

MM 496 Mechatronic System Design				DEPARTMENT OF MECHANICAL ENGINEERING					
Semester	Methods of Education							Credits	
	Lecture	Recit.	Lab.	Project / Field Study	Homework	Other	Total	Credit	ECTS Credit
8	30	12	10	23		-	70	3	3.0
Language	Turkish								
Compulsory / Elective	Elective								
Prerequisites	MM 495								
Course Contents	Introduction to mechatronic concepts, mechatronic systems and components. Microcontrollers and microcontroller programming. Theory of engineering design, design models, systematic design. New trends in mechatronics. Mechatronic design project, selection and manufacturing of mechatronic products and their performance tests.								
Course Objectives	To provide mechanical engineering students to design mechatronic systems by using sensor devices, actuators, electric-electronic components and microcontrollers.								
Learning Outcomes and Competences	The students learn how to attach microcontrollers to electro-mechanical systems. They gain basic knowledge on how to design a mechatronic system of an interest. The students will gain experience from the term projects that they do during the course study.								
Textbook and / or Reference	“Introduction to Mechatronics and Measurement Systems” by Alciatore and Hstand, McGraw-Hill, 2nd edition, 2003. “Mechatronics” by Necsulescu, Prentice Hall, 2001. “Mechatronics – Electronic Control Systems in Mechanical and Electrical Engineering” by Bolton, Prentice Hall, 3rd edition, 2003..								
Assessment Criteria						If any, mark as (x)		Percentage (%)	
	Midterm Exams					X		30	
	Quizzes								
	Homeworks								
	Projects					X		30	
	Term Paper								
	Laboratory Work								
	Other								
Final Exam					X		40		
Instructors	Assoc.Prof. Metin U. SALAMCI								
Week	Subject								
1	Mechatronic and Mechatronic Design approaches								
2	Mechatronic and Mechatronic Design approaches								
3	Importance of modelling in the mechatronic system design								
4	Importance of modelling in the mechatronic system design								
5	Sensor and actuator characteristics								
6	Microcontroller programming								
7	Microcontroller programming								
8	Microcontroller programming								
9	Fault analysis in mechatronic systems								
10	Design optimization of mechatronic systems								
11	New trends in mechatronics								
12	New trends in mechatronics								
13	New trends in mechatronics								
14	Team project group presentations								