

STABILITY OF STRUCTURES

1	Course Title:	STABILITY OF STRUCTURES	
2	Course Code:	INS5023	
3	Type of Course:	Optional	
4	Level of Course:	Second Cycle	
5	Year of Study:	1	
6	Semester:	1	
7	ECTS Credits Allocated:	6.00	
8	Theoretical (hour/week):	3.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:		
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. M.ÖZGÜR YAYLI	
15	Course Lecturers:	Doç. Dr. M. Özgür YAYLI	
16	Contact information of the Course Coordinator:	bdeliktas@uludag.edu.tr 224 2900744 Uludağ Univ. Müh.Mim Fak. İnşaat Müh. Böl. Görükle, Bursa	
17	Website:	http://insaat.uludag.edu.tr	
18	Objective of the Course:	<ul style="list-style-type: none"> • Understanding the stability of structures. Elastic buckling. • Calculation of critical buckling loads and buckling loads in higher modes using various methods. • Explanation of torsion buckling and lateral buckling. 	
19	Contribution of the Course to Professional Development:	<ul style="list-style-type: none"> • Understanding and examining buckling phenomenon in structural engineering, • To be able to investigate the buckling behavior of structural elements and systems under compressive load and the problems that may arise, • Obtaining buckling loads in columns and frames with various methods. 	
20	Learning Outcomes:		
		1	• Understanding and examining buckling phenomenon in structural engineering,
		2	• To be able to investigate the buckling behavior of structural elements and systems under compressive load and the problems that may arise,
		3	• Obtaining buckling loads in columns and frames with various methods.
		4	
		5	
		6	
		7	
		8	
		9	
		10	
21	Course Content:		
		Course Content:	
Week	Theoretical	Practice	

1	Stability of equilibrium, large displacement theory of columns	
2	Large displacement theory of columns, columns with primitive curvature, columns with eccentrically loaded	
3	Inelastic buckling of columns	
4	General theory of columns, interloaded columns	
5	Variable cross-section columns, approximate methods for buckling loads	
6	Sequential approximation methods	
7	Finite difference method	
8	Variation methods, Rayleigh-Ritz Method	
9	Rayleigh-Ritz Method, finite element method	
10	finite element method	
11	Beam-columns, buckling of frames	
12	Buckling of frames, torsion buckling of bars	
13	Lateral buckling of bars	
14	Lateral buckling of bars, accent stability	

Activites			Number	Duration (hour)	Total Work Load (hour)
Theoretical			14	3.00	42.00
Practicals/Labs			0	0.00	0.00
Self study and preperation			14	4.00	56.00
Homeworks			14	3.00	42.00
Projects			14	1.00	14.00
Field Studies			0	0.00	0.00
Midterm Exams	1	40	100	3.00	3.00
Others			14	1.00	14.00
Final Exams	0	0	00	3.00	3.00
Total Work Load					177.00
Total work load/ 30 hr	2	100.00			5.80
ECTS Credit of the Course					6.00
Success Grade					
Contribution of Final Exam to Success Grade			60.00		
Total			100.00		
Measurement and Evaluation Techniques Used in the Course			Understanding the principles of applied mathematics used in the course		

24

ECTS / WORK LOAD TABLE

[illegible]

ÖK2	5	5	3	0	5	5	0	0	0	0	0	0	0	0	0	0
ÖK3	5	3	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							