

FORMAL LANGUAGES AND AUTOMATA

1	Course Title:	FORMAL LANGUAGES AND AUTOMATA	
2	Course Code:	BMB2004	
3	Type of Course:	Compulsory	
4	Level of Course:	First Cycle	
5	Year of Study:	2	
6	Semester:	4	
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:	Dr. Öğr. Üyesi GIYASETTİN ÖZCAN	
15	Course Lecturers:		
16	Contact information of the Course Coordinator:	Bilgisayar Müh. Bölüm Binası, 1. kat, oda 107 Tel.:+90 (224) 294 2792 email: gozcan at uludag.edu.tr	
17	Website:		
18	Objective of the Course:	Comprehension of formal languages and vending machines, comprehension of which language cluster the problem belongs Lex and syntax analysis, comprehension of complexity	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	Ability to understand formal language
		2	Understanding of theoretical concepts
		3	Lex and syntax analysis skills
		4	Ability to understand computational complexity
		5	Ability to grasp the Turing Machine in every direction
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21	Course Content:		
		Course Content:	
Week	Theoretical	Practice	
1	Languages, DFA		
2	Regular Languages		
3	Non Determinism		
4	Properties of Regular Languages, regular expressions		
5	pumping lemma for regular languages		

6	CFL and Context Free Grammars	
7	Grammar normal forms, parsers	
8	Midterm exam+general review	
9	Push Down Automata, and its relation to CFL	
10	Turing machine and its variations	
11	Universal Turing machine	
12	Decidable Languages / Undecidable Languages	
13	Reductions for Decidability/Computational Complexity	
14	Cook Theorem/NP Complete Reductions	

22	Textbooks, References and/or Other Materials:	Introduction to the Theory of Computation, Michael Sipser
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23	Assesment	
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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
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Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	0	0.00	0.00
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	54.00	54.00
Others	0	0.00	0.00
Final Exams	1	54.00	54.00
Total Work Load			150.00
Total work load/ 30 hr			5.00
ECTS Credit of the Course			5.00

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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK6	0	0	0	0	0	0	0	0	0	0	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			