



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Thermodynamic							
Course Code		OTE211		Course Level		Short Cycle (Associate's Degree)			
ECTS Credit	2	Workload	50 (Hours)	Theory	2	Practice	0	Laboratory	0
Objectives of the Course		The purpose of this course is, analyzing the basic thermodynamic concepts and general principles of thermodynamics, engine thermodynamic concepts, cycles, combustion efficiency calculations.							
Course Content		In this course students learn the basic concepts of thermodynamics, material state changes, changes in heat and work, the ideal gas equation of state and details of the changes.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Individual Study, Problem Solving					
Name of Lecturer(s)		Lec. Hasan BAYRAKTAR							

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	70

Recommended or Required Reading

1	Termodinamik / Doç.Dr. Selim ÇETİNKAYA / Nobel Yayın Dağıtım-1999/ANKARA
2	Mühendislik Yaklaşımıyla Termodinamik, Yunus A. Çengel. Michael A. Boles, Literatür Yayıncılık, 1996

Week	Weekly Detailed Course Contents	
1	Theoretical	Basic Concepts (System, Environment, State Changes, Translation,) Zeroth Law of Thermodynamics
2	Theoretical	Heat and Business Transformation
3	Theoretical	Thermodynamic Properties of Pure Substances (Property Relations, PV and TS diagrams)
4	Theoretical	Thermodynamic Properties of Pure Substances (Property Relations, PV and TS diagrams)
5	Theoretical	Ideal Gas Equation and ideal gases
6	Theoretical	Thermodynamics 1 Law
7	Theoretical	Thermodynamics 2 Law
8	Theoretical	Motor Cycles, Cycles Comparison
9	Theoretical	Internal Combustion Engines Work, Efficiency, Power
10	Theoretical	Engine Performance Characteristics
11	Theoretical	Fuels, Physical and Chemical Properties Physical Analysis of combustion, chemical properties, with spark-ignition engines, combustion
12	Theoretical	Classification of compression-ignition engines, combustion of fuels, hydrocarbons, alcohols and derivatives, Classification of Combustion, Combustion Equations
13	Theoretical	Combustion and Analysis of End Products, Fuel and Combustion Related Tables, Alternative Fuels and Combustion
14	Theoretical	Knocking engine combustion sources, fuel evaporation, detonation resistance
15	Theoretical	Knocking engine combustion sources, fuel evaporation, detonation resistance

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	15	0	2	30
Assignment	4	0	3	12
Project	3	0	2	6
Midterm Examination	1	0	1	1



Final Examination	1	0	1	1
Total Workload (Hours)				50
[Total Workload (Hours) / 25*] = ECTS				2
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	Knows the concept of thermodynamics in simple and motor cycles.
2	Analyzes the liquids of thermodynamics of combustion.
3	To understand the transformation of work and heat energy, To understand the general principles and basic laws of thermodynamics
4	To understand the events of the motor fuel and combustion
5	To draw motor cycles and to make the necessary calculations

Programme Outcomes (Automotive Technology)

1	Using the basic knowledge and skills acquired in his/her field of study, to have the ability to evaluate and interpret the data, to define and analyze the problems, to make solution suggestions based on evidence and proofs.
2	To choose and use efficiently contemporary techniques and means as well as information technologies required for the applications related to the field of study.
3	The ability to apply the processes related to industrial and service sector by examining.
4	To gain the ability to produce solutions to unforeseen situations, take responsibility in teams and to have the skill to conduct individual works.
5	To achieve an awareness of the necessity of lifelong learning and consistently self-improving besides of following the developments in science and technology.
6	To become skillful at using computer hardware and software in a baseline level required by the field of study.
7	To be aware of Business Law, Job Security, environmental protection and quality concepts.
8	To have a command of communication skills and foreign language in order to communicate efficiently and follow the latest developments in his/her field of study.
9	Acquiring enough conceptual and applied knowledge in Mathematics, Science and Basic Engineering issues related to his/her field.
10	To plan the processes in automotive technology field to meet the expectations of the sector.
11	To become skillful at making designs by means of technical and computer-aided drawings and simulation programs, and by using various software programs to be able to choose systems and components required in by the field apart from making the basic sizing computations and drawing the architectural and static projects and details.
12	Ability to use the methods and techniques of career planning and discussing the effects of character traits on career preferences.
13	To provide them with knowledge about substance use and addiction problem and prevention methods.

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	5	5	5	5	4
P2	4	4	4	5	4
P3	3	3	3	5	3
P4	3	3	3	5	3
P5	3	3	3	3	2
P6	2	2	2	2	2
P7	2	2			
P9	3	3	3	3	3
P10	3	3	3	4	2
P11	3	3	3	3	2

