



T.C. ESKİŞEHİR OSMANGAZİ UNIVERSITY
ARCHITECTURE AND ENGINEERING FACULTY
MECHANICAL ENGINEERING DEPARTMENT

COURSE INFORMATION FORM

SEMESTER	Fall
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COURSE CODE	151817XXX-151837XXX	COURSE NAME	INDUSTRIAL AUTOMATION
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SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
7	3	0	0	3	5	COMPULSORY () ELECTIVE (x)	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Engineering Subjects [if it contains considerable design, mark with (√)]	Social Science
	√	√	

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
MID-TERM	Mid-Term		
	Quiz	4	40
	Homework	2	30
	Project		
	Report		
	Others (Applications)		
FINAL EXAM		1	30

PREREQUIEITE(S)	None
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COURSE DESCRIPTION	The course covers the central concepts in industrial automation systems, with an emphasis on identification of system requirements, equipment integration, sensors, actuators and controllers.
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COURSE OBJECTIVES	The student is provided with basic knowledge useful in identifying the components associated with industrial automation and synthesising industrial automated systems.
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ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	The student is exposed to the range and depth of equipment and techniques encountered in modern automated industry.
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COURSE OUTCOMES	<p>Students will be able to</p> <ul style="list-style-type: none"> ✓ explain the general function of industrial automation ✓ gain awareness of choices related to automation systems ✓ know what is meant by the “degree of automation” ✓ differ between product automation and plant automation ✓ understand the role of sensors, actuators and controllers for developing automation systems ✓ become acquainted with new trends in automation systems ✓ learn how automation and control technologies relate to manufacturing/production industry
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TEXTBOOK	Lecture notes; Frank Lamb, Industrial Automation: Hands On, McGraw-Hill, 2013.
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OTHER REFERENCES	-
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TOOLS AND EQUIPMENTS REQUIRED	
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COURSE SYLLABUS	
WEEK	TOPICS
1	Introduction
2	Examples of manufacturing/production automation systems /cells
3	Classification of industrial automation systems
4	Degree of automation, design considerations
5	Elements of industrial automation systems
6	Sensors, transducers (types, selection and operation)
7	Actuators (types, selection and operation)
8	Mid-Term Examination
9	Mid-Term Examination
10	Industrial controllers and systems (on-off, PID, PLC ,DCS etc)
11	Data acquisition, processing, communication and monitoring
12	Robotic automation systems
13	Wireless and tele operated automation systems
14	Virtual/hardware-in-the loop automation systems; New trends in automation
15,16	Final Exam (Term Project)

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of mechanical engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of mechanical engineering problems.	[]	[]	[X]
2	Ability to determine, define, formulate and solve complex mechanical engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	[]	[X]	[]
3	Ability to design a complex system, a component and/or an mechanical engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	[X]	[]	[]
4	Ability to develop, select and use modern methods and tools required for mechanical engineering applications; ability to effective use of information technologies.	[X]	[]	[]
5	In order to investigate mechanical engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	[]	[X]	[]
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	[]	[]	[X]
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	[]	[X]	[]
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	[]	[X]	[]
9	Understanding of professional and ethical issues and taking responsibility	[]	[X]	[]
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	[X]	[]	[]
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	[]	[X]	[]
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by: Assoc. Prof. Dr. Naci Zafer

Date:

Signature(s):