

MM 477 Experimental Stress Analysis				DEPARTMENT of MECHANICAL ENGINEERING					
Semester	Methods of Education							Credits	
	Lecture	Recit.	Lab.	Project / Field Study	Homework	Other	Total	Credit	ECTS Credit
7	42	0	28		5	-	75	3	3.0
Language	Turkish								
Compulsory / Elective	Elective								
Prerequisites	None								
Course Contents	Two and three dimensional stress and strain analysis. Strain gages and strain rosettes. Strain gage networks. Photoelastic. 2-D applications of photoelastic materials. Experimental analysis of static and dynamic problems in laboratory conditions.								
Course Objectives	To teach the engineering applications of stress and strain analysis. To define the strain gauges and methods of strain measurements and to show application of strain measurements in the design and research-development.								
Learning Outcomes and Competences	Learning the theory of strain measurements and making use of the engineering applications of the strains measurements by using stress-strain relationships.								
Textbook and /or Reference	Experimental Stress Analysis, J.W.Dally & W.F. Riley McGRAW-HILL BOOK COMPANY								
Assessment Criteria						If any, mark as (x)		Percentage (%)	
	Midterm Exams					X		40	
	Quizzes								
	Homeworks					X		10	
	Projects								
	Term Paper								
	Laboratory Work					X		10	
	Other								
Final Exam					X		40		
Instructors	Assist.Prof. Selim TURKBAS								
Week	Subject								
1	Introduction, review of stress analysis								
2	Differential equations of equilibrium and body forces								
3	Strain and displacement								
4	Principal strains and Mohr's strain circle								
5	Stress-strain relations								
6	Resistance strain gages and principle of operation						MIDTERM EXAM I		
7	Gage factor and transverse sensitivity correction								
8	The fixed voltage of potentiometer circuit								
9	Mechanical strain measurements and is used for compensating								
10	Practising the fixed voltaged of potentiometer circuit								
11	Wheatstone bridge								
12	Wheatstone bridge , Quarter bridge, half bridge, full bridge								
13	Engineering application with strain gages						MIDTERM EXAM II		
14	Strain gage rosette and application								