

COURSE RECORD

Code	BA 450
Name	Industry 4.0 Technologies
Hour per week	3 (3+0)
Credit	3
ECTS	5
Level/Year	Undergraduate/4
Type	Elective
Prerequisites	
Description	This course will focus on Industry 4.0 technologies and applications that enable the internet to be connected to the manufacturing system, to eliminate the independent movement of all machine systems, and to enable the machines talking to each other to make their own decisions thanks to artificial intelligence. Within the scope of the course, Industry 4.0 related concepts; Internet of Things, artificial intelligence, big data, data mining, technology, innovation and creativity management, system analysis, system simulation, lean manufacturing will be covered. In addition, group work and presentations for the sample Industry 4.0 research will be evaluated within the scope of the course
Objectives	Providing Industry 4.0 tools. Providing a working knowledge of the design, implementation, and analysis of Industry 4.0. Outlining the necessary background for applying Data Mining techniques in systems such as Big Data and Streaming Data, why Python is a useful scripting language.
Learning Outcomes	<i>By the end of the course, the student will be able to</i> L01. Demonstrate knowledge about Industry 4.0. L02. Analyze Industry 4.0 system analysis. L03. Demonstrate knowledge about data mining techniques, including systems such as big data, streaming data. L04. Demonstrate knowledge about system Simulation techniques. L05. Apply lean manufacturing methods.

CONTRIBUTION TO PROGRAMME OUTCOMES*

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010
L01	5	4	5	5	2	1	5	5	5	5
L02	4	5	3	5	3	1	5	5	5	5
L03	5	5	3	5	2	0	5	5	5	5
L04	4	5	2	5	3	3	3	5	5	4
L05	5	5	2	5	3	4	3	4	5	5

* Contribution Level: 0: None, 1: Very Low, 2: Low, 3: Medium, 4: High, 5: Very High

CONTRIBUTION TO INSTITUTIONAL LEARNING OUTCOMES*

	ILO1	ILO2	ILO3	ILO4	ILO5	ILO6	ILO7
L01	5	5	4	3	4	3	4
L02	5	5	3	3	3	3	4
L03	5	4	4	4	4	3	4
L04	5	4	4	4	4	3	5
L05	5	5	4	3	4	3	5

* Contribution Level: 0: None, 1: Very Low, 2: Low, 3: Medium, 4: High, 5: Very High

COURSE CONTENT DETAILS

Topics	Outcomes
Industry 4.0	L01, L02
Internet of Things (IoT)	L01, L02
Artificial Intelligence	L01, L02
Big Data	L01, L02

Sensor Technologies, Cloud Computing, Augmented Reality	L01, L02
Data Mining in Industry 4.0	L01, L02, L03
Technology, innovation and creativity management	L01, L02, L03
Modeling and system analysis of production systems	L01, L02
Application of system analysis in ERP and databases	L01, L02
System simulation	L02
Lean manufacturing techniques	L02

DERS BİLGİLERİ

Kodu	BA 450
İsmi	Endüstri 4.0 Teknolojileri
Haftalık Saati	3 (3+0)
Kredi	3
AKTS	5
Seviye/Yıl	Lisans/4
Dersin Dili	İngilizce
Tip	Seçmeli
Ön Şart	
İçerik	Bu ders internetin imalat sistemine bağlanması, nesnelerin nesnelerle konuşması, tüm makine sistemlerinin bağımsız hareket etmesini ortadan kaldırarak, birbirleri ile konuşan makinelerin yapay zeka sayesinde kendi kararlarını kendileri veriyor olmasını sağlayan, Endüstri 4.0 teknoloji ve uygulamalarına odaklanmaktadır. Ders kapsamında Endüstri 4.0 ilgili kavramlar olan; nesnelerin interneti, yapay zeka, büyük veri, veri madenciliği, teknoloji, yenilikçilik ve yaratıcılık yönetimi, sistem analizi, sistem simülasyonu, yalın üretim konuları ele alınacaktır. Ayrıca örnek Endüstri 4.0 araştırmasına yönelik grup çalışması ve sunumları ders kapsamında değerlendirilecektir.