Identification	**Subject**	MATH105, Calculus-2 C, 6 ECTS	
	Department	Mathematics	
	Program	Undergraduate	
	Term	Fall, 2025	
	Instructor	Gulnar Akhundova	
	E-mail:	akhundoff86@gmail.com	
	Phone:		
	Classroom/hours	Thursday : 11:50-13:20,13:40-15:10	
Prerequisites	MATH101 - Calculus-1		
Language	English		
Compulsory/Elective	Required		
Required textbooks and course materials	***Core Textbooks:*** 1. George Thomas, et al, Thomas' Calculus: Early Transcendental, 12th edition, Addison-Wesley (2010), (http://libgen.org/) ***Supplementary book*** 2. 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	• Applications of Definite Integrals • Integrals and Transcendental functions • Techniques of Integration • Vectors and the Geometry of Space • Partial Derivatives		
Learning outcomes	By the end of the course the students should be able: • 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 (4 quizzes)
	Project		
	Activity		5
	Laboratory work		

	Final Exam		40
	Others		
	Total		100

Policy

- **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	18.09.2025 18.09.2025	• Volumes Using Cross-Sections • Volumes Using Cylindrical Shells	**Ch. 6.1, 6.2 /** not assigned
2	25.09.2025 25.09.2025	• Arc Length • Practice	**Ch. 6.3 /** not assigned

3	02.10.2025 02.10.2025	• Areas of Surfaces of Revolution • Work and Fluid Forces	**Ch. 6.4, 6.5/** not assigned
4	09.10.2025 09.10.2025	• Moments and Centers of Mass • Problem Solving	**Ch. 6.6/** not assigned Quiz (5 pts.)
5	16.10.2025 16.10.2025	• The Logarithm Defined as an Integral • Exponential Change and Separable Differential Equations	**Ch. 7.1, 7.2/** not assigned
6	23.10.2025 23.10.2025	• Hyperbolic Functions • Problem solving	**Ch. 7.3, 7.4/** not assigned
7	30.10.2025 30.10.2025	• Integration by Parts • Trigonometric Integrals	**Ch. 8.1/** not assigned
8	06.11.2025 06.11.2025	• Trigonometric Substitutions • Integration of Rational Functions by Partial Fractions	**Ch. 8.2 /** not assigned Quiz (5 pts.)
9	13.11.2025 13.11.2025	• Three-Dimensional Coordinate Systems • Vectors	**Ch. 8.3,8.4 /** not assigned
10	20.11.2025 20.11.2025	• **Midterm Exam** • The Dot Product	**Ch.12.1 /** not assigned
11	27.11.2025 27.11.2025	• The Cross Product • Functions of Several Variables	**Ch.12.2, 12.3/** not assigned
12	04.12.2025 04.12.2025	• Limits and Continuity in Higher Dimensions • Practice	**Ch. 12.4, 14.1/** not assigned Quiz (5 pts.)
13	11.12.2025 11.12.2025	• Partial Derivatives • The Chain Rule	**Ch. 14.2,14.3 /** not assigned
14	18.12.2025 18.12.2025	• Directional Derivatives and Gradient Vectors • Tangent Planes and Differentials	**Ch. 14.4,14.5/** not assigned Quiz (5 pts)
15	25.12.2025 25.12.2025	• 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.