



AYDIN ADNAN MENDERES UNIVERSITY
SÖKE VOCATIONAL SCHOOL
ELECTRICAL AND ENERGY
ALTERNATIVE ENERGY SOURCES TECHNOLOGY
COURSE INFORMATION FORM

Course Title	Heating Pump Practices-I								
Course Code	AET253			Course Level		Short Cycle (Associate's Degree)			
ECTS Credit	4	Workload	100 (Hours)	Theory	3	Practice	1	Laboratory	0
Objectives of the Course	Obtaining and applying information about heat pumps and their calculations.								
Course Content	Theory of heat pumps, classification, parameters affecting the heat pump, use in buildings and industry, heat pump housing applications, heat for refrigerators.								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Case Study								
Name of Lecturer(s)									

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading

1	J. F. Kreider and A. Rabl, (1994) Heating and Cooling of Building-Design for efficiency, McGraw-Hill
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Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction to heat pumps
2	Theoretical	Thermodynamic cycles and analysis
3	Theoretical	Types of heat pumps
4	Theoretical	Heat pumps elements
5	Theoretical	Air to Air Heat Pumps
6	Theoretical	Ground source heat pumps
7	Theoretical	Ground source heat pumps
8	Theoretical	Exam-1
9	Theoretical	Water source heat pumps
10	Theoretical	Application examples and sample projects
11	Theoretical	Refrigerants used in heat pumps
12	Theoretical	Criteria and economic analysis in system selection
13	Theoretical	Comparison of heat pumps with other systems, system selection and operation principles
14	Theoretical	Recent developments in heat pumps

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	1	3	56
Lecture - Practice	14	0	1	14
Assignment	4	2	0	8
Midterm Examination	1	10	1	11
Final Examination	1	10	1	11
Total Workload (Hours)				100
[Total Workload (Hours) / 25*] = ECTS				4

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	Understand the basic concepts of air conditioning and cooling.
2	Reads projects related to air conditioning and cooling systems.



3	Recognize and connect electrical control and automatic control elements and circuits used in air conditioning and cooling systems
4	Dimensioning and installation of duct system for ventilation and ducted air conditioning systems.
5	Gains the ability to prepare, present, and participate in scientific research on related topics.

Programme Outcomes (Alternative Energy Sources Technology)

1	Carry out installing work
2	Do mechanical drawing
3	Do pipe welding
4	Do basic electricity works
5	Do Computer assisted design
6	Install solar energy hot water preparation system.
7	Do measurement and calculations practices.
8	Do basic practices of geothermal energy.
9	Install control and automation system.
10	Install domestic water heating system with solar energy.
11	Generate electricity with solar energy
12	Generate electricity with wind power
13	Do geothermal energy practices
14	Install domestic cooling system
15	Do heating pump practices
16	Manage a business
17	SET UP A WORKPLACE/ BUSINESS (pre-requisite)
18	OBEY VOCATIONAL ETHICAL VALUES
19	RESEARCH AND EVALUATION/OBSERVATION
20	SELFIMPROVEMENT WITH USING INFORMATION FACILITIES
21	Knows the effects of all energy sources on the environment.
22	Can communicate in a foreign language

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

	L1	L2	L3	L4	L5
P14	3	4	4	3	4
P15	5	5	5	5	5

