COURSE INFORMATON					
Course Title	*Code*	*Semester*	*L+P Hour*	*Credits*	*ECTS*
Machine Learning	**CSE585**	**2**	**3**	**3**	**7**

Prerequisites	

Language of Instruction	English
Course Level	Graduate
Course Type	Elective
Course Coordinator	
Instructors	Assoc.Prof.Dr. Emin Erkan Korkmaz
Assistants	
Goals	The aim of this course is to provide students the knowlededge about the basic techniques and methodologies of machine learning and abilities to apply machine learning methods on practical problems.
Content	Basic concepts and techniques of machine learning. Supervised learning tecniques. Concept and Decision Tree Learning. Bayesian approach in machine learning. Evolutionary approach and genetic programming. Neural Networks, Support Vector Machines and reinforcement learning. Unsupervised machine learning and clustering.

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

Teaching Methods:	1: Lecture, 2: Question-Answer, 3: Lab, 4: Case-study
Assessment Methods:	A: Testing, B: Experiment, C: Homework, D: Project

COURSE CONTENT

Week	Topics	Study Materials
1	Introduction	Textbook
2	Concept Learning	Textbook
3	Decision Tree Learning	Textbook
4	Genetic Algorithms and Programming	Textbook
5	Project Proposal Presentations	Textbook
6	Bayesian learning	Textbook
7	Bayesian Belief Networks	Textbook
8	Feed Forward Neural networks	Textbook
9	Recurrent Neural Networks	Textbook
10	Support Vector Machines	Textbook
11	Reinforcement Learning	Textbook
12	Unsupervised Learning	Textbook
13	Project Presentations	Textbook
14	Project Presentations	Textbook

RECOMMENDED SOURCES

Textbook	Machine Learning, McGraw-Hill, T. Mitchell (1997)
Additional Resources	

MATERIAL SHARING

Documents	
Assignments	
Exams	

ASSESSMENT

	IN-TERM STUDIES	NUMBER	PERCENTAGE
Assignment		1	20

Project		1	80
Total			**100**
CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE			35
CONTRIBUTION OF IN-TERM STUDIES TO OVERALL GRADE			65
Total			**100**

COURSE CATEGORY	Expertise/Field Courses

COURSE'S CONTRIBUTION TO PROGRAM						
No	Program Learning Outcomes	Contribution				
		1	2	3	4	5
1	Knowledge in the advanced computer architecture field					
2	Knowledge in advanced system design for computer engineering					X
3	Knowledge in the theoretical topics of computer science				X	
4	Ability to comprehend, analyse and critique academic publications and conduct scholarly research at the frontiers of computer engineering					
5	Ability and knowledge in the fields of Next-Generation and contemporary computer networks					

ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION			
Activities	Quantity	Duration (Hour)	Total Workload (Hour)
Course Duration	14	3	42
Hours for off-the-classroom study (Pre-study, practice)	14	4	56
Project	1	60	60
Assignment	1	7	7
Final examination	1	3	3
Total Work Load			168
Total Work Load / 25 (h)			6.72
ECTS Credit of the Course			7