

CONSTRAINT PROGRAMMING

1	Course Title:	CONSTRAINT PROGRAMMING	
2	Course Code:	END5124	
3	Type of Course:	Optional	
4	Level of Course:	Second Cycle	
5	Year of Study:	1	
6	Semester:	2	
7	ECTS Credits Allocated:	7.50	
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:	Doç. Dr. BURCU ÇAĞLAR GENÇOSMAN	
15	Course Lecturers:	Doç.Dr. Burcu ÇAĞLAR GENÇOSMAN	
16	Contact information of the Course Coordinator:	e-posta: burcucaglar@uludag.edu.tr, Telefon: + 90 (224) 294 09 16 Adress: Uludağ Üniversitesi, Mühendislik-Mimarlık Fakültesi, Endüstri Mühendisliği Bölümü, Görükle Kampüsü, 16059 Nilüfer, Bursa	
17	Website:		
18	Objective of the Course:	The students will gain the infrastructure to understand the current studies and the ability to model the encountered problems with constraint programming techniques.	
19	Contribution of the Course to Professional Development:	It's been planned to contribute to professional development by analyzing real life problems by scientific methods and offering solutions.	
20	Learning Outcomes:		
		1	Understanding the principles of constraint structures and representation of logic expressions in constraint programming.
		2	Representation of a combinatorial problem with the basic constraint expressions of the constraint solver and creating a constraint programming model
		3	Modeling real-world integer problems with constraint programming.
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21	Course Content:		
		Course Content:	
Week	Theoretical	Practice	
1	The Constrained Satisfaction Problems		

2	Basic Solution Procedures	
3	Modeling combinatorial problems with OPL I	
4	Modeling combinatorial problems with OPL II	
5	Constraint consistency and propagation I	
6	Constraint consistency and propagation II	
7	Global constraints	
8	Global constraints	
9	Search heuristics I	
10	Search heuristics II	
11	Arc consistency	
12	Symmetry	
13	Discussion and presentations of real-world problems modeling projects with constraint programming.	
14	Discussion and presentations of real-world problems modeling projects with constraint programming.	
22	Textbooks, References and/or Other Materials:	
23	Assesment	
TERM LEARNING ACTIVITIES		NUMBER
		WEIGHT
Midterm Exam	1	20.00
Quiz	0	0.00
Home work-project	4	40.00
Final Exam	1	40.00
Total	6	100.00
Contribution of Term (Year) Learning Activities to Success Grade		60.00
Contribution of Final Exam to Success Grade		40.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		Homeworks, project, midterm exam and final exam
24	ECTS / WORK LOAD TABLE	

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	13	5.00	65.00
Homeworks	3	12.00	36.00
Projects	1	81.00	81.00
Field Studies	0	0.00	0.00
Midterm exams	1	2.00	2.00
Others	0	0.00	0.00
Final Exams	1	2.00	2.00
Total Work Load			230.00
Total work load/ 30 hr			7.60
ECTS Credit of the Course			7.50

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	3	0	0	2	0	0	0	0	0	0	0	0	0	0
ÖK2	0	0	4	0	2	0	0	0	0	0	0	0	0	0	0	0
ÖK3	0	2	3	0	0	5	4	5	2	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			