To be able to work in multi-disciplinary teams and to take responsibility to define approaches for complex situations
9	To be able to transfer of the process and results of studies at national and international environments systematic and clear verbal or written
10	To be able to become aware of social, scientific and ethical values guarding adequacy at all professional activities and at the stage of data collection, interpretation, and announcement
11	To be able to become aware of new and developing application of profession and ability to analyze and study on those applications
12	To be able to gain ability to interpret engineering application’s social and environmental dimensions and it’s compliance with the social environment

Contribution of Learning Outcomes to Programme Outcomes *1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High*

	L1	L2	L3	L4	L5
P1	4	5	4	5	3
P2	5	4	5	5	5
P3	4	4	4	5	5
P4	3	3	5	4	4
P5	5	5	4	5	3
P6	4	4	3	4	5
P7	3	3	5	3	3
P8	5	5	4	5	5
P9	4	5	4	4	4
P10	5	5	4	5	5
P11	5	4	5	5	4
P12	5	4	5	5	3