

Identification	Subject	MATH 105, Calculus 2, 6 ECTS	
	Department	Mathematics	
	Program	Undergraduate	
	Term	Spring, 2024	
	Instructor	Lala Atamova	
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	Phone:	(994 50) 324 15 56	
	Classroom/hours	Monday: 11:50-13:20, Friday 11:50-13:20	
	Office Hours:	Monday: 16:00-17:00 Thursday: 16:00-17:00	
Prerequisites	MATH 101- Calculus I		
Language	English		
Compulsory/Elective	Required		
Required textbooks and course materials	<p>Core Textbooks:</p> <ol style="list-style-type: none"> George Thomas, et al, Thomas' Calculus: Early Transcendental, 12th edition, Addison-Wesley (2010), (http://libgen.org/) James Stewart, Essential calculus. Early transcendentals, Second Edition, Brooks/Cole (2013) (http://libgen.org/) <p>Supplementary book</p> <ol style="list-style-type: none"> James Stewart, Essential calculus. Early transcendentals, Second Edition, Brooks/Cole (2013) (http://libgen.org/) 		
Course outline	In this subject we develop a method to calculate the areas and volumes of very general shapes. The integral is of fundamental importance in statistics, the sciences, and engineering. Here we will introduce three-dimensional coordinate systems and vectors, also. The course concerns the study of integration methods, definite integrals and their applications to evaluation areas, volumes, arc length, areas of surfaces of revolution, vectors, three-dimensional Coordinate Systems, limits and continuity in higher dimensions, partial derivatives.		
Course objectives	The concepts of indefinite and definite integrals, vectors, three dimensional coordinate systems, limits and continuity in higher dimensions, partial derivatives. Application of definite integrals to area, volume and arc length and areas of surfaces of revolution problems.		
Learning outcomes	By the end of the course the students should be able: <ul style="list-style-type: none"> To find indefinite and definite integrals of functions To find area between different simple curves To apply the fundamental theorem of calculus Vectors Three-Dimensional Coordinate Systems Limits and Continuity in Higher Dimensions, Partial Derivatives 		
Teaching methods	Lecture		x
	Group discussion		x
	Experiential exercise		x
	Simulation		
	Case analysis		
	Course paper		x
	Others		
Evaluation	Methods	Date/deadlines	Percentage (%)
	Midterm Exam		30
	Case studies		

	Class Participation		5
	Quizzes		20 (2 quizzes)
	Project		
	Activity		5
	Laboratory work		
	Final Exam		40
	Others		
	Total		100
Policy	<ul style="list-style-type: none"> ▪ Preparation for class The structure of this course makes your individual study and preparation outside the class extremely important. The lecture material will focus on the major points introduced in the text. Reading the assigned chapters and having some familiarity with them before class will greatly assist your understanding of the lecture. After the lecture, you should study your notes and work relevant problems and cases from the end of the chapter and sample exam questions. Throughout the semester we will also have a large number of review sessions. These review sessions will take place during the regularly scheduled class periods. ▪ Attendance Students who do not attend more than 25% of classes will not be allowed to take the exam. ▪ Withdrawal (pass/fail) This course strictly follows grading policy of the School of Science and Engineering. Thus, a student is normally expected to achieve a mark of at least 60% to pass. In case of failure, he/she will be required to repeat the course the following term or year. ▪ Cheating/plagiarism Cheating or other plagiarism during the Quizzes, Mid-term and Final Examinations will lead to paper cancellation. In this case, the student will automatically get zero (0), without any considerations. ▪ Professional behavior guidelines The students will behave in the way to create favorable academic and professional environment during the class hours. Unauthorized discussions and unethical behavior are strictly prohibited. ▪ Participation Every two non-participations of a student removes 1% out of his/her total percentage. ▪ Ethics Students should not arrive in late to class. All cell phones must be turned off and stowed away before entering class. Use of any electronic devices is not allowed in the classroom and 		

		violators will be punished accordingly.	
Tentative Schedule			
Week	Date/Day (tentative)	Topics	Textbook/ Assignments
1	12.02.2024 16.02.2024	<ul style="list-style-type: none"> • Volumes Using Cross-Sections • Volumes Using Cylindrical Shells 	Ch. 6.1, 6.2 / not assigned
2	19.02.2024 23.02.2024	<ul style="list-style-type: none"> • Arc Length • Practice 	Ch. 6.3 / not assigned
3	26.02.2024 01.03.2024	<ul style="list-style-type: none"> • Areas of Surfaces of Revolution • Work and Fluid Forces 	Ch. 6.4, 6.5/ not assigned
4	04.03.2024 08.03.2024	<ul style="list-style-type: none"> • Moments and Centers of Mass • Holiday 	Ch. 6.6/ not assigned
5	11.03.2024 15.03.2024	<ul style="list-style-type: none"> • The Logarithm Defined as an Integral • Exponential Change and Separable Differential Equations 	Ch. 7.1, 7.2/ not assigned
6	18.03.2024 22.03.2024	<ul style="list-style-type: none"> • Hyperbolic Functions • Novruz holiday 	Ch. 7.3/ not assigned
7	25.03.2024 29.03.2024	<ul style="list-style-type: none"> • Relative Rates of Growth • Integration by Parts 	Ch. 7.4,8.1/ not assigned Quiz (10 pts)
8	01.04.2024 05.04.2024	<ul style="list-style-type: none"> • Trigonometric Integrals • Midterm Exam 	Ch. 8.2 / not assigned
9	08.04.2024 12.04.2024	<ul style="list-style-type: none"> • Trigonometric Substitutions • Integration of Rational Functions by Partial Fractions 	Ch. 8.3,8.4 / not assigned
10	15.04.2024 19.04.2024	<ul style="list-style-type: none"> • Vectors • Problem Solving 	Ch.12.1 / not assigned
11	22.04.2024 26.04.2024	<ul style="list-style-type: none"> • Three-Dimensional Coordinate Systems • The Dot Product 	Ch.12.2, 12.3/ not assigned
12	29.04.2024 03.05.2024	<ul style="list-style-type: none"> • The Cross Product • Functions of Several Variables 	Ch. 12.4, 14.1/ not assigned
13	06.05.2024 10.05.2024	<ul style="list-style-type: none"> • Limits and Continuity in Higher Dimensions • Partial Derivatives 	Ch. 14.2,14.3 / not assigned
14	13.05.2024	<ul style="list-style-type: none"> • The Chain Rule • Directional Derivatives and Gradient Vectors 	Ch. 14.4,14.5/

	17.05.2024		not assigned Quiz (10 pts)
15	20.05.2024 24.05.2024	<ul style="list-style-type: none"> • Tangent Planes and Differentials • Extreme Values and Saddle Points • Taylor's Formula for Two Variables 	Ch. 14.6,14.7, 14.9 /not assigned
	TBA	Final Exam	

This syllabus is a guide for the course and any modifications to it will be announced in advance.