IM 323 STRENGTH OF MATERIALS II		CIVIL ENGINEERING	
Semester	**Credit Structure**		
	Lecture	**Recitation**	**Laboratory**
5	3	0	3
Language	Turkish		
Compulsory / Elective	Compulsory		
Prerequisites	IM 226 Strength of Materials I		
Catalog Description	Combined stress. Shear center and torsion of members. Determination of deformations; mathematic method, moment-area method, Mohr method. Energy methods in structural mechanics. Introduction to stability of structure. Buckling.		
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	10	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	Bending: Types of bending and unsymmetrical bending .
2	Shear center concept: Shear center calculation in thin walled members.
3	Combined Loading: Axial loading, Stress calculation of members under shear and bending, Eccentric loading, Core concept.
4	Deformation calculation of beam: Slope and displacement by integration.
5	1. Midterm
6	Deformation calculation of beam (Continued): Moment area method, Mohr method.
7	Deformation calculation by energy method: Strain energy.
8	2. Midterm
9	Deformation calculation by energy method (continued): Castigliano theorem.
10	Introduction to elastic stability.
11	Buckling.

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				