AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title		Vehicle Mechanics					
Course Code		OTE206		Couse Level		Short Cycle (Associate's Degree)	
ECTS Credit	4	Workload	100 *(Hours)*	Theory	3	Practice	1	Laboratory	0
Objectives of the Course		Students will be able to calculate on mechanics of vehicles.					
Course Content		Rolling resistance, resistance to acceleration. Air resistance, transmission, slope resistance, wind resistance, the physical behavior of the vehicle, motion resistance, lateral forces, the aerodynamic resistance, Bernoulli equation, the aerodynamic resistance force, lateral forces, linear forces, mathematical and physical expressions, engine and vehicle performance, act clutches transmission, torque and power calculations, hydraulic power transmission, electric clutch, Table value of reading, the power and torque transmission, gear ratio, the drive force transmission efficiency, Manual gearbox, Automatic transmission, differential gear ratio, motion transmission, shaft, torque and power transmission, dynamic and static loads, rubber materials, static and dynamic movements of the wheels, rim material, engine performance values, Road-ground conditions, the road-wheel relationship, road-speed relation, Tables, hydraulic systems, hydraulic sealing elements, Brake empirical statements about the system, brake systems, Road-the-ground knowledge, brake distribution and control systems, motion path of the vehicle characteristics, transport resistances to motion, yaw and lateral sliding vehicles, vehicles smooth linear motion, geometric calculations, camber, caster, toe-in , toe-out, and a total of kingpin angle, shock absorbers, swing arms, steering system, geometric calculations, rotation angle, center of rotation of the steering Calculations related to hydraulic systems, electrical systems and related calculations, the steering gear ratios account						
Work Placement		N/A					
Planned Learning Activities and Teaching Methods			Explanation (Presentation), Demonstration, Individual Study				
Name of Lecturer(s)		Ins. Mehmet YAKA					

Assessment Methods and Criteria

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

Recommended or Required Reading

1	1. Araştırma Yöntem ve Teknikleri
2	Taşıt Mekaniği-Selim ÇETİNKAYA

Week	Weekly Detailed Course Contents	
1	Theoretical	Rolling resistance, resistance to acceleration. Air resistance, transmission resistance, resistance Hill
2	Theoretical	Wind resistance, the physical behavior of the vehicle, motion resistance, lateral forces, the aerodynamic resistance, Bernoulli equation
3	Theoretical	Aerodynamic resistance force, lateral forces, linear forces, mathematical and physical expressions, engine and vehicle performance
4	Theoretical	Motion transmission clutches, torque and power calculations, hydraulic power transmission, electric clutch, reading table value
5	Theoretical	Power and torque transmission, gear ratio, the drive force transmission efficiency, Manual gearbox, automatic gearbox
6	Theoretical	Differential gear ratio, motion transmission, shaft
7	Theoretical	Torque and power transmission, dynamic and static load
8	Theoretical	Rubber materials, static and dynamic movements of the wheels, rim material
9	Theoretical	Engine performance values, Road-ground conditions, the road-wheel relationship, road-speed relation, Tables
10	Theoretical	Hydraulic systems, hydraulic sealing elements, empirical statements about the brake system
11	Theoretical	Braking systems, road-ground knowledge, brake distribution and control systems
12	Theoretical	Motion path of the vehicle characteristics, resistance to motion vehicles, vehicles yaw and lateral sliding, smooth linear motion in vehicles

13	Theoretical	Geometric calculations, camber, caster, toe-in, toe-out, and a total of kingpim angle, shock absorbers, swing arms, steering system, geometric calculations, steering angle, steering the center of rotation
14	Theoretical	Calculations related to hydraulic systems, electrical systems and related calculations, the steering gear ratios account

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	15	0	3	45
Lecture - Practice	15	0	1	15
Assignment	10	0	3	30
Term Project	5	0	2	10
Midterm Examination	1	0	0	0
Final Examination	1	0	0	0
			Total Workload (Hours)	100
		[Total Workload (Hours) / 25*] = **ECTS**		4

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	Calculate the forces and moments acting vehicle and vehicle aerodynamics.
2	to calculate the calculations of clutches, gear box and shaft and differential gear ratios
3	Accounts and be able to calculate the brake wheel sizes.
4	Skidding, rolling and sliding accounts, Pre-order calculations of the geometry and suspension systems, steering angle, make calculations
5	To calcucate the resistance forces of the vehicle during the transactions

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	5
P2	5	5	5	5	5
P3	2	2	2	2	2
P4	3	3	3	3	3
P5	4	4	4	4	4
P8	4	4	4	4	4

P11	4	4	4	4	4