T.C. ESKİŞEHİR OSMANGAZİ UNIVERSITY
ARCHITECTURE AND ENGINEERING FACULTY
MECHANICAL ENGINEERING DEPARTMENT

COURSE INFORMATION FORM

SEMESTER	Spring

COURSE CODE	151816358-151836358	COURSE NAME	Machine Elements II

SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
6	3	0	0	3	6	COMPULSORY (X) ELECTIVE ( )	Turkish

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

ASSESSMENT CRITERIA			
	Evaluation Type	Quantity	%
MID-TERM	Mid-Term	1	%50
	Quiz		
	Homework		
	Project		
	Report		
	Others (……)		
FINAL EXAM		1	%50

PREREQUIEITE(S)	
COURSE DESCRIPTION	Shafts and Axes, Roller Bearings, Journal Barings, Gear, Belt-Pulley mechanisms.
COURSE OBJECTIVES	Shaping of shafts and axes, deformation and calculation of vibrations; Description of roller bearings, determination of bearing dimensions at static and dynamic loads and life, Description of journal, determination of capability of carrying load and bearing heat, Gears, description of gear wheel mechanism, calculation of strenght, description of belt-pulley mechanism, selection and sizing and ability to calculation methods and standards.
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	The aim is to provide necessary data and capability for calculation of strenght of materials by basic engineering data, standards and design criterias on design of machine elements.
COURSE OUTCOMES	**1.** Can recognize the machine elements and application basics. **2.** Can comment on strenght of material calculations by basic engineering data for machine elements **3.** Can apply the constructional data for machine elements shaping. **4.** Can calculate the steady strenght of machine elements. **5.** Can design shaft-hub joints, pin and pivot pins joints, bolt joints, screw mechanism and springs. **6.** Can evaluate the production of designed machine elements and observe the improvements and updating the data.
TEXTBOOK	BABALIK, F. C., Makine Elemanları ve Konstrüksiyon Örnekleri 4.Basım, Dora Basım Yayın Dağıtım, Bursa, 2011
OTHER REFERENCES	1. AKKURT, M., Makine Elemanları Cilt I, Birsen Yayınevi, İstanbul, 1990. 2. AKKURT, M., Makine Elemanları Cilt II, Birsen Yayınevi, İstanbul, 1990. 3. SHIGLEY, J.E., Mechanical Engineering Design (Metric Edition), McGraw-Hill Book Company, 1986

TOOLS AND EQUIPMENTS REQUIRED	Data projector

COURSE SYLLABUS	
WEEK	**TOPICS**
1	Description of shafts and axes, classification, pricples of contruction of shafts and axes, Dynamic behaviour of shafts.
2	Calculation of strenght of materials of shafts and axes, deformation,, sample applications.
3	Construction of roller bearings; Standard roller bearings, Bearing symbols, Assembly of roller bearings, Tolerances and fittings for roller bearings, Determination of sealing for roller bearings.
4	Lubrication of roller bearings, ability to load carrying and bearing life, sample applications.
5	Lubrating substances for journal bearings, Viscosity, Oil pressure and constructional specifications for Hydrodynamic and hydrostatic journal bearings, Lubrication systems for ,hydrodynamic;
6	Calculation of Hydrodynamic radial and axial bearings, sample applications
7	Gear rule, Gear main dimensions, Basic decriptions for gear mechanisms,
8	Mid-Term Examination
9	Mid-Term Examination
10	Cylindrical gears, calculation of strenght and dimensioning
11	Calculation strenght of conical gears and dimensioning
12	Calculation strenght of worm gears and dimensioning
13	General calculation method for belt-pulley mechanisms, Dimensioning of flatbelts
14	Dimesioning of V-belts, sample applications.
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: **Date:**

Signature(s):