CALCULUS 2

Identification

Department:	Mathematics
Semester:	Spring, 2010
Department:	Mathematics
Subject:	Calculus 2
Credit-units:	3
Instructor:	Ph. D, Associate Professor Nigar Aslanova
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Prerequisite: MATH 101 Calculus 1

Textbooks and

Materials:

1. Anton Howard, Calculus with Analytic Geometry, V edition, 2002
2. Richard A. Hunt, Calculus, III edition,1999
3. Winney Tomas, Calculus with Analytic Geometry,VIII edition, 1998

Objectives Develope basic results to obtain function from its derivative (antiderivative)

Give a method for using antiderivative to evaluate definite integrals (Fundamental theorem of Calculus)

Develope tools that are necessary for calculation of definite integral.

Consider applications of definite integral.

Develope convergence tests for series ; introduce the notion of limit and continuity of function of 2 variable;

Develope the methods to find extreme values of function of two variables.

Developed Skills

Analytic thinking

Critical reasoning

Other

Evalution

Participation & activity	10
Quizzes	10
Mid-term Examination	35
Final Examination	45
Total	**100**

Learning and Teaching Methods This course considers active learning process: lectures, discussions, practices.

Course Schedule

Week	Topics	
1	Antiderivative and the indefinite integrals. Table of integrals.Integration by parts. Integration by substitution.	/1/, p.320-356
2	Trigonometric integrals, reduction formulas, integration of rational functions.	/1/, p.565-582
3	The definite integral. Riemann sums.Newton-Leibiniz formula. The fundamental theorem of calculus.	/1/, p.355-368
4	Application of the definite integral.Area of the region in the plane. Volumes by slicing. Arc length.	/1/, p.384-417
5	Improper integrals.	/1/, p.440-460
6	Infinite series. Comparison test. The integral test. Ratio and root tests.	/2/, 659-684
7	Alternating series. Absolute and conditional convergence.Convergence sets of power ser. Taylor series.	/2/, 693-705
8	**Mid-term exam**	
9	Functional series. Majorised series. Inegration and differentiation of series.	/1/, p.711-722
10	Expansion of function in Fourier ser. Fourier ser. for even and odd functions.	/1/, p.815-830
11	Function of 2 variables. Limits and countinuity. Partial derivatives.	/1/, p.972-995
12	Differentiability and gradient. The chain rule.	/1/, p.995-1020
13	Maxima and minima for a function of two variables.	/1/, p.1076-1096
14	Double integral. Double integrals in polar coordinates. Surface area	/1/, p.1104-1135

15	Line integrals in the plane and independence of path. Greens theorem.	/1/, p.1150-1160
16	Greens theorem	/1/, p.1170-1176
	Final exam	