MECT 190 – Introduction to Mechatronics Engineering				
Eastern Mediterranean University **Faculty of Engineering**				
Department: Mechanical Engineering				
Program Code: 2A	**Program:** Mechatronics Engineering	**Year/Semester:** 2021/2022 FALL		
Course Code: MECT 190	**Course Title:** Introduction to Mechatronics Engineering	**Credit hours**		
		Lec.	**Tut/Lab**	**Total**
		1	**1**	**1**
Categorization of Course: ☒ Engineering or Area Core ☐ Engineering Course offered by other programs ☐ Engineering Area Elective ☐ Mathematics and Basic Sciences ☐ General Education		**Categorization of Credits:** Mathematics & Basic Science: - **Engineering Topics:** **1** General Education: - Major Engineering Design: -		
Instructor Name: Gizem Aytac		**Office no:** ME028		**Office Tel:** 1060
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Course Web Page: https://staff.emu.edu.tr/muratozdenefe/en/teaching				
Textbook(s): Introduction to Mechatronics and Measurement Systems, Fifth Edition by David G. Alciatore, 2019, Mc Graw Hill				
Catalog Description: This course aims to familiarize first year mechatronics engineering students by introducing them the fundamentals of discipline; program curriculum and faculty; job opportunities for mechanical engineers; basic study skills; an overview of fundamentals laws and principles of mechatronics engineering; introduction to problem layout and problem solving methods; simplified engineering modeling and analysis of mechatronic systems; collection and presentation of engineering data; Ethical issues; Occupational Health and Safety issues; and the importance of computers and language skills for effective communication.				
Prerequisite(s)	N/A			
Type of Course	☒ Required	☐ Selected Elective		☐ Elective

	Student Outcomes	
1	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	☒
2	An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.	☐
3	An ability to communicate effectively with a range of audiences.	☒
4	An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	☒
5	An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	☐
6	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	☐
7	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.	☐

Course Learning Outcomes		Student Outcomes							Assessment Percentages
		1	2	3	4	5	6	7	
1	Understand the Fundamentals of Mechatronics Engineering.	X							Attendance 10% Homeworks: 10% Midterm Exam: 25% Project 25% Final Exam: 30%
2	Understand the use of units/dimensions and unit conversion in engineering calculations	X							
3	Understand basic principles of scientific computation and engineering solution i.e. Problem Identification, Problem Formulation and Problem Solution.	X							
4	Understand collection and presentation of engineering data			X					
5	Understand the Ethical issues and Professional Responsibilities in Engineering.				X				
6	Understand the fundamentals of Occupational Health and Safety, and safety practices at departmental laboratories and university campus.				X				
Weight of Student Outcomes		L		L	H				

Topics Covered and Class Schedule:	
Week 1	**Introduction**; mechatronics engineering profession, mechatronics engineering fields, program curriculum; program faculty and departmental facilities.
Week 2	**Engineering Ethics**; Research and Publication ethics committee of EMU. Professional engineering organizations and Code of Ethics.
Week 3	**Technical Problem solving and communication skills**, Presenting engineering calculations. Unit Systems and Unit Conversion, Dimensional Consistency
Week 4	**Introduction to Mechanics:** Principles of statics and dynamics; force, moment, torque, equilibrium of forces and moments, free-body diagram
Week 5	**Introduction to Fundamentals of Electrical and Electronics Engineering**
Week 6	**Technical Trip 1**
Week 7	**Introduction to Materials Science and Manufacturing Technology:** Materials classification, introduction to manufacturing, classification of manufacturing processes.
Week 8 & 9	**Midterm Examination**
Week 10	**Introduction to Engineering Design:** Introduction to Design. CAD/ CAM
Week 11	**Technical Trip 2**
Week 12	**Introduction to Mechatronic Components and Instrumentation**
Week 13	**Introduction to Control Systems, Robotics and Automation**
Week 14	**Technical Trip 3**
Week 15	**Occupational Health and Safety**
Week 16	**Final Examination**