

# MACHINE ELEMENTS I

1	Course Title:	MACHINE ELEMENTS I
2	Course Code:	MAK3003
3	Type of Course:	Compulsory
4	Level of Course:	First Cycle
5	Year of Study:	3
6	Semester:	5
7	ECTS Credits Allocated:	6.00
8	Theoretical (hour/week):	3.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. EMİN GÜLLÜ
15	Course Lecturers:	Yrd. Doç. Dr. Gültekin Karadere Doç. Dr. Kadir Çavdar Yrd. Doç. Dr. Fatih Karpaz
16	Contact information of the Course Coordinator:	Prof. Dr. Emin Güllü Tel: 2941959 mail: egullu@uludag.edu.tr
17	Website:	
18	Objective of the Course:	<p>Engineering design of machine elements used in the account and information about the features and improve the ability to calculate.</p> <ol style="list-style-type: none"> <li>1. Transmitting movement in a machine not enough explanation to make the static and dynamic analysis.</li> <li>2. For the preservation of dynamics, the desire to act as rigid bodies and the need to ensure that as a reason to give constructive.</li> <li>3. Strength of Machine Element calculations explain the need for assumptions.</li> <li>4. The differences between the machine elements and rigid body and the actual object.</li> <li>5. The concept of borders and stresses the relationships between strength and safety.</li> <li>6. Factors affecting the strength limits and how they are taken into accounts.</li> <li>7. Dynamic account the style and fatigue.</li> <li>8. Certain places of mechanical elements and the way to calculate usage.</li> <li>9. A method of machine components from the statistical calculation result.</li> </ol>
19	Contribution of the Course to Professional Development:	
20	Learning Outcomes:	
	1	rigid objects for the calculation of machine elements, and for this reason, the ideal ground in which they need to do even known he could never understand is force.
	2	Engineering at the dynamics of an ideal rigid acceptance of the system should be debated and, indeed, understand and practice it to learn the limits of
	3	Tensile yield stress of the composite compared with calculations made to understand is the logic.
	4	Be the difference between the ideal rigid bodies with real bodies.

	5	In practice, in order to prevent rupture in the field work should be done safely. In practice, be provided with a safety factor for this indication.
	6	As a result of continuous testing the limits of endurance of machine components for the standard rods is different from the boundaries of constant strength and constant strength values of mechanical elements were detected in surface smoothness, should be taken into consideration such factors as size and notch show.
	7	The greatest stress exhaustion stress by changes in the yield stress due to the small dissociation could have occurred even if the understanding of the many.
	8	Welding, bolts, springs, shafts and axles, clutches-couplings, bearings, gears, belt and pulley and chain gear, how to do simple calculations in accordance with the principles given strength.
	9	Nominal stresses occurring element cross-section through the machine and experiments for the same material according to the conditions around an average value is smaller or larger size distribution of statistical explanation.
	10	

21	Course Content:	
	<b>Course Content:</b>	
Week	Theoretical	Practice
1	Strength of purpose account, internal and external force, stress, normal stress, shear stress, Stress State of Simple, Compound Stress, according to Time Force or change Stresses, Strength limits and inefficiency.	
2	Setting Limits Strength tests, static and dynamic experiments, Fatigue and Life, even under variable stress calculation by the method of account form	
3	Tensile yield stress of the composite compared with calculations made to understand is the logic.	
4	Fasteners, welding connections. General principles for the calculation of the welds and fillet welding account.	
5	Bolted Connections, the creation and types of screw, tightening the bolt tightening torque for the account,	
6	Pre-stress theory, the terms necessary to ensure tightness. Pre-bolts account of stress connected with	
7	Shaft-Hub Connections Pins, knuckles and axles, radial and axial mounting pins, the pins used for the calculation.	
8	application	
9	And profiled splined shafts, keyed connections.	
10	Repeating courses and midterm exam	
11	application	
12	Shafts and axles shafts, strength, deformation and vibration calculation.	
13	Elastic Fasteners, Springs	
14	application	

22	Textbooks, References and/or Other Materials:	1. Machine Elements 1,2,3, Prof. Dr. Mustafa Akkurt, ITU Publications. 2. Machine Elements 1 Course Notes, Sure Rose, UU Eng. Mim. Faculty.	
23	Assesment		
TERM LEARNING ACTIVITIES		NUMBE R	WEIGHT
Midterm Exam		1	40.00
Quiz		0	0.00
Home work-project		0	0.00
Final Exam		1	60.00
Total		2	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00	
Contribution of Final Exam to Success Grade		60.00	
Total		100.00	
Measurement and Evaluation Techniques Used in the Course			
24	ECTS / WORK LOAD TABLE		

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	6	10.00	60.00
Homeworks	0	0.00	0.00
Projects	2	20.00	40.00
Field Studies	0	0.00	0.00
Midterm exams	1	1.00	1.00
Others	7	5.00	35.00
Final Exams	1	1.00	1.00
Total Work Load			179.00
Total work load/ 30 hr			5.97
ECTS Credit of the Course			6.00

<b>25</b>	<b>CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS</b>															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
<b>ÖK1</b>	4	3	4	0	0	0	5	0	0	0	0	0	0	0	0	0
<b>ÖK2</b>	5	3	3	0	4	0	4	0	0	0	3	0	0	0	0	0
<b>ÖK3</b>	3	2	3	0	0	0	5	0	0	0	0	0	0	0	0	0
<b>ÖK4</b>	3	5	0	0	0	0	0	2	0	0	5	3	0	0	0	0
<b>ÖK5</b>	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>ÖK6</b>	5	5	4	0	5	0	4	3	0	0	4	0	0	0	0	0

ÖK7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LO: Learning Objectives    PQ: Program Qualifications																
Contribution Level:	1 very low			2 low			3 Medium			4 High			5 Very High			