

STRUCTURAL ANALYSIS

1	Course Title:	STRUCTURAL ANALYSIS
2	Course Code:	INS3031
3	Type of Course:	Compulsory
4	Level of Course:	First Cycle
5	Year of Study:	3
6	Semester:	5
7	ECTS Credits Allocated:	5.00
8	Theoretical (hour/week):	3.00
9	Practice (hour/week):	2.00
10	Laboratory (hour/week):	0
11	Prerequisites:	None
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. Ramazan LİVAOĞLU
15	Course Lecturers:	Dr. Öğr. Üyesi SERKAN SAĞIROĞLU
16	Contact information of the Course Coordinator:	rliva@uludag.edu.tr
17	Website:	http://insaat.uludag.edu.tr/
18	Objective of the Course:	The main purpose of this course understanding structural systems and their behaviors and calculation of internal forces and displacements on structural elements. . it is aimed that students have the ability of analyzing of statically determined and indeterminated systems by using displacement and force based techniques as well as approximate methods.
19	Contribution of the Course to Professional Development:	Contribution to academic development
20	Learning Outcomes:	
	1	Reminding fundamentals of structural mechanics
	2	Understanding displacement and internal force response of a statically determined structural systems
	3	Improving the ability of analyzing structures
	4	To be capable with using substructure technique to analyze complex system
	5	To be capable with defining the structural deformation
	6	Understanding the basic behavior of structural elements like columns and beams
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21	Course Content:	
	Course Content:	
Week	Theoretical	Practice
1	Introduction, the aim of the structural engineering, the methods adopted by structural engineering, Assumptions in Structural Engineering, Idealizations, Loads	Verbal lectures, problem-solving

2	External affects, the classification of structural systems, Load systems, forces, loads, support reactions, internal forces, equilibrium equations, degree of indeterminacy of plane systems	Verbal lectures, problem-solving		
3	Section forces, the calculation of plane and space structural systems according to dead loads	Verbal lectures, problem-solving		
4	Section forces, the calculation of plane and space structural systems according to live loads	Verbal lectures, problem-solving		
5	Systems with solid body, cantilever beams, beams with overhange, Gerber beams, Verbal lectures arches with three hinges and frames	Verbal lectures, problem-solving		
6	The calculation of truss systems according to dead and live load cases	Verbal lectures, problem-solving		
7	The calculation of truss systems according to dead and live load cases	Verbal lectures, problem-solving		
8	The calculation of integrated structural systems according to dead and live load cases, cables	Verbal lectures, problem-solving		
9	The calculation of displacements and strains, relations between section forces and strains, relations between changes in temperature and strains	Verbal lectures, problem-solving		
10	Force Methods	Verbal lectures, problem-solving		
Activites		Number	Duration (hour)	Total Work Load (hour)
The approximate metods of statically indeterminate systems		Verbal lectures, problem-solving	3.00	42.00
Practicals/Labs		14	2.00	28.00
Self study and preperation		14	5.00	70.00
Homeworks		0	0.00	0.00
Projects		0	0.00	0.00
Field Studies		0	0.00	0.00
Midterm exams		1	5.00	5.00
Others		0	0.00	0.00
Final Exams		1	5.00	5.00
Total Work Load				155.00
TERM LEARNING ACTIVITIES		NUMBER	WEIGHT	5.00
ECTS Credit of the Course				5.00
Midterm Exam		1	20.00	
Quiz		0	0.00	
Home work-project		1	20.00	
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		Measurement and evaluation are performed according to the Rules & Regulations of Bursa Uludağ University on Undergraduate Education.		
24	ECTS / WORK LOAD TABLE			

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	5	5	0	0	0	5	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			