Course number and name	END 367E / Automation in Production Systems
Credits, contact hours, categorization of credits	3 credits / 42 hours / Engineering topic
Instructor or course coordinator	Esra BAŞ
Text book and other supplemental materials	• Mikell P. Groover. 2015. *Automation, Production Systems*, and Computer-Integrated Manufacturing, Pearson.

Course information	
Content	This course aims to teach the basic concepts, components, technologies, and data analytic systems, to provide the capabilities for economic evaluation of automation systems in production, and to increase the comprehension to understand the connection between automation and internet of things.
Prerequisites	-
Type	Selected elective

Course learning outcomes
Students who pass the course will: I. acquire the knowledge regarding the basic concepts in automation systems for production. II. comprehend the basic technologies regarding automation systems in production. III. understand the effects of automation to different business processes in production. IV. be able to perform the economic evaluation regarding the automation systems in production. V. learn the basics of machine learning and artificial intelligence. VI. understand the connection between automation and internet of things..

Student outcomes	Level of contribution
SO1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	Not applicable
SO2. 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.	Little
SO3. An ability to communicate effectively with a range of audiences.	High
SO4. 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.	Little
SO5. 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.	Partial
SO6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	Not applicable
SO7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.	Little

Week	Topics	Learning outcome(s)
1	Introduction to Automation in Production Systems	I
2	Basics of Control Theory	I, II
3	Sensors, Controllers, Actuators	I, II
4	Automation in Mass Production	I, II, III
5	Automation in Assembly Lines	I, II, III
6	Industrial Robotics	I, II, III
7	Automation in Material Handling	I, II, III
8	Automation in Material Handling	I, II, III
9	Basics of Machine Learning	V
10	Basics of Machine Learning	V
11	Basics of Artificial Intelligence	V
12	Basics of Artificial Intelligence	V
13	Automatic Identification and Tracking Technologies	II, III
14	Economic Evaluation of Automation Systems in Production and Internet of Things	IV, VI