Management Information Systems			
Bachelor	TR-NQF-HE: Level 6	QF-EHEA: First Cycle	EQF-LLL: Level 6

Course Introduction and Application Information

Course Code:	YBS022
Course Name:	Deep Learning 1
Semester:	Spring
Course Credits:	ECTS: 5
Language of instruction:	Turkish
Course Condition:	
Does the Course Require Work Experience?:	No
Type of course:	Departmental Elective
Course Level:	Bachelor | TR-NQF-HE:6. Master`s Degree | QF-EHEA:First Cycle | EQF-LLL:6. Master`s Degree
Mode of Delivery:	Face to face
Course Coordinator:	Doç. Dr. ŞEBNEM ÖZDEMİR
Course Lecturer(s):	Yalçın Özkan
Course Assistants:	

Course Objective and Content

Course Objectives:	This course aims to teach the fundamentals of machine learning and deep learning algorithms, develop applications using the python programming language, and teach the methods of improving the performance of applications.
Course Content:	This course includes the mathematical principles of the deep learning algorithm, deep learning libraries, the use of the Keras library, and various applications of deep learning models.

Learning Outcomes

The students who have succeeded in this course;
1) Students will comprehend the processes of machine learning
2) Understand the use of Python language more effectively in machine learning
3) Get the opportunity to get to know deep learning libraries more closely
4) Understand classification and regression models with the help of deep learning algorithms
5) Learn about the use of deep learning algorithms in various sectors

Course Flow Plan

Week	Subject	Related Preparation
1)	Introduction to machine learning	
2)	Mathematical fundamentals of the deep learning algorithm	
3)	Preprocessing Methods	
4)	Classification process, classification concepts, Deep learning libraries	
5)	Classification application with deep learning-1	
6)	Classification application with deep learning-2	
7)	Classification application with deep learning-3	
8)	Midterm	
9)	Recurrent deep learning algorithms	
10)	Classification with LSTM deep networks	
11)	Regression with LSTM deep networks	
12)	Deep autocoders	
13)	Summarizing data with autocoders	
14)	Data summarization application with autocoders	
15)	Classification of unbalanced data with autocoders	
16)	Final Exam Period	

Sources

Course Notes / Textbooks:	Ian Goodfellow, yoshua Bengio, Aaron Courville, (2018), “Derin Öğrenme”, Buzdağı Yayınevi.

	François Chollet, (2019), “Python ile Derin Öğrenme”, Buzdağı Yayınevi.
References:	Ek kaynak ihtiyacı bulunmamaktadır. - There is no need for additional resources.

Course - Program Learning Outcome Relationship

Course Learning Outcomes	1	2	3	4	5
Program Outcomes					
1) It has a wide range of interdisciplinary approaches to management information systems, primarily business and computer engineering.	3	2	3	3	3
2) Comprehends the management information systems in terms of technical, organizational and managerial aspects and uses the current programming language by knowing the logic of programming.	3	3	3	3	3
3) Uses different information technologies and systems for understanding and solving various business problems.	3	3	3	3	3
4) Interpret the data, concepts and ideas in the field of management information systems with scientific and technological methods.	3	3	3	3	3
5) Analyze the needs for an information system and analyze the processes of analysis, design and implementation of the database.	3	3	3	2	3
6) Gains technical and managerial contributions to IT projects and takes responsibility.	3	2	3	3	3
7) Solve complex business and informatics problems by using various statistical techniques and numerical methods and make analyzes using statistical programs effectively.	3	3	3	2	3
8) Uses a foreign language at the B1 General Level in terms of European Language Portfolio criteria according to the level of education.	2	2	2	2	2
9) Develops teamwork, negotiation, leadership and entrepreneurship skills.	2	2	3	2	2
10) Has universal ethical values, social responsibility awareness and sufficient legal knowledge.	2	2		2	2
11) Develops positive attitudes related to lifelong learning and identifies individual learning needs and carries out studies to correct them.	2	3	3	2	2
12) Students will be able to communicate their ideas and solutions both written and orally, and present and publish them on both national and international platforms.	3	3	3	3	2
13) It uses information and communication technologies together with computer	3	3	3	3	3

Course Learning Outcomes	1	2	3	4	5
software at the advanced level of European Computer Driving License required by the field.					

Course - Learning Outcome Relationship

No Effect	1 Lowest	2 Average	3 Highest

	Program Outcomes	Level of Contribution
1)	It has a wide range of interdisciplinary approaches to management information systems, primarily business and computer engineering.	3
2)	Comprehends the management information systems in terms of technical, organizational and managerial aspects and uses the current programming language by knowing the logic of programming.	3
3)	Uses different information technologies and systems for understanding and solving various business problems.	3
4)	Interpret the data, concepts and ideas in the field of management information systems with scientific and technological methods.	3
5)	Analyze the needs for an information system and analyze the processes of analysis, design and implementation of the database.	3
6)	Gains technical and managerial contributions to IT projects and takes responsibility.	3
7)	Solve complex business and informatics problems by using various statistical techniques and numerical methods and make analyzes using statistical programs effectively.	3
8)	Uses a foreign language at the B1 General Level in terms of European Language Portfolio criteria according to the level of education.	2
9)	Develops teamwork, negotiation, leadership and entrepreneurship skills.	3
10)	Has universal ethical values, social responsibility awareness and sufficient legal knowledge.	3
11)	Develops positive attitudes related to lifelong learning and identifies individual learning needs and carries out studies to correct them.	2
12)	Students will be able to communicate their ideas and solutions both written and orally, and present and publish them on both national and international platforms.	3
13)	It uses information and communication technologies together with computer software at	3

	the advanced level of European Computer Driving License required by the field.

Assessment & Grading

Semester Requirements	Number of Activities	Level of Contribution
Application	2	% 25
Homework Assignments	2	% 25
Final	1	% 50
total		**% 100**
PERCENTAGE OF SEMESTER WORK		% 50
PERCENTAGE OF FINAL WORK		% 50
total		**% 100**

Workload and ECTS Credit Calculation

Activities	Number of Activities	Preparation for the Activity	Spent for the Activity Itself	Completing the Activity Requirements	Workload
Course Hours	14	2	2		56
Application	2	3	1		8
Study Hours Out of Class	14	2			28
Homework Assignments	2	3	1		8
Final	1	20	1		21
Total Workload					**121**