COURSE RECORD

Code	**BA 450**
Name	**Industry 4.0 Technologies**
Hour per week	3+0(Theory + Practice)
Credit	3
ECTS	5
Level/Year	Undergraduate/4
Semester	Fall/Spring
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	This course aims to • introduce Industry 4.0 tools; • provide a working knowledge of the design, implementation and analysis of Industry 4.0; • provide the student with the necessary background for applying Data Mining techniques in systems such as Big Data and Streaming Data
Learning Outcomes	*By the end of this course, students will be able to* LO1 Demonstrate knowledge about Industry 4.0 LO2 Perform Industry 4.0 system analysis LO3 Demonstrate knowledge about data mining techniques, including systems such as big data, streaming data LO4 Demonstrate knowledge about system Simulation techniques LO5 Implement lean manufacturing methods.

CONTRIBUTION TO PROGRAMME OUTCOMES*

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
LO1	5	5	4	5	3	3	2	4	2	3
LO2	4	5	2	5	5	5	3	3	5	5
LO3	4	5	2	5	4	3	3	2	5	3
LO4	4	5	2	5	3	3	2	2	3	4
LO5	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

COURSE CONTENT DETAILS

Topic	Outcomes
Industry 4.0	LO1-LO2
Internet of Things (IoT)	LO1-LO2
Artificial Intelligence	LO1-LO2
Big Data	LO1-LO2
Sensor Technologies, Cloud Computing, Augmented Reality	LO1-LO2
Data Mining	LO1-LO2-LO3
Data Mining in Industry 4.0	LO1-LO2-LO3
Technology, innovation and creativity management	LO1-LO2
Modeling and system analysis of production systems	LO2
Application of system analysis in ERP and databases	LO2

System simulation	LO4
Lean manufacturing techniques-1-2	LO4-LO5

DERS BİLGİLERİ

Kodu	**BA 450**
İsmi	**Endüstri 4.0 Teknolojileri**
Haftalık Saati	3+0 (Teori + Pratik)
Kredi	3
AKTS	5
Seviye/Yıl	Lisans/4
Dönem	Güz/Bahar
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 ᴋ6 teknoloji ve uygulamalarına odaklanmaktadır. Ders kapsamında Endüstri ᴋ6 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 ᴋ6 araştırmasına yönelik grup çalışması ve sunumları ders kapsamında değerlendirilecektir.