Eastern University

Department of Electrical and Electronic Engineering
Semester: Spring -2011

MAT-101 Calculus I (Batch 1118,1114,T111) (Group-1)

Teacher: Gulshan Khatun
Office: Campus- 2, Faculty Room (5th floor)
Phone: 404(Office-PABX)

Schedule:

Sunday 12:00 pm- 1:20 pm	Monday 9:00am-10:20 am	Wednesday 1:30pm-2:50 pm

Consulting Hours: Monday 11:00 am to 1:00 pm & Sunday 10:30 am to 11:30 am

Course Description

Functions and graphs: Sets of real numbers, intervals and inequalities, domain and range of a function, inverse function, parametric function, graphs of simple function(exponential, logarithmic and trigonometric), reflections.
Limit and continuity: Existence of limits, limits at infinity, properties and computational techniques of limits, properties of continues functions, extreme value theorem and Intermediate value theorem statement and verification only) and its application. Differentiation and its applications: Tangent lines and rates of change, differentiability, techniques of differentiation, successive differentiation, Leibnitz's theorem (n-th derivative of product of two functions), Δ-notations and differentials, related axes, increasing and decreasing functions, point of inflection relative extrema (maxima and minima) , graphs of polynomials, applied maximum and minimum problems, proofs of Roll's and mean value theorem, Indeterminate form, L'Hospital's rule, Taylor and Maclaurin polynomials, error analysis.
Indefinite integrations: Anti-derivatives, techniques of integration (integration by parts, substitutions and partial fractions), reduction formula involving one and two parameters. Definite integrals and its applications: integration as the limit of a sum, basic properties of definite integrals, fundamental theorem of calculus, evaluation of area, length of (plane, parametric and polar) curves, surface area and volume using definite integrals.

Text Book (Required):

- Calculus- Howard Anton, Irl Bivens, Stephen Davis, 8th edition

Reference Books:

- Differential Calculus- B.C Das, B.N Mukherjee, (4th – 3rd edition)
- Calculus-Swokpwski Eary W, 6th edition
- Calculus- Robert, T. Smith, 2nd edition
- Integral Calculus- B.C Das, B.N Mukherjee, (4th – 3rd edition)

**Beside this reference texts all the topic which will be covered in the class, some of the material for those topics will be given as a handout in the class.

Learning Outcome

After successful completion of the course, each participant will be confident and skilled enough to work out problems of sketching graph of any equation, calculating the area and volume of any matter and also able to find out the maximum and minimum value of any real life function.

Performance Evaluation:

Attendance/ Assignments/ Presentation	10%
Class Quizzes	20%
Mid Term	30%
Final Examination & Lab	40%
Total	=100%

Marks	Grade	Point
80-100	A+	4.00
75-79	A	3.75
70-79	A-	3.50
65-69	B+	3.25
60-64	B	3.00
55-59	B-	2.75
50-54	C+	2.50
45-49	C	2.25
40-44	D	2.00
00-39	F	0.00

Course Policies and Procedures:

General policies are as described in the university (EU) Bulletin.
Should there be any necessity; any consideration for improving grade of a student will be tied up with the performance demonstrated by the student in the areas related to the continuous assessment (attendance and quizzes) over the entire semester. **To be eligible for sitting in the final Exam a student has to have minimum 75% class attendance.** Attendance of **anyone who will enter the class after the attendance register is closed may not be recorded. Four quizzes will be taken and best three will be counted. There will be no make up of any quizzes.**
When needed, extra classes will be arranged to make up slow progress of the course. These classes will be considered as a regular. Decisions regarding the schedules for these classes will be made in the class when most of the students remain present in the class. No separate notice will be served for this purpose.
Students will have to use separate note book(s) exclusively meant for this course.

Assignment submission:

All the assignments should be submitted within specified deadline. If any student fails to submit with in the time then a percentage of points will be deducted and I also may not accept the late assignment. Every assignment must have the following information at the top of the first page of the assignment.

ID# :
Name :
Assignment No :
Date assigned :
Due date :

Any assignment not conforming to this format may be subjected to random penalty.

Academic Dishonesty:
You are encouraged to discuss the intellectual aspects of assignment with other class participants however; each student is responsible for formulating solutions in his or her own words. Students who submit the same or suspiciously similar assignments will

receive a grade zero on the particular assignment and have their final course grade reduced by one letter grade. In addition, the University has formal procedures to handle cases of academic dishonesty.

A teacher alone cannot teach; it requires tremendous amount of cooperation and positive responses from the student. So every student should get their lesson by reading various books/materials (beside their text books). A teacher of any course is not more then a guide.

Course Calendar

Lecture	Topic	
13.02.11	Course introduction. Function and Graphs: Set, Intervals, function, inverse function, graph.	
14.02.11	Domain and range of a function	
20.02.11	Limit and its problem	
23.02.11	L'Hospital's rule	
27.02.11	Problem discussion.	
28.02.11	Continuity and differentiability	
02.03.11	Problems on continuity	**Quiz#1**
06.03.11	Do	
07.03.11	Problems on differentiability	
09.03.11	Mean value theorem and Rolle's Theorem.	
13.03.11	Successive differentiation	
14.03.11	Leibnitz's Theorem (nth derivative of product of two functions).	
16.03.11	Do	
20.03.11	Application of derivatives (maxima and minima).	**Quiz#2**
21.03.11	Problem discussion.	
23.03.11	Review of the previous lectures	
10.04.11	Anti-derivatives, techniques of integration.	
11.04.11	Fundamental theorem of calculus.	
13.04.11	Do	
17.04.11	Reduction formulae involving one and two parameters.	
18.04.11	Definite integrals and its applications: introduction.	**Quiz#3**
20.04.11	Evaluation of area. Length of curves (plane, parametric).	
24.04.11	Do	
25.04.11	Length of curves (polar).	
27.04.11	Surface area	
02.05.11	Volume using definite integrals	**Quiz#4**
04.05.11	Do.	
08.05.11	Problem discussion	
09.05.11	Review of the previous lectures	
11.05.11	Review of the previous lectures	

Gulshan Khatun

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