IM 226 STRENGTH OF MATERIALS I		CIVIL ENGINEERING	
Semester	**Credit Structure**		
	Lecture	**Recitation**	**Laboratory**
4	3	0	0
Language	Turkish		
Compulsory / Elective	Compulsory		
Prerequisites	IM 223 Mechanics I (Statics)		
Catalog Description	The concept of stress and strain. Stress-strain relation of axially loaded members. The concept of compatibility. Stress-strain relation in two dimensional problems. Pure bending, transverse loading of prismatic members. Shear stress. Torsion.		
Course Objectives	The basic engineering knowledge and behaviors are obtained from this course, The skills of making analysis and synthesis are gained.		
Course Outcomes	The ability to understand and solve civil engineering problems are gained		
Textbook and /or References	F.P.Beer, E.R.Johnston JR, Mechanics of Materials, Mc. Graw-Hill R. C. Hibbeler , Mechanics of Materials, Prentice Hall International.		
Assessment Criteria		**Quantity**	**Percentage**
	Midterm Exams	2	70
	Quizzes	6	10
	Homeworks	9	20
	Projects	-	-
	Term Paper	-	-
	Laboratory Work	-	-
	Other	-	-
	Final Exam	1	50
Course Category by Content (%)	**Mathematics and Basic Sciences**	40	
	Engineering Science	40	
	Engineering Design	10	
	Social Sciences	-	
Instructors	**Prof. Dr. Sinan ALTIN, Doç. Dr. Özgür Anıl**		

COURSE PLAN	
Week	**Topics**
1	Introduction: Basic principles and assumptions of strength of materials.
2	Introduction to stress concept: Stress concept, Normal and shear stress.
3	Stress: Safety and dimensioning.
4	Deformation: Strain, axial deformation.
5	General Method: General method for analysis, Compatibility equations.
6	Stress transformation: Plane stress, Mohr circle.
7	1. Midterm
8	Strain transformation: Plain strain, Mohr circle.
9	Bending: Simple bending, bending of composite member.
10	2. Midterm
11	Shear: Shear stress of members under shear force, shear calculation of built up members.
12	Torsion: Torsion of member with circular cross section.

RELATIONSHIP BETWEEN THE COURSE AND DEPARTMENT CURRICULUM				
	Program Outcomes	**1**	**2**	**3**
1	An ability to apply knowledge of mathematics, science, and engineering			X
2	An ability to design and conduct experiments, as well as to analyze and interpret data	X		
3	An ability to design a system, component, or process to meet desired needs		X	
4	An ability to function on multi-disciplinary teams	X		
5	An ability to identify, formulate, and solve engineering problems			X
6	An understanding of professional and ethical responsibility		X	
7	An ability for effective written and oral communication in Turkish and English		X	
8	The broad education necessary to understand the impact of engineering solutions in a global and societal context			X
9	A recognition of the need for, and ability to engage in life-long learning			X
10	A knowledge of contemporary issues		X	
11	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice		X	
	Contribution of the course : 1:None 2:Partially 3:Completely			