ESOGÜ Mechanical Engineering Department

COURSE INFORMATION FORM

SEMESTER	Spring

COURSE CODE	151818xxx/151838xxx	COURSE NAME	AUTOMOTIVE TECHNOLOGY

SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	3	0	0	3	5	COMPULSORY ( ) ELECTIVE (**X**)	Turkish

COURSE CATAGORY			
Basic Science	**Basic Engineering**	**Mechanical Engineering [if it contains considerable design, mark with (√)]**	**Social Science**
	X	( )	

ASSESSMENT CRITERIA			
	Evaluation Type	**Quantity**	**%**
MID-TERM	1st Mid-Term		
	2nd Mid-Term	1	30
	Quiz		
	Homework		
	Project	1	30
	Report		
	Others (……)		
FINAL EXAM		1	40

PREREQUIEITE(S)	
COURSE DESCRIPTION	Vehicle powertrain system; clutch, transmission, drive shaft, differential and wheels. Wheel mechanic; coefficient of rolling resistance, adhesion and slip. Brake system. Suspension system and quarter model. Steering system. Project study
COURSE OBJECTIVES	1. To recognize vehicle powertrain and to know and apply the basic design parameters. 2. To be informed and use of wheel standards. 3. To know rolling resistance and depending on which parameters. 4. To have knowledge the brake system and the basic designs parameters. 5. To understand suspension system and to simulate quarter vehicle model. 6. To recognize steering system and to know geometry of steering system.
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	To have preliminary preparation in the field of automotive engineering and to recognize basics of vehicle.
COURSE OUTCOMES	defines part of classical and modern powertrain, knows powertrain parts and working principles of a vehicle, knows design parameters of mechanical clutch, transmission, drive shaft, and differential of a vehicle, knows brake system, calculates brake distance and which axle shaft to be lock, knows quarter car model having with single degree of freedom, knows steering system and geometry, use computer, software and as well as contemporary methods in engineering design and analysis, understands the importance of lifelong learning
TEXTBOOK	Taşıt Mekaniği, Prof.Dr. Selim Çetinkaya Motorlu Taşıtlar, Temel ve Tasarım Esasları, Cilt I ve II Tahrik Sürüş Sistemleri ve Fren ve Direksiyon Sistemleri, Prof.Dr. Nusret Sefa KURALAY
OTHER REFERENCES	Taşıt Mekaniği, Prof.Dr. Şazi İpek, Orta Doğu Teknik Üniversitesi, 1969 Yayın No: 23, Vehicle and Engine Technology, Heinz Heisler, Arnold Publication, ISBN: 0 340 691186 7, The Automotive Chassis: Engineering Principles, Prof.Dipl.-Ing. Jörnsen Reimpell et al, ISBN: 0 7506 5054 0, Handbook of Automotive, BOSCH-SAE Publication
TOOLS AND EQUIPMENTS REQUIRED	Computer, projector, vehicle and vehicle powertrain cross sections

COURSE SYLLABUS	
WEEK	**TOPICS**
1	Introduction and course content, Classical vehicle configuration,
2	Engine and vehicle powertrain elements
3	Mechanical Clutch
4	Hydraulic Clutch / Torque Converter
5	Gear Torque Converter Box and Transmission Rates
6	Automatic Gear Boxes and Planetary Gear Systems
7	Drive Shaft
8, 9	Mid-Term Examination 1
10	Differential
11	Wheel Mechanics and Rolling Resistance
12	Brake System
13	Steering System
14	Presentation of a project
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems.	**X**		
2	Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.		**X**	
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.		**X**	
4	Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies.	**X**		
5	In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			**X**
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	**X**		
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	**X**		
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	**X**		
9	Understanding of professional and ethical issues and taking responsibility		**X**	
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.		**X**	
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.		**X**	
1:None. **2**:Partially contribution. **3**: Completely contribution.				

Prepared by: Doç. Dr. Mustafa Ertunç TAT **Date:** 15.07.2015

Signature(s):