ALGORITHM DEVELOPMENT

1	Course Title:	ALGORITHM DEVELOPMENT
2	Course Code:	MAT4047
3	Type of Course:	Optional
4	Level of Course:	First Cycle
5	Year of Study:	4
6	Semester:	7
7	ECTS Credits Allocated:	5.00
8	Theoretical (hour/week):	3.00
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:	Prof. Dr. BASRİ ÇELİK
15	Course Lecturers:	
16	Contact information of the Course Coordinator:	basri@uludag.edu.tr 0224.2941762
17	Website:	
18	Objective of the Course:	Learning, to make a solution of any problem step by step.
19	Contribution of the Course to Professional Development:	
20	Learning Outcomes:	

	1	Knows the concept of the algorithm.
	2	Knows the differences between the algorithm and flow chart.
	3	Knows to use loop in algorithm and flow chart.
	4	May use the sequences and series for developing algorithm.
	5	Knows to make an algorithm about squared matrices, vectors given in multi-dimensional spaces, multiplication of all the elements of a matrix on the main axis.
	6	Learns the make an algorithm for finding the biggest element of finite sequences and evaluate which one is that element.
	7	Students can create an algorithm and flow diagrams for finding that how many prime numbers among the given numbers.
	8	Students can create an algorithm for calculating the modules and arguments and also find the correspondence in polar form of a given complex number.
	9	
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21	Course Content:	
	Course Content:	
Week	Theoretical	Practice
1	Description of course.	

2	What is the algorithm? The differences between the algorithm in Computer Programming and the algorithm in Mathematical Problem Solving.	
3	Differences between the flow chart and algorithm.	
4	Loops in algorithm and loops in flow chart.	
5	Operations with sequences and series.	
6	Creating the algorithms and flow charts; for perpendicularity of any two vectors in multi-dimensional spaces, for multiplication of all the elements on the main axis of a matrix, finding is the square matrices symmetric or inverse.	
7	Creating an algorithm finding how many right angled triangles are found with integer length orthogonal sides maximum 6,and hypotenuse of right triangles greater than 6. Find the greatest element of a finite sequences and create the algorithm and the flow chart calculates the count of the greatest element.	
8	Creating the algorithms and the flow chart that find; the number of primes among the first 500 positive integers; the limits of a rational functions which's numerator and denumerator are polynomial where variable approach a finite number.	
9	Midterm and feedback	
10	Constructing an algorithm and flow chart for finding circumferences of trapezoid which's from A to B, one to one functions from A to B; onto functions from A to B chart of the	
11	Give the flow chart and algorithm that the given continuous function on a closed interval constructing the algorithm and flow	
12	Creating the algorithm and the flow chart solving the linear equations system which	
13	Creating the algorithm which calculates the modules and arguments and also find the corresponding polar form of a given complex number.	
14	Feedback	

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preparation	14	3.00	42.00
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	5.00	5.00
Others	14	4.00	56.00
Final Exams	1	5.00	5.00
Total Work Load			150.00
Total work load/ 30 hr			5.00
ECTS Credit of the Course			5.00

22	Textbooks, References and/or Other Materials:	1)Algoritma Geliştirme ve Programlamaya Giriş, Dr. Fahri Vatansever, Seçkin Yayınevi, 6. Baskı, 2007, Ankara. 2)Açıklamalı Algoritma Soruları ve Çözümleri, Yük.Bilg.Müh. Deniz Mertkan Gezgin, Kriter Yayınevi, 2008, İstanbul.
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**

Midterm Exam	1	40.00
Quiz	0	0.00
Home work-project	0	0.00
Final Exam	1	60.00
Total	2	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		

24	**ECTS / WORK LOAD TABLE**

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	5	1	2	5	1	2	2	2	1	0	0	0	0	0	0
ÖK2	3	5	1	2	5	1	3	2	2	1	0	0	0	0	0	0
ÖK3	4	5	1	3	5	1	3	3	2	1	0	0	0	0	0	0
ÖK4	5	5	1	2	5	1	2	2	2	1	0	0	0	0	0	0
ÖK5	5	5	1	2	5	1	3	2	2	1	0	0	0	0	0	0
ÖK6	5	5	1	3	5	1	3	3	2	1	0	0	0	0	0	0
ÖK7	5	5	1	3	5	1	3	2	2	1	0	0	0	0	0	0
ÖK8	5	5	1	2	5	1	3	2	2	1	0	0	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	**1 very low**		**2 low**		**3 Medium**		**4 High**			**5 Very High**						