

# CALCULUS I

1	Course Title:	CALCULUS I
2	Course Code:	MAT1071E
3	Type of Course:	Compulsory
4	Level of Course:	First Cycle
5	Year of Study:	1
6	Semester:	1
7	ECTS Credits Allocated:	6.00
8	Theoretical (hour/week):	3.00
9	Practice (hour/week):	2.00
10	Laboratory (hour/week):	0
11	Prerequisites:	None
12	Language:	English
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. BABÜR DELİKTAŞ
15	Course Lecturers:	Prof.Dr. Babür Deliktaş
16	Contact information of the Course Coordinator:	bdeliktas@uludag.edu.tr 224 2900744 Bursa Uludağ Univ. Müh. Fak. İnşaat Müh. Böl. Görükle, Bursa
17	Website:	<a href="http://insaat.uludag.edu.tr">http://insaat.uludag.edu.tr</a>
18	Objective of the Course:	To introduce the techniques of engineering optimization, leading into topics for engineering design optimization and to provide application of these techniques to solve engineering design problems
19	Contribution of the Course to Professional Development:	To able to understand engineering problems and to to perform desing and analysis of engineering structures and materials
20	Learning Outcomes:	
	1	Be able to acquire basic knowledge about traditional optimization techniques
	2	Be able to develop a proper engineering optimization problem statement
	3	Be able to select which method(s) is/are appropriate for a given application
	4	Be able to solve engineering design optimization problems using a computer
	5	Be able to interpret solutions generated by an optimization routine
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21	Course Content:	
	<b>Course Content:</b>	
Week	Theoretical	Practice
1	Introduction to Optimization	

2	Classical Optimization techniques Single variable optimization	Problem solving		
3	Classical Optimization techniques multivariable variable optimization	Problem solving		
4	Linear Programing Simplex method	Computer application		
5	Linear Programing Simplex method	Computer application		
6	Linear Programing Revised simplex method	Computer application		
7	Non linear programming One dimensional minimization method	Problem solving		
8	Non linear programming One dimensional minimization method	Computer application		
9	Non linear programming Unconstrained optimization technique	Problem solving		
10	Non linear programming Unconstrained optimization technique	Computer application		
Activites		Number	Duration (hour)	Total Work Load (hour)
12	Non linear programming Theoretical Constrained optimization technique	14	3.00	42.00
Practicals/Labs		14	2.00	28.00
13	Non linear programming Self study and preparation Constrained optimization technique	14	7.00	98.00
Homeworks		0	0.00	0.00
14	Student presentations Projects	0	0.00	0.00
Field Studies		0	0.00	0.00
15	Midterm Exams: Materials:	Springer, 1999. C. R. Hooley, M. J. Griffin, and C. R. Hooley, M. J. Griffin, and	3.00	3.00
Others		0	0.00	0.00
Final Exams		P. E. Gill, W. Murray, and J. M. H. Wright, Practical Optimization, London: Academic Press, 1984	3.00	3.00
Total Work Load				174.00
23	Total work load/ 30 hr Assessment			5.80
ECTS Credit of the Course				6.00
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Midterm Exam		1	50.00	
Quiz		0	0.00	
Home work-project		0	0.00	
Final Exam		1	50.00	
Total		2	100.00	
Contribution of Term (Year) Learning Activities to Success Grade		50.00		
Contribution of Final Exam to Success Grade		50.00		
Total		100.00		
Measurement and Evaluation Techniques Used in the Course		Midterm and Final Exams		

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	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
ÖK3	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
ÖK4	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
ÖK5	3	0	0	3	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			