

DATA STRUCTURES AND ALGORITHMS

1	Course Title:	DATA STRUCTURES AND ALGORITHMS
2	Course Code:	BLPS130
3	Type of Course:	Optional
4	Level of Course:	Short Cycle
5	Year of Study:	1
6	Semester:	2
7	ECTS Credits Allocated:	3.00
8	Theoretical (hour/week):	2.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	None
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Öğr. Gör. AYŞE BAŞTUĞ KOÇ
15	Course Lecturers:	
16	Contact information of the Course Coordinator:	aysebastugkoc@uludag.edu.tr, +902242942677, Bursa Uludağ Üniversitesi Gemlik Asım Kocabıyık MYO Bilgisayar Programcılığı-Gemlik/Bursa
17	Website:	
18	Objective of the Course:	It is the analysis of algorithms needed in creating mathematical models and any subject containing data, storing information in computer memory and presenting basic data structures designed to access this information.
19	Contribution of the Course to Professional Development:	It makes students aware of the structures used for storing and processing data during programming. On the importance of quantitative methods used in software design is settled.
20	Learning Outcomes:	
	1	Learns algorithm development and analysis methods.
	2	Knows how algorithms measure their performance.
	3	Learns sorting and search methods.
	4	Gains knowledge of data and basic data types.
	5	Learns the basic data structures designed to store and access information in computer memory.
	6	Can solve problems with stack, queue, list, linked list, tree, graph data structures.
	7	It performs all the subjects using a programming language.
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21	Course Content:	
	Course Content:	
Week	Theoretical	Practice
1	Algorithm Development and Algorithm Analysis	
2	Basic Data Types, Memory Management and Recursive Algorithms	

3	Search Algorithms	
4	Sorting Algorithms	
5	Lists	
6	One-Way and Two-Way Linked Lists	
7	Stacks	
8	An Overview and Midterm	
9	Queues	
10	Graph Definition and Representation, Graph Navigating Algorithms	
11	Graph Shortest Path Finding Algorithms: Dijkstra, Bellman & Ford	
12	Trees	
13	Binary Tree, Heap Tree, AVL Trees	
14	General Tree Applications, Huffman Coding, Lempelziv Coding	

22	Textbooks, References and/or Other Materials:	<p>"Data Structures, Past, Present, and Future," Mark Allen Weiss, Proceedings of the 46th ACM Technical Symposium on Computer Science Education, 2015.</p> <p>Dr.Rıfat ÇÖLKESEN, "Veri yapıları ve algoritmalar", Papatya yayıncılık, 2002.</p> <p>Lecture Notes.</p>
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Activites		Number	Duration (hour)	Total Work Load (hour)
Theoretical				
Midterm Exam	1	40.00	2.00	28.00
Practicals/Labs		0	0.00	0.00
Self study and preparation				
Home work-project	0	0.00	2.00	28.00
Homeworks		14	2.00	28.00
Projects				
Total	2	100.00	0.00	0.00
Field Studies		0	0.00	0.00
Students Exams		1	3.00	3.00
Others		0	0.00	0.00
Final Exams				
Total		100.00	3.00	3.00
Total Work Load				90.00
Total work load/ 30 hr		students' learning in the course.		3.00
ECTS Credit of the Course				3.00

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	4	4	2	3	5	5	5	3	1	1	1	0	0	0	0	0
ÖK2	4	5	2	4	5	5	5	3	1	1	1	0	0	0	0	0
ÖK3	3	4	2	5	3	3	3	1	1	1	1	0	0	0	0	0
ÖK4	4	5	2	4	5	4	2	1	1	1	1	0	0	0	0	0

ÖK5	4	4	2	5	5	4	3	1	1	1	1	0	0	0	0	0
ÖK6	4	4	2	5	5	4	3	1	1	1	1	0	0	0	0	0
ÖK7	4	5	3	4	5	4	3	1	1	1	1	0	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contrib ution Level:	1 very low			2 low			3 Medium			4 High			5 Very High			