Course Description Form	
Course Code and Name	CENG455 INTRODUCTION ARTIFICIAL INTELLIGENCE (TECH.ELECT.)
Course Semester	7
Catalog Content	To cover basic AI techniques including search strategies, representation schemes, problem solving paradigms, logic programming, planning problems, machine learning algorithms, probability and uncertainty etc.
Textbook	Artificial Intelligence: Foundations of Computational Agents 2nd Edition by David L. Poole (Author), Alan K. Mackworth (Author), Cambridge University Press, 2017
Supplementary Textbooks	Artificial Intelligence: A Modern Approach (2nd Edition) by Stuart J. Russell and Peter Norvig Applied Artificial Intelligence: A Handbook For Business Leaders Paperback – June 5, 2018 by Mariya Yao (Author), Adelyn Zhou (Author), Marlene Jia (Author), Topbots Inc., 2018
Credit	6
Prerequisites of the Course (*Attendance Requirements*)	There is no prerequisite or co-requisite for this course
Type of the Course	Elective
Instruction Language	English
Course Objectives	To have a basic proficiency in programming of AI and machine learning systems including an ability to write simple to intermediate programs and an ability to understand code written in that language.
Course Learning Outcomes	1. Use and apply current technical concepts and practices in core computing and information technologies in AI related topics 2. Analyze a problem, and identify and define the computing and algorithmic requirements appropriate to its solution.
Instruction Methods	The mode of delivery of this course is Face to face.
Weekly Schedule	1. Definitions of intelligence and artificial intelligence 2. State-space approach, problem-reduction approach 3. Problem model, problem presentation 4. Detailed search algorithms (breadth-first, depth-first, iterative deepening) 5. Heuristic search algorithms 6. Game theory 7. Syntax and semantics 8. Deductive inference, predicate logic, production systems 9. Semantics networks and frameworks 10. Rule based expert systems, inference engine 11. Machine learning: induction, command learning, learning with examples 12. Classification, explanation based learning, relational and intuitive learning 13. Artificial intelligence applications 14. Term paper
Teaching and Learning Methods (*These are examples. Please fill which activities you use in the course*)	Weekly theoretical course hours: 3 Reading Activities Internet browsing, library work Preparation of Midterm and Midterm Exam Final Exam and Preparation for Final Exam

Assessment Criteria		Numbers	Total Weighting (%)	
	Midterm Exams	1	30	
	Assignment	1	30	
	Application	0	0	
	Projects	0	0	
	Practice	0	0	
	Quiz	0	0	
	Percent of In-term Studies (%)	0	60	
	Percentage of Final Exam to Total Score (%)	0	40	
	Attendance	-	-	

Workload	Activity	Total Number of Weeks	Duration (weekly hour)	Total Period Work Load
	Weekly Theoretical Course Hours	14	3	42
	Weekly Tutorial Hours	0	0	0
	Reading Tasks	10	4	40
	Studies	10	4	40
	Material Design and Implementation	0	0	0
	Report Preparing	0	0	0
	Preparing a Presentation	0	60	0
	Presentations	0	40	0
	Midterm Exam and Preparation for Midterm Exam	1	13	12
	Final Exam and Preparation for Final Exam	1	15	15
	Other (should be emphasized)	0	0	0
	Total Workload	0	0	150
	Total Workload / 25	0	0	6
	Course Credit (ECTS)	0	0	6

Contribution Level Between Course Learning Outcomes and Program Outcomes	No	Program Outcomes	1	2	3	4	5
	1	Sufficient knowledge on mathematics, science and computer engineering; ability to apply theoretical and practical knowledge in these areas to model and solve engineering problems				x	
	2	Ability to identify, define, formulate and solve complex engineering problems; ability to choose and apply appropriate analysis and modelling methods for these purposes				x	

		1	2	3	4
3	Ability to design a complex system, process, device, software, algorithm, or product under realistic constraints and circumstances to meet certain requirements; ability to apply modern design techniques for this purpose				x
4	Ability to choose, develop and use modern techniques and tools necessary for engineering applications; ability to effectively use computing technologies			x	
5	Ability to design and implement systems or experiments to solve engineering problems, collect and interpret data to evaluate and analyze the results of solutions			x	
6	Ability to work effectively in intradisciplinary and interdisciplinary teams or individually			x	
7	Ability to efficiently prepare, evaluate and interpret reports			x	
8	Ability to make presentations and conduct effective verbal and written communication in Turkish and English				x
9	Awareness of the necessity of lifelong learning; ability to access information, follow scientific and technological developments; ability to perpetually renew oneself			x	
10	Awareness of professional and ethical responsibility, ability to act in accordance with ethical principles			x	
11	Ability to apply knowledge on project management, risk management and change management			x	
12	Awareness of entrepreneurship and innovation, ability to design and build sustainable systems		x		
13	Ability to devise local and global solutions to contemporary issues considering the effects of engineering applications on health, environment and security		x		
14	Awareness of the legal consequences of engineering solutions	x			
15	Ability to apply knowledge on software development process and documentation rules		x		
16	Knowledge on standards used in engineering applications	x			
17	Awareness of occupational health and security, information security and privacy	x			

The Course's Lecturer(s) and Contact Information	Computer Engineering Department Chair bmbb@gazi.edu.tr