IM 384 STRUCTURAL ANALYSIS II		CIVIL ENGINEERING	
Semester	**Credit Structure**		
	Lecture	**Recitation**	**Laboratory**
6	3	0	0
Language	Turkish		
Compulsory / Elective	Compulsory		
Prerequisites	IM 383 Structural Analysis I		
Catalog Description	Introduction to statically indeterminate structural analysis. Force method. Displacement methods; slope deflection, moment distribution. Stiffness method, derivation of the element and system stiffness matrices. Influence lines and moving loads.		
Course Objectives	Learning of Structural system analysis methods and applications.		
Course Outcomes	Understanding of civil engineering structural system behaviours.		
Textbook and /or References	R.C.Hibbeler, Structural Analysis, Prentice Hall International. H.H. West , Fundamentals of Structural Analysis, John Wiley & Sons, Inc.		

Assessment Criteria		**Quantity**	**Percentage**
	Midterm Exams	2	80
	Quizzes	-	-
	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, Öğr. Gör. Dr. Sabahattin AYKAÇ**

COURSE PLAN	
Week	**Topics**
1	Introduction : General assumptions, Introduction to statically undetermined systems, Determination of the degree of indeterminacy, Advantages and disadvantages of using statically undetermined systems, General method of solving statically undetermined systems.
2	Three Moment Equations: Support settlement, Equal and different temperature change, Analysis of continuous beams under symmetric and anti symmetric loadings with three moment equations.
3	Force Method: The steps of method, Compatibility equations, Temperature variation, Analysis of support settlement and structures with elastic support by force method, Analysis of frames under symmetric and anti symmetric loadings with force method, Application of force method to trusses.
4	1. Midterm
5	Slope Deflection Method: Sign convention and introduction to method, Calculation of fixed end moment, Temperature effect, Relations between end deflections and end forces of members, Slope and deflection method for continuous beams, Slope and Deflection method for frames.
6	Moment Distribution Method (Cross): Introduction to method, Sign convention, Analysis of continuous beams with moment distribution method, Support settlement, Temperature change, Investigation of symmetric and anti-symmetric loadings, Application of moment distribution method to frames.
7	2. Midterm
8	Influence Lines: Introduction, Influence lines of statically determined structures, Müller Breslau Theorems, Influence lines of statically undetermined beams and frames.

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				