

MM 578 Plate and Shell Theories				MECHANICAL ENGINEERING DEPARTMENT					
Semester	Methods of Education							Credits	
	Lecture	Recit.	Lab.	Project/Field Study	Homework	Other	Total	Credit	ECTS credit
1,2	42	20		40	20	66	188	3	7.5
Language	Turkish								
Compulsory / Elective	Optional								
Prerequisites	-								
Course Contents	Classical and First Order Plate Theories. Laminated plate theories. Cylindrical bending plate equations. Boundary conditions. Method of analytical solution techniques. Derivations of the shell equations. Axially symmetric shell structures. Solutions of engineering problems for the plate and shell type structures.								
Course Objectives	To gain an experience about the engineering problems in the consideration of plate and shells in which the theoretical knowledge and solution techniques place a very important place in solid mechanics.								
Learning Outcomes and Competences	To gain general overview about the theories and their solution techniques								
Textbook and /or Reference	1. Ansel G. Ugural, Stresses in Plates and Shells, McGrawHill I.E., Second Ed. 2. J.N. Reddy, Mechanics of Laminated Composite Plates Theory and Analysis, CRC Press, 1994. 3. S.P. Timoshenko, S.W. Kriger, Theory of Plates and Shells, McGraw-Hill, 1959.								
Assessment Criteria					If any, mark as (X)		Percentage (%)		
	Midterm Exams				X		40		
	Quizzes								
	Homeworks				X		10		
	Projects								
	Term Paper				X		20		
	Laboratory Work								
	Other								
	Final Exam				X		30		
Instructors	Assoc. Prof. Ezgi GUNAY								
Week	Subject								
1	General overview of concepts : Stress/strain definitions								
2	Rectangular plate bending equations								
3	Circular plate bending equations and their solutions								
4	Rectangular plates and the solutions of their differential equations								
5	Plates with different geometrical shapes								
6	Plates with different geometrical shapes, selection of the term projects								
7	Anisotropic plates, general Hook law								
8	Classical and first order laminated plate theories								
9	Solution methods about Classical and First Order Laminated Plate Theories								
10	Large deformation in plates								
11	Stress distributions on symmetric/axisymmetrically loaded shells								
12	Bending equations of shells								
13	Cylindrical shells under general load types								
14	Representations on the final projects								