## Introduction to Artificial Intelligence

Course Code:		
CSE 462		
Course Period:		
Autumn		
Course Type:		
Area Elective		
Credits:		
3		
Theoric:		
3		
Practice:		
0		
Laboratory Hour:		
0		
ECTS:		
5		
Course Language:		
English		
Course Coordinator:		
<u>Emin Erkan Korkmaz</u> [1] Courses given by:		
<u>Emin Erkan Korkmaz</u> [1] Course Objectives:		

The aim of this course is to provide students the knowledge about the basic techniques and methodologies of artificial intelligence and abilities to apply artificial intelligence methods on practical problems. Course Content:

Basic concepts and techniques of AI. Problem solving in AI, informed and uninformed search techniques, Local search techniques and simulated annealing. Meta-heuristic search methods. Introduction to Neural Networks. Game playing, Prolog overview, knowledge representation and reasoning.

Course Methodology:

1: Lecture, 2: Question-Answer, 3: Lab, 4: Case-study

Course Evaluation Methods:

A: Testing, B: Experiment, C: Homework, D: Project

Course Learning Outcomes	Program Learning Outcomes	Teaching Methods	Assessment Methods	
1) Knowledge about the basic methodologies in artificial intelligence.	1	1,2,3	A, C	
2) Ability to use knowledge to formulate, and solve practical problems using artificial intelligence techniques.	2	1,2,3	A, C	

### **COURSE CONTENT**

Week	Topics	Study Materials
1	Introductory terms, foundations, history and philosophy of AI	Textbook
2	Intelligent Agents	Textbook
3	Problem Solving and Introduction to Search Methods	Textbook
4	Uninformed Search Methodologies	Textbook
5	Heuristic Search	Textbook
6	Game Playing	Textbook
7	Meta-Heuristics	Textbook
8	Neural Networks	Textbook
9	Knowledge Based Agents	Textbook
10	First Order Logic	Textbook
11	Inference in First Order Logic	Textbook

12	Prolog and Logic Programming	Textbook
13	Prolog and Logic Programming	Textbook
14	Probabilistic Reasoning	Textbook

#### **RECOMMENDED SOURCES**

TextbookArtificial Intelligence: A Modern Approach. Stuart Russell, Peter<br/>Norvig, Prentice Hall, Second Edition

Additional Resources

#### MATERIAL SHARING

**Documents** 

Assignments

Exams

#### ASSESSMENT

IN-T	ERM STUDIES	NUMBER	R	PE	RC	EN	TAGE
Mid	terms	1		50			
Ass	ignment	4		50			
Tota	al			10	0		
COI OVE	NTRIBUTION OF FINAL EXAMINATION TO ERALL GRADE			40			
CONTRIBUTION OF IN-TERM STUDIES TO OVERALL60GRADE							
Tota	Total 100						
COURSE'S CONTRIBUTION TO PROGRAM							
No	Program Learning Outcomes	C	Contribution				
		1		2	3	4	5
1	Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipli ability to use theoretical and applied information in the areas to model and solve engineering problems.	ine; ese					X

2	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.				Х
3	Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose.				Х
4	Ability to devise, select, and use modern techniques and tools needed for engineering practice; ability to employ information technologies effectively.				Х
5	Ability to design and conduct experiments, gather data, analyze and interpret results for investigating engineering problems.		2	X	
6	Ability to work efficiently in intra-disciplinary and multi- disciplinary teams; ability to work individually.		2	X	
7	Ability to communicate effectively both orally and in writing; knowledge of a minimum of one foreign language.				
8	Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.		2	X	
9	Awareness of professional and ethical responsibility.	Х			
10	Information about business life practices such as project management, risk management, and change management; awareness of entrepreneurship, innovation, and sustainable development.				
11	Knowledge about contemporary issues and the global and societal effects of engineering practices on health, environment, and safety; awareness of the legal consequences of engineering solutions.		X		

# ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION

Activities	Quantity	Duration (Hour)	Total Workload (Hour)
Course Duration (Excluding the exam week: 13x Total course hours)	13	3	39
Hours for off-the-classroom study (Pre-study, practice)	14	2	28
Midterm examination	1	2	2
Homework	4	15	60

Final examination	1	3	3
Total Work Load			132
Total Work Load / 25 (h)			5.28
ECTS Credit of the Course			5