



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Alternative Engines And Fuel Systems							
Course Code		OTT202		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 lesson, students will have theoretical knowledge about currently developed alternatives to fuels used in existing internal combustion engines.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion					
Name of Lecturer(s)		Ins. Erdoğan PİRELİ							

Assessment Methods and Criteria

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

Recommended or Required Reading

1	Megep Lecture Notes
2	Erdoğan Pireli / Alternative Engine And Fuels Course Lecture Notes
3	www.obitet.gazi.edu.tr (www.obitet.gazi.edu.tr is)

Week	Weekly Detailed Course Contents	
1	Theoretical	LPG Fuel System, Characteristics of LPG Gas, Safety Rules of LPG Gas Fuel System
2	Theoretical	LPG Injection System Parts Features and Operation Principles
3	Theoretical	LPG Injection System Settings
4	Theoretical	Natural Gas Fuel System, Characteristics of Natural Gas
5	Theoretical	Safety Rules of Natural Gas Fuel System
6	Theoretical	Features and Operation Principles of Natural Gas Injection System Parts
7	Theoretical	Settings of Natural Gas Injection System
8	Theoretical	Alcoholic Fuels, Properties of Ethanol - Methanol
9	Intermediate Exam	Midterm
10	Theoretical	Biofuels, Biodiesel Production, Bio-Benzine Production
11	Theoretical	Biodiesel and Biodiesel Standards
12	Theoretical	Legislation Regarding Alternative Fuel Use
13	Theoretical	Working Principle and Maintenance of Hybrid Motors
14	Theoretical	Working Principle of Fuel Cell Engines
15	Theoretical	Wankel Engines
16	Final Exam	Semester final exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	3	42
Lecture - Practice	14	0	1	14
Reading	10	0	2	20
Quiz	6	0	2	12
Midterm Examination	1	5	1	6



Final Examination	1	5	1	6
Total Workload (Hours)				100
[Total Workload (Hours) / 25*] = ECTS				4
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	The student can explain the reasons for the need for alternative engines and fuels.
2	The student can explain alternative engines used in vehicles.
3	The student may explain alternative fuel types used in vehicles.
4	To be able to comprehend the elements, studies and safety standards of LPG and natural gas conversion systems
5	To understand the advantages and disadvantages of fuel cell operation principles and application areas

Programme Outcomes (Automotive Technology)

1	To be able to interpret and evaluate data, identify problems, analyze them, and develop evidence-based solutions by using basic knowledge and skills in the field.
2	Must be able to choose and effectively use the modern techniques, tools and information technologies necessary for field related applications.
3	Must be able to gain practical skills by examining relevant processes in industry and service sector on site.
4	They must be able to produce solutions, take responsibility for teams or do individual work when they encounter situations unforeseen in the field related applications.
5	Awareness of the need for lifelong learning; it must be able to follow the developments in science and technology and to constantly renew itself.
6	Must be able to use computer software and hardware at the basic level required by the field
7	Must have job security, worker health, environmental protection knowledge and quality awareness.
8	He must possess a level of foreign language knowledge that is capable of following the innovations in his area of expertise and communication techniques.
9	Must be able to acquire basic theoretical and practical knowledge about the field in mathematics, science and basic engineering.
10	It should have the ability to plan the processes / processes of the Automotive Program to meet the expectations of the sector.
11	To be able to design the systems and components related to the field by using technical drawing, computer aided drawing, designing using simulation programs and using various softwares, to be able to make basic sizing calculations, to be able to master professional plans and projects.

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	4	4
P2	4	4	4	4	4
P3	4	4	4	3	2
P4	5	5	5	4	3
P5	5	5	5	3	2
P6				4	3
P7	4	4	4	4	2
P8	3	3	3	3	4
P9	1	1	1	3	4
P10	4	4	4	4	3
P11	3	4	4	4	3

