

 OSTİM TEKNİK ÜNİVERSİTESİ A N K A R A	FACULTY OF ENGINEERING COURSE SYLLABUS FORM	Doküman No	MF.FR.003
		Revizyon Tarihi	13.11.2024
		Revizyon No	01
		Sayfa No	1 / 4

MATH 101 Engineering Mathematics I				
Course Code	Course Name			Semester
MATH 101	Engineering Mathematics 1			Fall ☒ Spring ☐ Summer ☐
Hours			Credit	ECTS
Theory	Practice	Lab	4	6
4	0	0		

Course Details	
Department	Aerospace Engineering
Course Language	English
Course Level	Undergraduate ☒ Graduate ☐
Mode of Delivery	Face to Face ☒ Online ☐ Hybrid ☐
Course Type	Compulsory ☒ Elective ☐
Course Objectives	The basic objective of Calculus is to relate small-scale (differential) quantities to large-scale (integrated) quantities. This is accomplished by means of the Fundamental Theorem of Calculus. Students should demonstrate an understanding of the integral as a cumulative sum, of the derivative as a rate of change, and of the inverse relationship between integration and differentiation.
Course Content	The course covers fundamental calculus concepts, including functions, limits, derivatives, and integrals. Topics include defining functions, calculating limits (including trigonometric functions), computing derivatives, solving extrema problems, and evaluating definite and indefinite integrals. These principles build a strong foundation for solving mathematical and engineering problems.
Course Method/ Techniques	Lecture ☒ Question & Answer ☐ Presentation ☐ Discussion ☐
Prerequisites/ Corequisites	None
Work Placement(s)	

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Textbook/References/Materials

- G.B Thomas, J. Hass, M.D.Weir, C. Heil, *Thomas' Calculus*, 14th Edition, (Pearson Global Edition)
- R.A. Adams, *Calculus: A complete course* 8-th revised ed. , Prentice Hall, 2013.
- J. Stewart, *Calculus*, Metric Version, Eighth Edition, 2016, Cengage Learning

Course Category

Mathematics and Basic Sciences	☒		Education	☐
Engineering	☐		Science	☐
Engineering Design	☐		Health	☐
Social Sciences	☐		Profession	☐

Weekly Schedule

No	Topics	Materials/Notes
1.	Functions of a Single Variable	
2.	Limit and Continuity	
3.	Limit and Continuity	
4.	Derivatives	
5.	Derivatives	
6.	Derivatives and Applications	
7.	Midterm Exam	
8.	Derivatives and Applications	
9.	Integration	
10.	Integration	
11.	Integration and Applications	
12.	Integration and Applications	
13.	Transcendental Functions	
14.	Integration techniques	
15.	L'Hopital's Rule	
16.	Final Exam	

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Assessment Methods and Criteria		
In-term studies	Quantity	Percentage
Attendance		
Lab		
Practice		
Fieldwork		
Course-specific internship		
Quiz/Studio/Criticize		
Homework		
Presentation / Seminar		
Project		
Report		
Seminar		
Midterm Exam	1	40%
Final Exam	1	60%
	Total	100%
Contribution of Midterm Studies to Success Grade		
Contribution of End of Semester Studies to Success Grade		
	Total	100%

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration (Hrs)	Total Workload
Course Hours	16	4	64
Lab			
Practice			
Fieldwork			
Course-specific Work Placement			
Out-of-class study time	14	3	42
Quiz/Studio/Criticize			
Homework			
Presentation / Seminar			
Project			
Report			
Midterm Exam and Preparation for Midterm	1	15	15
Final Exam and Preparation for Final Exam	1	20	20
Total Workload			141
Total Workload / 25			5,64
ECTS Credit			6

Course Learning Outcomes

No	Outcome
L1	To define functions and some special functions.
L2	To calculate the limits of functions and the limits of some special trigonometric functions.
L3	To compute the derivatives of functions.
L4	To solve absolute and local extrema, as well as maximum-minimum problems.
L5	To calculate the definite and indefinite integrals of some special functions.

Contribution of Course Learning Outcomes to Program Competencies/Outcomes

Contribution Level: 1: Very Slight, 2: Slight, 3: Moderate, 4: Significant, 5: Very Significant

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	Total
L1	5	3						3				11
L2	5	4						3				12
L3	5	5		4								14
L4	4	5	4	3								16
L5	5	4		4								13
Total												66