CENTRAL HEATING AND VENT.SYSTEMS

1	Course Title:	CENTRAL HEATING AND VENT.SYSTEMS
2	Course Code:	MAK3030
3	Type of Course:	Optional
4	Level of Course:	First Cycle
5	Year of Study:	3
6	Semester:	6
7	ECTS Credits Allocated:	3.00
8	Theoretical (hour/week):	2.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	-
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. AKIN BURAK ETEMOĞLU
15	Course Lecturers:	-
16	Contact information of the Course Coordinator:	e-posta: aetem@uludag.edu.tr telefon: 224 2941976 adres: UÜMF, MakineMüh. Blm.
17	Website:	
18	Objective of the Course:	This course introduces the basic principles of heating and ventilation systems. Topics include safety, tools and instrumentation, system operating characteristics, installation techniques, efficiency testing, electrical power, and control systems. Upon completion, students should be able to explain the heating and ventilation systems and describe the major components of heating and ventilation system.
19	Contribution of the Course to Professional Development:	
20	Learning Outcomes:	
	1	Design the heating and ventilation systems.
	2	Calculate TS-825 thermal insulation standard in buildings.
	3	Calculate heating load and ventilation by using conventional methods.
	4	Select and size the equipments to meet the design requirements.
	5	Evaluate annual energy consumption and the economics of heating and ventilation systems.
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21	Course Content:	

Course Content:

Week	Theoretical	Practice
1	Heat transfer	
2	Principles of central heating system	

3	Principles of insulation, TS-825 thermal insulation in building	
4	Application of TS-825	
5	Calculation of heat loss	
6	Calculation of heat loss	
7	Tools, equipments and installation	
8	Repeating courses and midterm exam	
9	Calculation of pipe sizing	
10	Pumps	
11	Boilers	
12	Compression tanks	
13	Flue systems	
14	Automatic control systems and energy conservation	

22	Textbooks, References and/or Other Materials:	1. Heating, Ventilating and Air Conditioning Analysis and Design, F.C. McQuiston, J.D. Parker 2. Air Conditioning Principles and Systems : An Energy Approach, E.G. Pita. 3. Heating and Cooling of Buildings : Design for Efficiency, P. Curtiss. 4. Isıtma ve Havalandırma Tekniği, W. Raiss, F. Roedler. Çeviren : U. Köktürk. 5. Kalorifer Tesisatı Proje Hazırlama Teknik Esasları, TMMOB Yayın No:84.
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	1	30.00
Quiz	2	20.00
Home work-project	2	0.00
Final Exam	1	50.00
Total	6	100.00
Contribution of Term (Year) Learning Activities to Success Grade		50.00
Contribution of Final Exam to Success Grade		50.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		

24	**ECTS / WORK LOAD TABLE**

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	2.00	28.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	0	0.00	0.00
Homeworks	2	5.00	10.00
Projects	2	10.00	20.00
Field Studies	0	0.00	0.00
Midterm exams	1	10.00	10.00
Others	1	10.00	10.00
Final Exams	1	12.00	12.00
Total Work Load			90.00
Total work load/ 30 hr			3.00
ECTS Credit of the Course			3.00

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	**PQ2**	**PQ3**	**PQ4**	**PQ5**	**PQ6**	**PQ7**	**PQ8**	**PQ9**	**PQ10**	**PQ11**	**PQ12**	**PQ13**	**PQ14**	**PQ15**	**PQ16**
ÖK1	4	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	4	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK3	4	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK4	4	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK5	4	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	**1 very low**	**2 low**	**3 Medium**	**4 High**	**5 Very High**