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

Course Introduction and Application Information

Course Code:	YBS106
Course Name:	Data Structures and Algorithms
Semester:	Spring
Course Credits:	ECTS: 6
Language of instruction:	Turkish
Course Condition:	
Does the Course Require Work Experience?:	No
Type of course:	Compulsory Courses
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. MUSTAFA SUNDU
Course Lecturer(s):	Mustafa SUNDU
Course Assistants:	

Course Objective and Content

Course Objectives:	The aim of this course is to learn basic concepts of programming, to have a deep knowledge of data structures and algorithms, and also to learn how to select the appropriate data structure for specific problems and to design the algorithm required.
Course Content:	The lecture covers the key ideas involved in designing algorithms such as how algorithms depend on the design of suitable data structures, and how some structures and algorithms are

	more efficient than others for the same task. Basic tasks, such as sorting and searching data, that will be applicable for programming, will be covered. Some key data structures, such as arrays, lists, queues, stacks and trees, will be covered and then move on to explore their use in a range of different searching and sorting algorithms.

Learning Outcomes

The students who have succeeded in this course;
1) Know the concepts of data structures and algorithm
2) Know pseudo language and flow charts
3) Develop algorithms by Pseudo language or flow charts for solving any problem.
4) Apply appropriate algorithm to any data structure

Course Flow Plan

Week	Subject	Related Preparation
1)	Introduction to Lecture	Active learning
2)	Definitions and Concepts of Data Structure and Algorithm	
3)	The Concept of Variable, Value Transfer and Assignment, Invariant	
4)	Pseudo language and Flow Chart Software	
5)	Control Structures (Sequence, Selection and Iteration or Repetition) and Arithmetic Operations	
6)	Arrays	
7)	lists	
8)	Stack and Queue	
9)	Trees and Graphs	
10)	Search Algorithms,	
11)	Sorting Algorithms	
12)	Greedy Algorithms	
13)	Divide and Conquer Algorithms	
14)	Disruptive Concepts	

Sources

Course Notes / Textbooks:	- Anany Levitin, 2012. Introduction to The Design & Analysis of Algorithms. Pearson. - Ders notları
References:	- Aktif öğrenme metodu uygulanmaktadır. -Öğrencilerin derste tartışılan konuları bireysel olarak araştırması ve öğrenmesi gerekmektedir. - Tüm bölümler için ders öncesi literatür taraması yapılmalıdır.

Course - Program Learning Outcome Relationship

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

Course Learning Outcomes	1	2	3	4
orally, and present and publish them on both national and international platforms.				
13) It uses information and communication technologies together with computer 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.	1
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.	2
6)	Gains technical and managerial contributions to IT projects and takes responsibility.	1
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.	1
9)	Develops teamwork, negotiation, leadership and entrepreneurship skills.	1
10)	Has universal ethical values, social responsibility awareness and sufficient legal knowledge.	1
11)	Develops positive attitudes related to lifelong learning and identifies individual learning needs and carries out studies to correct them.	1
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.	2

13)	It uses information and communication technologies together with computer software at the advanced level of European Computer Driving License required by the field.	3

Assessment & Grading

Semester Requirements	Number of Activities	Level of Contribution
Quizzes	1	% 20
Midterms	1	% 30
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	1	3		56
Laboratory	14	1	2		42
Quizzes	1	4	1		5
Midterms	1	10	1		11
Final	1	20	2		22
Total Workload					**136**