



## AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Alternative Engines and Fuel Systems							
Course Code		OTE202		Course Level		Short Cycle (Associate's Degree)			
ECTS Credit	4	Workload	100 ( <i>Hours</i> )	Theory	3	Practice	1	Laboratory	0
Objectives of the Course		To give information about alternative engines and fuels.							
Course Content		In this course, students will have the theoretical knowledge about the currently developed alternatives to the fuels used in existing internal combustion engines.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion, Individual Study					
Name of Lecturer(s)		Ins. Cemal GÖVEN							

### Assessment Methods and Criteria

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

### Recommended or Required Reading

1	Megep Ders Notları
2	Alternatif Motor Ve Yakıtlar otları
3	www.obitet.gazi.edu.tr

Week	Weekly Detailed Course Contents	
1	Theoretical	LPG Fuel System, Characteristics of LPG Gas, Safety Rules of LPG Gas Fuel System
2	Theoretical	Features and Working Principles of LPG Injection System Parts
3	Theoretical	Settings of LPG Injection System
4	Theoretical	Natural Gas Fuel System, Properties of Natural Gas
5	Theoretical	Safety Rules of Natural Gas Fuel System
6	Theoretical	Properties and Working Principles of Natural Gas Injection System Parts
7	Theoretical	Settings of Natural Gas Injection System
8	Theoretical	Bio Fuels, Bio Diesel Production, Bio Gasoline Production
9	Theoretical	Bio Diesel and Bio Gasoline Standards
10	Theoretical	Alcohol Fuels, Ethanol - Properties of Methanol
11	Theoretical	Legislation on Alternative Fuel Use
12	Theoretical	Wankel Engines
13	Theoretical	Working Principles and Maintenance of Hybrid Motors
14	Theoretical	Working Principle of Fuel Cell Motors
15	Theoretical	Working Principle of Fuel Cell Motors

### Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	15	0	3	45
Lecture - Practice	15	0	1	15
Assignment	8	0	2	16
Studio Work	11	0	2	22
Midterm Examination	1	0	1	1
Final Examination	1	0	1	1
Total Workload (Hours)				100
[Total Workload (Hours) / 25*] = ECTS				4

\*25 hour workload is accepted as 1 ECTS



**Learning Outcomes**

1	Student will be able to explain the reasons for the need for alternative motors and fuels.
2	Students will be able to explain the alternative engines used in vehicles.
3	Student will be able to explain alternative types of fuel used in vehicles.
4	To understand the working principles of hybrid vehicles, to be able to count the elements and explain the work.
5	To know the new engine and fuel terms and to use in technical technical language.

**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	3	4	4	4	
P2	2	4	4	4	3
P3		1	1	3	
P5	3	3	3	2	3
P6				4	3
P8	3			2	3
P9		3	3	3	2
P11	2	3	3	3	3

