



COURSE INFORMATION FORM

School/Faculty/Institute	Faculty of Engineering		
Program	B.Sc. in Electrical-Electronics Engineering	Elective	
	B.Sc. in Industrial Engineering	Elective	
	B.Sc. in Computer Engineering	Elective	
	B.Sc. in Mechanical Engineering	Elective	
	B.Sc. in Civil Engineering	Elective	
Semester	Fall 2016-2017		

Course Code	COMP450			
Course Title in English	Artificial Intelligence			
Course Title in Turkish	Yapay Zeka			
Language of Instruction	English			
Type of Course	Flipped Classroom			
Level of Course	Undergraduate			
Course Category (by % of Content)	Basic Science	Basic Engineering	Engineering Design	General Education
	0	10	80	10
Semester	Fall			
Contact Hours per Week	Lecture: 2	Recitation: -	Lab: 2	Other: -
Estimated Student Workload	161 hours per semester.			
Number of Credits	6 ECTS			
Grading Mode	Standard Letter Grade			
Pre-requisites	COMP 201			
Expected Prior Knowledge	Object Oriented Programming, Data Structures			
Co-requisites	None			
Registration Restrictions	Only Undergraduate Students			
Overall Educational Objective	To introduce fundamental concepts of Artificial Intelligence. The students will be familiar with basic aspects of intelligent agents, knowledge representation, learning, and sensing.			
Course Description	This course provides a comprehensive introduction to some fundamental aspects of Artificial Intelligence. The following topics are covered: Introduction, Intelligent agents, Search algorithms, A*search and heuristics, constraint satisfaction problems, Game trees, Knowledge representation, Learning: reinforcement learning, Decision trees, evolutionary methods, Artificial Neural Networks, Perceptrons, Deep Learning, Perception: Vision.			
Course Description in Turkish	Bu derste; yapay zekanın temel kavramları şu konu başlıklar altında kapsamlı bir şekilde incelenmektedir: Akıllı etmenler, arama yöntemleri, A* arama ve sezgisel arama yöntemleri, kısıt altında arama yöntemleri, oyun ağaçları, bilgi gösterimi, öğrenme, güdümlü öğrenme, karar ağaçları, evrimsel yöntemler, Yapay Sinir Ağları (YSA) , Perseptronlar ve Derin Öğrenme, Algılama:Yapay Görü.			
Course Learning Outcomes and Competences	Upon successful completion of the course, the learner is expected to be able to: <ol style="list-style-type: none">1. Analyze the components of an intelligent systems2. Understand problem solving by using searching, knowledge representation and logical inference methods3. Gain experience in learning methods4. Understand and apply computer vision methods to develop intelligent agents that can			

see.

Relation to Program Outcomes and Competences: N=None S=Supportive H=Highly Related

Program Outcomes and Competences	Level	Assessed by
	N/S/H	Exam, Project, HW, Lab, Presentation, etc.
(a) an ability to apply knowledge of mathematics, science, and engineering	N	
(b) an ability to design and conduct experiments, as well as to analyze and interpret data	N	
(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	H	Quiz, Project, Midterm, Final
(d) an ability to function on multidisciplinary teams	N	
(e) an ability to identify, formulate, and solve computer engineering problems	H	Quiz, Project, Midterm, Final
(f) an understanding of professional and ethical responsibility	N	
(g) an ability to communicate effectively	N	
(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	N	
(i) a recognition of the need for, and an ability to engage in life-long learning	N	
(j) a knowledge of contemporary issues	N	
(k) an ability to use the techniques, skills, and modern engineering tools necessary for computer engineering practice.	S	Quiz, Project, Midterm, Final

Prepared by and Date Prof. Dr. Muhittin Gökmen/ September 2016

Name of Instructor Prof.Dr. Muhittin Gökmen

Course Contents	Week	Topic
	1.	Introduction
	2.	Intelligent Agents
	3.	Searching
	4.	Informed Search Methods
	5.	Adversarial Search- Game trees
	6.	Logic
	7.	Inference in First Order Logic
	8.	Learning from Observations
	9.	Learning in Neural Networks
	10.	Evolutionary methods
	11.	Deep Learning
	12.	Reinforcement Learning
	13.	Perception-Vision
	14.	Object Recognition
	15.	Final Examination Period.
	16.	Final Examination Period.

Required/Recommended Readings Artificial Intelligence: A Modern Approach (3rd Edition), Stuart Russell, Peter Norvig, Prentice Hall, 2010

Teaching Methods Lecturing and exercises in the classroom with computers. In-class exercises and 3 Projects will be carried out by students

Homework and Projects In-class exercises, 3 Projects

Laboratory Work Programming exercises

Computer Use For Programming

Other Activities

Assessment Methods Quiz (5): %10

	Project (3): %20 Midterm: % 30 Final: %40
Course Administration	Instructor's office and phone number, office hours, email address: To be announced -Office: 5th Floor, #18 -Phone number: 0 212 395 36 26 - Email address: gokmenm@mef.edu.tr Rules for attendance: Minimum of 70% attendance required. Missing a quiz: Provided that proper documents of excuse are presented, each missed quiz by the student will be given a grade which is equal to the average of all of the other quizzes. No make-up will be given. Missing a midterm: Provided that proper documents of excuse are presented, each missed midterm by the student will be given the grade of the final exam. No make-up will be given. Missing a final: Faculty regulations. A reminder of proper classroom behavior, code of student conduct: YÖK Regulations Statement on plagiarism: YÖK Regulations http://3fcampus.mef.edu.tr/uploads/cms/webadmin.mef.edu.tr/4833_2.pdf

ECTS Student Workload Estimation	Activity	No/Weeks	Hours			Calculation	Explanation
		No/Weeks per Semester (A)	Preparing for the Activity (B)	Spent in the Activity Itself (C)	Completing the Activity Requirements (D)		
	Lecture	14	1	3	1	70	A*(B+C+D)
	Lab etc.					0	
	Midterm(s)	1	3	1		4	A*(B+C+D)
	Assingment, Project, Presentation	8	5	3	2	80	A*(B+C+D)
	Final Examination	1	5	2		7	A*(B+C+D)
	Total Workload					161	
	Total Workload/25					6,44	
ECTS					6		

PROGRAM CRITERIA

Computer Engineering Program Criteria

A1. Breadth in computer engineering practice, analysis and design with **18** required course, and depth in one or more fields with **4** electives.

A2. Knowledge of mathematics, including differential and integral calculus, basic sciences, computer science, and engineering sciences that is necessary for analysis and design of complex electrical and electronic devices, software, and systems containing hardware and software components.

A3. Knowledge of probability and statistics, including application to computer engineering; knowledge of advanced mathematics, including differential equations, linear algebra, complex variables, and discrete mathematics.