

MM 433 Mechanical System Design				DEPARTMENT OF MECHANICAL ENGINEERING					
Semester	Methods of Education							Credits	
	Lecture	Recit.	Lab.	Project /Field Study	Homework	Other	Total	Credit	ECTS Credit
7	42	0	-	33			75	3	3.0
Language	Turkish								
Compulsory / Elective	Elective								
Prerequisites	MM 303								
Course Contents	Three dimensional stress analysis, static desing criteria for ductile and brittle materials,mechanical design for creep, dynamic effects on design; dynamic force analysis, control of natural frequency, instantaneous impact effects, methods of optimization; simple derivative, Lagrange multipliers and lnear programming. Aterm project involving machine design will be assing to the students.								
Course Objectives	To teach the design of mechanical systems and to introduce optimization in mechanical system design.								
Learning Outcomes and Competences	Improving creativeness of student by various projects and designs								
Textbook and /or Reference	Mechanical Engineering desing,J.P. Shibley and C.R. Mischke Mc Graw – Hill Book Company								
Assessment Criteria						If any, mark as (x)		Percentage (%)	
	Midterm Exams					X		30	
	Quizzes								
	Homeworks					X		30	
	Projects								
	Term Paper								
	Laboratory Work								
	Other								
	Final Exam					X		40	
Instructors	Assist.Prof. Selim TURKBAS								
Week	Subject								
1	Introduction, review of stress analysis								
2	Two dimensional stress analysis								
3	Three dimensional stress analysis								
4	Three dimensional stress analysis and applications								
5	Static design criteria								
6	Static design criteria and applications								
7	Impact forces								
8	Introduction to fatigue								
9	Solution of fatigue problems								
10	Project distribution to student groups					MIDTERM EXAM			
11	Introduction to optimization and project control								
12	Optimization by derivative methot and project control								
13	Optimization by lagrange multipliers and project control								
14	Optimization by linear programming and and project control								