

TOROS ÜNİVERSİTESİ

Faculty Of Engineering
Electrical And Electronics Engineering (English)

Course Information

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING					
Code	Semester	Theoretical	Practice	National Credit	ECTS Credit
		Hour / Week			
CSE419	Fall	3	0	3	5

Prerequisites and co-requisites	
Language of instruction	English
Type	Elective
Level of Course	Bachelor's
Lecturer	Asst. Prof. Furkan GÖZÜKARA
Mode of Delivery	Face to Face
Suggested Subject	
Professional practise (internship)	None
Objectives of the Course	The purpose of this course is to teach the basic principles of engineering applications of artificial intelligence techniques used and their applications to perform detailed analysis of how is used.
Contents of the Course	Artificial intelligence definition, basic concepts and techniques, Expert systems and engineering applications, Fuzzy logic and engineering applications, Decision support systems and applications, Genetic algorithms and application examples, Artificial neural networks: structure and basic elements of artificial neural networks, the first artificial neural networks, artificial neural network models, back propagation networks. Engineering applications of artificial neural networks.

Learning Outcomes of Course

#	Learning Outcomes
1	The student learns the basic principles of artificial intelligence. Understand approaches to the implementation of artificial intelligence techniques to engineering problems.
2	Student understands the basic principles of fuzzy logic and describes engineering applications.
3	Student understands the basic principles of expert systems and describes engineering applications.
4	Student understands the basic principles of decision support systems and describes engineering applications.

Course Syllabus

#	Subjects	Teaching Methods and Technics
1	Introduction to Artificial Intelligence	Lecture
2	Presentation of Art.Int. in Eng. Appl.	Lecture
3	Expert Systems	Lecture
4	Expert Systems and engineering application	Lecture
5	Fuzzy Logic Basics	Lecture
6	Fuzzy logic and Engineering Applications	Lecture
7	Midterm	
8	Decision support systems	Lecture
9	Neural Networks	Lecture
10	Neural Networks	Lecture

11	Neural Networks in engineering applications	Lecture
12	Genetic Algorithms	Lecture
13	Genetic Algorithms	Lecture
14	Genetic Algorithms in engineering applications	Lecture
15	Hybrid techniques (fuzzy-neuro, fuzzy-genetic)	Lecture
16	Final Exam	

Course Syllabus

#	Material / Resources	Information About Resources	Reference / Recommended Resources
1	Artificial Intelligence: A Modern Approach (3rd ed) by Stuart Russell and Peter Norvig		

Method of Assessment

#	Weight	Work Type	Work Title
1	40%	Mid-Term Exam	Mid-Term Exam
2	60%	Final Exam	Final Exam

Relationship between Learning Outcomes of Course and Program Outcomes

#	Learning Outcomes	Program Outcomes	Method of Assessment
1	The student learns the basic principles of artificial intelligence. Understand approaches to the implementation of artificial intelligence techniques to engineering problems.	1	1,2
2	Student understands the basic principles of fuzzy logic and describes engineering applications.	3	1,2
3	Student understands the basic principles of expert systems and describes engineering applications.	12	1,2
4	Student understands the basic principles of decision support systems and describes engineering applications.	15	1,2

PS. The numbers, which are shown in the column Method of Assessment, presents the methods shown in the previous table, titled as Method of Assessment.

Work Load Details

#	Type of Work	Quantity	Time (Hour)	Work Load
1	Course Duration	14	3	42
2	Course Duration Except Class (Preliminary Study, Enhancement)	0	0	0
3	Presentation and Seminar Preparation	0	0	0
4	Web Research, Library and Archival Work	0	0	0
5	Document/Information Listing	0	0	0
6	Workshop	0	0	0
7	Preparation for Midterm Exam	0	0	0
8	Midterm Exam	0	0	0
9	Quiz	0	0	0
10	Homework	0	0	0
11	Midterm Project	0	0	0
12	Midterm Exercise	0	0	0
13	Final Project	1	38	38
14	Final Exercise	0	0	0

15	Preparation for Final Exam	0	0	0
16	Final Exam	1	45	45
				125