

MECHANICS OF MATERIALS I

1	Course Title:	MECHANICS OF MATERIALS I	
2	Course Code:	INS2011	
3	Type of Course:	Compulsory	
4	Level of Course:	First Cycle	
5	Year of Study:	2	
6	Semester:	3	
7	ECTS Credits Allocated:	5.00	
8	Theoretical (hour/week):	3.00	
9	Practice (hour/week):	1.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:		
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Doç. Dr. M.ÖZGÜR YAYLI	
15	Course Lecturers:	Prof. Dr. BABÜR DELİKTAŞ	
16	Contact information of the Course Coordinator:	ozguryayli@uludag.edu.tr 224 2941961 Uludağ Univ. Müh. Fak. İnşaat Müh. Böl. Görükle, Bursa	
17	Website:		
18	Objective of the Course:		
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	Be able to describe the definitions, fundamental terms, historical development and application fields of the theory of strength of materials, both orally and in writing
		2	Be able to describe and exemplify the relations between force-stress , stress-strain, and force-displacement of the deformable bodies relating to real world
		3	Be able to model the relations between force-stress , stress-strain, and force-displacement of the deformable bodies by using simple drawing techniques or modern computer technology
		4	Be able to establish theoretical formulation for the relations between force-stress , stress-strain, and force-displacement of the deformable bodies by using mathematic and the theory of strength of materials
		5	Be able to describe mechanical properties of materials and able to identify these mechanical properties experimentally
		6	Be able to calculate load carrying capacity of the structural members and be able control the mechanical behavior of the structural members
		7	
		8	
		9	
		10	
21	Course Content:		
		Course Content:	

Week	Theoretical	Practice
1	Introduction	
2	Concept of stress and stress tensor	Solving application problems
3	Stress analysis of axially loaded bars	Solving application problems
4	Stress analysis of axially loaded bars	Solving application problems
5	Strain and deformation in axially loaded bars, determinate system	Solving application problems
6	Strain and deformation in axially loaded bars, indeterminate systems	Solving application problems
7	Concept of strain and strain tensor	Solving application problems
8	Relationship between stress and strain	Solving application problems
9	Elastic strain Energy	Solving application problems
10	Mechanical properties of materials	Tension test
11	Mechanical properties of materials and theories of failure	Compression test
12	Area of moment of inertia	Solving application problems
13	Torsion of circular elastic bars	Solving application problems
14	Torsion of noncircular members	Torsion test
22	Textbooks, References and/or Other Materials:	Cisimlerin Mukavemeti, İnan, M., İTÜ Vakfı, 2001 Cisimlerin Mukavemeti, Mehmet Bakioğlu, Birsen Yayınevi, 2006 Engineering Mechanics of Solids, E.P Popov, Prentice Hall, 1990 Mechanics of Materials 7/E. Prentice Hall. 9780132209915, Russel C. Hibbeler, 2008. Mechanics of Materials, 5th Edition, McGraw Hill. 9780077221409, Beer, F., and Johnston, J., 2009
23	Assesment	
TERM LEARNING ACTIVITIES		NUMBER
		WEIGHT
Midterm Exam	1	35.00
Quiz	0	0.00
Home work-project	1	5.00
Final Exam	1	60.00
Total	3	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	14	1.00	14.00
Self study and preperation	14	5.00	70.00
Homeworks	1	20.00	20.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	3.00	3.00
Others	0	0.00	0.00
Final Exams	1	3.00	3.00
Total Work Load			155.00
Total work load/ 30 hr			5.07
ECTS Credit of the Course			5.00

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK6	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				