

MM 542 Tribology				MECHANICAL ENGINEERING DEPARTMENT					
Semester	Methods of Education							Credits	
	Lecture	Recit.	Lab.	Project/Field Study	Homework	Other	Total	Credit	ECTS credit
1,2	12	30			40	106	188	3	7.5
Language	Turkish								
Compulsory / Elective	Optional								
Prerequisites	-								
Course Contents	Quality of contacting interfaces. Friction of dry surfaces. Factors affecting friction and theories of friction. The interface temperature and oxide formation during unlubricated sliding. Mechanisms of wear: Adhesive, abrasive, corrosive, fatigue and fretting wear types. Wear measurement. Factors affecting wear and theories of wear. Lubricants and their properties. Solid film and boundary layer lubrications. Hydrostatic and hydrodynamic bearings. Industrial applications of tribology.								
Course Objectives	It is aimed to give the theory of friction, wear and lubrication. Composing base knowledge for choosing tribo-systems and system's elements, the system calculation and design.								
Learning Outcomes and Competences	- Recognize friction, wear and lubrication; lubricants and their characteristics, viscosity, the effects of temperature and pressure, additives. - Recognize the lubrication theory, form of load-carrying films and Reynold's differential equation. - Recognize the sliding bearings; define the types and load carrying ability and calculation of bearing temperature of hydrodynamic thrust and journal bearing and hydrostatic thrust bearing.								
Textbook and /or Reference	1. G. W. Stachowiak, A. W. Batchelor "Engineering Tribology", 2000. 2. J. Halling "Principles of Tribology", 1983. 3. T. A. Stolarski "Tribology in Machine Design", 2000.								
Assessment Criteria					If any, mark as (X)		Percentage (%)		
	Midterm Exams				X		30		
	Quizzes								
	Homeworks				X		10		
	Projects								
	Term Paper								
	Laboratory Work								
	Other								
	Final Exam				X		60		
Instructors	Prof. Bedri TUC								
Week	Subject								
1	Quality of Contacting Interfaces and Friction of Dry Surfaces.								
2	Factors Affecting Friction and Theories of Friction.								
3	The Interface Temperature and Oxide Formation During Unlubricated Sliding.								
4	Mechanisms of Wear.								
5	Mechanisms of Wear.								
6	Mechanisms of Wear and Wear Measurement.								
7	Factors Affecting Wear and Theories of Wear.								
8	Factors Affecting Wear and Theories of Wear.								
9	Lubricants and Their Properties.								
10	Hydrodynamic Lubrication Theory.								
11	Hydrodynamic Lubrication Theory.								
12	Hydrodynamic and Hydrostatic Bearings.								
13	Hydrodynamic and Hydrostatic Bearings.								
14	Industrial Applications of Tribology.								