



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

**COURSE INFORMATION FORM**

SEMESTER	SPRING
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<b>COURSE CODE</b>	151818467	<b>COURSE NAME</b>	Tribology
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
8	3	0	0	3	5	COMPULSORY ( ) ELECTIVE ( x )	Turkish
<b>COURSE CATAGORY</b>							
Basic Science		Basic Engineering		<b>Mechanical Engineering</b> [if it contains considerable design, mark with (√)]			Social Science
				(√)			
<b>ASSESSMENT CRITERIA</b>							
<b>MID-TERM</b>				<b>Evaluation Type</b>		<b>Quantity</b>	<b>%</b>
				Mid-Term		1	30
				Quiz			
				Homework		1	30
				Project			
				Report			
Others (Laboratory)							
<b>FINAL EXAM</b>				Oral		1	40
<b>PREREQUIEITE(S)</b>							
<b>COURSE DESCRIPTION</b>				Definition of tribology, surface properties, contact theories, friction, wear mechanisms, liquid and solid lubricating.			
<b>COURSE OBJECTIVES</b>				To improve, students knowledge on wear and preventing methods in machine parts.			
<b>ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION</b>				<ol style="list-style-type: none"> <li>1. Learning tribology phenomena,</li> <li>2. Learning wear theories,</li> <li>3. Learnig wear preventing methods.</li> </ol>			
<b>COURSE OUTCOMES</b>				To define tribology, to make comments on tribological pair they work together, to understand tribology applications, to make materials selection for tribological systems.			
<b>TEXTBOOK</b>				Modern Tribology Handbook, Bharat Bhushan, CRC Press, 2001.			
<b>OTHER REFERENCES</b>				<ol style="list-style-type: none"> <li>1.Wear, Gwindon W. Stachowiak, Wiley Press, 2005</li> <li>2.Friction, wear, lubrication, Kenneth C. Ludema, CRC press, 1996</li> </ol>			
<b>TOOLS AND EQUIPMENTS REQUIRED</b>				Computer and projection device			

<b>COURSE SYLLABUS</b>	
<b>WEEK</b>	<b>TOPICS</b>
1	Introduction to TribologyTriboloji, surface physics, surface properties.
2	Solid surfaces contact theories.
3	Adhesion in solids, friction, contact temperatures.
4	Wear mechanisms
5	Classification of worn surfaces
6	Liquid and solid lubricants
7	Measurement of friction and wear
8	Mid-Term Examination
9	Mid-Term Examination
10	Tribological properties of metallic and ceramic coatings
11	Industrial tribology
12	Wear mechanisms of rotating systems, gears and bearings
13	Tribology of automotive and railway vehicles
14	Presentation of students homeworks.
15,16	Final Exam

<b>NO</b>	<b>PROGRAM OUTCOMES</b>	<b>3</b>	<b>2</b>	<b>1</b>
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.		<b>X</b>	
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.		<b>X</b>	
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.		<b>X</b>	
4	Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies.	<b>X</b>		
5	In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	<b>X</b>		
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.		<b>X</b>	
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.		<b>X</b>	
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	<b>X</b>		
9	Understanding of professional and ethical issues and taking responsibility	<b>X</b>		
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.		<b>X</b>	
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.		<b>X</b>	
1:None. 2:Partially contribution. 3: Completely contribution.				

**Prepared by:** Ass. Prof. Dr. Osman Nuri ÇELİK

**Date:**

**Signature(s):**