FORMAL LANGUAGES AND AUTOMATA

1	Course Title:	FORMAL LANGUAGES AND AUTOMATA	
2	Course Code:	BM204	
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. Ögr. 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
		6	
		7	
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		9	
		10	
21	Course Content:		

Course Content:

Week	Theoretical	Practice
1	Languages, DFA	
2	Regular Languages	
3	Non Determinism	
4	Properties of Regular Languages, regular expresssions	
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 / Unecidable 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
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

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**