

THEORY OF PLATES

1	Course Title:	THEORY OF PLATES
2	Course Code:	INS5224
3	Type of Course:	Optional
4	Level of Course:	Second Cycle
5	Year of Study:	1
6	Semester:	2
7	ECTS Credits Allocated:	7.50
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:	Doç. 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:	Understanding the behavior of plates under vertical loads, • Determining the behavior of simple plates under vertical loads by using plate equations, • Understanding the complex problems of plate theory, • Solution of plate problems using various numerical methods.
19	Contribution of the Course to Professional Development:	• Examination of plate problems in structural engineering -Understanding the behavior of plate type structural carrier systems under vertical loads, • Developing suitable solutions for the problems arising in the design of the plates, • Understanding the basic problems of plate theory.
20	Learning Outcomes:	
	1	• Examination of plate problems in structural engineering
	2	-Understanding the behavior of plate type structural carrier systems under vertical loads,
	3	• Developing suitable solutions for the problems arising in the design of the plates,
	4	• Understanding the basic problems of plate theory.
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21	Course Content:	
	Course Content:	

Week	Theoretical	Practice		
1	Basic assumptions, internal force-displacement relations			
2	Equilibrium equations			
3	Plate equation, Boundary conditions, Strain energy			
4	Rectangular plates, Navier and Levy solutions			
5	Circular plates			
6	Variational methods, Ritz and Galerkin approximate solutions			
7	Different shaped plates			
8	Bending of anisotropic plates			
9	Plates on elastic foundation			
10	Numerical computation methods, Finite difference method, Finite element method, Boundary element method			
11	Nonlinear analysis of plates, Yield lines method			
12	Transverse shear deformation effect			
13	Finite vertical displacement of plates			
14	Plate vibrations, Stability of plates			
22	Textbooks, References and/or Other	• S. P. Timoshenko, S. Woinowsky Krieger; Theory of		
Activites		Number	Duration (hour)	Total Work Load (hour)
Theoretical		John Wiley & Sons, 2004	3.00	42.00
Practicals/Labs		• E. Ventsel, T. Krauthammer: Thin Plates and Shells.	0.00	0.00
Self study and preperation		• V. Panc; Theories of Elastic Plates, Noordhoff International Publishing, 1975.	4.00	56.00
Homeworks		14	4.00	56.00
Projects		14	2.00	28.00
Field Studies		0	0.00	0.00
Midterm exams		1	3.00	3.00
Midterm Exam		1	3.00	3.00
Others		14	3.00	42.00
Final Exams		1	3.00	3.00
Home work-project		0	0.00	0.00
Total Work Load				233.00
Total work load/ 30 hr		2	100.00	7.67
Total				7.50
ECTS Credit of the Course				7.50
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			

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	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0
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
ÖK4	5	5	0	0	5	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			