Course Description Form	
Course Code and Name	5241329 Machine Learning
Course Semester	Fall-Spring
Catalog Content	To define engineering problems, the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
Textbook	Machine Learning - Thomas Mitchell
Supplementary Textbooks	-
Credit	8
Prerequisites of the Course (Attendance Requirements)	There is no prerequisite or co-requisite for this course.
Type of the Course	Elective
Instruction Language	Turkish
Course Objectives	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 An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
Course Learning Outcomes	The students can choose the most appropriate machine learning method for a given problem and data set The students can develop a computer program for solving a problem The students can evaluate results
Instruction Methods	Face to face
Weekly Schedule	1.Week Introduction to machine learning 2.Week The concept of learning 3.Week Decision Tree 4.Week Genetic algorithm 5.Week Genetic algorithm and programming 6.Week Genetic algorithm project 7.Week Bayesian learning 8.Week Artificial neural networks 9.Week Artificial neural networks 10.Week Artificial neural networks project 11.Week Support vector machine 12.Week Evaluation of learning algorithms, comparison 13.Week Unsupervised learning 14.Week Project presentation
Teaching and Learning Methods *(These are examples. Please fill which activities you use in the course)*	Weekly theoretical course hours Reading Activities Internet browsing, library work Designing and implementing materials Preparation of Midterm and Midterm Exam Final Exam and Preparation for Final Exam

Assessment Criteria		Numbers	Total Weighting (%)	
	Midterm Exams	1	20	
	Assignment	4	10	
	Application			
	Projects	1	10	
	Practice			
	Quiz			
	Percent of In-term Studies (%)		40	
	Percentage of Final Exam to Total Score (%)		60	
	Attendance	-	-	

	Activity	Total Number of Weeks	Duration (weekly hour)	Total Period Work Load
Workload	Weekly Theoretical Course Hours	14	3	42
	Weekly Tutorial Hours			
	Reading Tasks	8	5	40
	Studies	9	4	36
	Material Design and Implementation	12	3	36
	Report Preparing			
	Preparing a Presentation			
	Presentations			
	Midterm Exam and Preperation for Midterm Exam	1	20	20
	Final Exam and Preperation for Final Exam	1	30	30
	Other (should be emphasized)			
	Total Workload			204
	Total Workload / 25			8.16
	Course Credit (ECTS)			8.0

	No	Program Outcomes	1	2	3	4	5
Contribution Level Between Course Learning Outcomes and Program Outcomes	1	Reaches the expansion of knowledge by conducting scientific research in the field of engineering and evaluation, interpretation and application of information.					X
	2	Has extensive and in depth knowledge including the latest techniques, methods applied and their limitations in engineering.					X
	3	Completes and applies knowledge by using scientific methods by using limited or missing data and integrates information from different disciplines.				X	
	4	Be aware of new and developing practices of the profession, examines and learns when needed.					X
	5	Defines and formulates problems related to the field, develops methods to solve them and applies innovative methods in solutions.				X	
	6	Develops new and / or original ideas and methods, designs complex systems or processes and develops innovative / alternative solutions in their designs.				X	
	7	Designs and applies theoretical, experimental and modeling based researches, examines and solves the complex problems encountered in this process.					X

#		1	2	3	4	5
8	Works effectively in disciplinary and multidisciplinary teams, leads such teams and develops solution approaches in complex situations, works independently and takes responsibility.				X	
9	Communicates oral and written using a foreign language at least at the level of European Language Portfolio B2.	X				
10	Conveys the process and results of the studies in written and oral form in a systematic and clear manner in national and international environments within or outside the field.				X	
11	Knows the social, environmental, health, security, legal aspects of engineering applications; project management, and business life applications and be aware of the constraints of these engineering applications.	X				
12	Considers social, scientific and ethical values in the stages of data collection, interpretation and announcement and in all professional activities.	X				

The Course's Lecturer(s) and Contact Informations	Name Surname: Assoc. Prof. Dr. Oktay YILDIZ E-mail address: oyildiz@gazi.edu.tr