

THEORY OF PLATES

1	Course Title:	THEORY OF PLATES
2	Course Code:	INS5024
3	Type of Course:	Optional
4	Level of Course:	Second Cycle
5	Year of Study:	1
6	Semester:	2
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:	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:	
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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 Materials:	<ul style="list-style-type: none"> • S. P. Timoshenko, S. Woinowsky Krieger; Theory of Plates and Shells, McGraw Hill, 1959. • K. Girkmann (S. Tameroğlu tarafından tercüme edildi); Yüzeysel Taşıyıcı Sistemler, İTÜ, 1964. • R. Szilard; Theories and Applications of Plate Analysis, John Wiley & Sons, 2004. • E. Ventsel, T. Krauthammer; Thin Plates and Shells, Marcel Dekker, Inc., 2001. • V. Panc; Theories of Elastic Plates, Noordhoff International Publishing, 1975.
23	Assesment	
TERM LEARNING ACTIVITIES		WEIGHT
Midterm Exam	1	40.00
Quiz	0	0.00
Home work-project	0	0.00
Final Exam	1	60.00
Total	2	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	

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	3.00	3.00
Others	14	1.00	14.00
Final Exams	1	3.00	3.00
Total Work Load			174.00
Total work load/ 30 hr			5.80
ECTS Credit of the Course			6.00

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																
Contrib ution Level:	1 very low		2 low		3 Medium		4 High		5 Very High							