International Islamic University Chittagong (IIUC)
Department Computer Science and Engineering (CSE)
Lesson Plan Status with Course Profile
Section: 1CF

Course Code : MATH-1107
Course Title: Mathematics-I (Differential and Integral Calculus)
Credit Hours: 3
Contact Hours: 3 per week
Type: Major
Year/Semester: One/One
Prerequisite Courses: None
Co-requisite: None
Session: Autumn 2023

Course Instructor: Md. Rashedul Islam (MRI)

Class Schedule:
Tuesday: 12:30 PM – 1:20 PM. [Room: R305]
Wednesday: 10:50 AM – 11:40 AM. [Room: R305]
Wednesday: 11:40 AM – 12:30 PM. [Room: R305]

Counseling Time:
Monday & Wednesday: 10:15 AM – 10:45 PM. [Room: R401]

Course Rationale/Summary:
The purpose of this course is to introduce the students to differential calculus and integral calculus and its application in real world.

Course Objectives:
The objective of this course is to provide the students with an understanding of how to find out the rate of change of various functions, and to determine the area and volume of different types of objects. This course aims to introduce the student with the various techniques of differentiation and integration.

Course Learning Outcomes (CLOs):

SL No.	CLOs Description	Weightage (%)
1	Compute the functions, limit and continuity of a function, derivatives, integrals and extrema of single-variable and/or multi-variable functions.	15
2	Understand the techniques of differentiation and integration.	60
3	Demonstrate the applications of differentiation and integration.	15

Mapping of CLO-PLO:

#	CLOs Description	PLOs	Bloom's Taxonomy Domain/Level	Delivery Methods and Activities	Assessment Tools
CLO1	Compute the functions, limit and continuity of a function, derivatives, integrals and extrema of single-variable and/or multi-variable functions.	PLO1	Cognitive/ Understanding Level 2	Lecture, Tutorial, Class Discussion, Problem Solving, Assignment, Home Work, Presentation Slides, Group Discussion Hand Note, etc.	**Exam** (Mid Term & Final) **Class Test** (Quizzes/ Assignment/ Class Performances/ Presentations)
CLO2	Understand the techniques of differentiation and integration.	PLO1	Cognitive/ Understanding Level 2	Lecture, Class Discussion, Problem Solving, Assignment, Home Work, Presentation Slides, Group Discussion Hand Note, etc.	**Exam** (Mid Term & Final) **Class Test** (Quizzes/ Assignment/ Class Performances/ Presentations)
CLO3	Demonstrate the applications of differentiation and integration.	PLO1	Cognitive/ Apply Level 3	Lecture, Class Discussion, Problem Solving, Assignment, Home Work, Presentation Slides, Group Discussion Hand Note, etc.	**Exam** (Mid Term & Final) **Class Test** (Quizzes/ Assignment/ Class Performances/ Presentations)

Resources:

Text Books:

#	Name of Authors	Title of the Books	Edition	Publisher's Name	Year
1.	P. K. Bhattacharjee	A Text Book on Differential Calculus	First Flat	Gonith Prokashon	2006
2.	Abu Yusuf	Differential Calculus	Revised Reprinted	Mamun Brothers	2007
3.	P. K. Bhattacharjee	A Text Book on Integral Calculus	First 2nd	Gonith Prokashon	2007
4.	K.A. Stroud	Engineering Mathematics	7^{th}	Palgrave Macmillan	2013

Reference Books:

#	Name of Authors	Title of Book	Edition	Publisher's Name	Year
1	Erwin Kreysig	Advanced Engineering Mathematics	10th	John Wiley & Sons Inc.	2011
2	Thomas, Finey	Calculus and Analytic Geometry	9th	Addison Wesley	1995
3	Earl W. Swokowski	Calculus with Analytic Geometry	2nd	Prindle	1984

Weightage Distribution among Assessment Tools:

Assessment Tools	Weightage (%)
Class Attendance	10%
Class Tests and Assignments	10%
Mid-Term Examination	30%
Final Examination	50%

Basis for awarding marks for class participation and attendance:

Attendance	Status	Marks
90% and above	Collegiate (C)	10
85% to less than 90%	Collegiate (C)	9
80% to less than 85%	Collegiate (C)	8
75% to less than 80%	Collegiate (C)	7
70% to less than 75%	Collegiate (C)	6
65% to less than 70%	Non-Collegiate (NC)	5
60% to less than 65%	Non-Collegiate (NC)	4
less than 60%	Dis-Collegiate (DC)	0

Grading System:

Numerical grade Marks%	Letter Grade (LG)	Grade Point (GP)	Remarks/Status	Equivalent
80-100	A+ (A plus)	4.00	Excellent	First Class
75 to less than 80	A (A regular)	3.75	Very good	
70 to less than 75	A- (A minus)	3.50		
65 to less than 70	B+ (B plus)	3.25	Good	
60 to less than 65	B (B regular)	3.00		
55 to less than 60	B- (B minus)	2.75	Satisfactory	Second Class
50 to less than 55	C+ (C plus)	2.50		
45 to less than 50	C (C regular)	2.25	Pass	
40 to less than 45	D	2.00		Third Class
00 to less than 40	F	0.00	Fail	

Weekly Lecture Plan for Course Content:

Weeks	Topics
1	Introductory Class, Functions.
2	Limit, Continuity and Differentiability, Physical meaning of derivative of a function.
3	Indeterminate Forms, Differentiation.
4	Successive Differentiation and Leibniz Theorem, Rolle's Theorem,
5	Mean Value Theorem, Taylor's Theorem and Maclaurian's Formulae.
6	Discussion and Review of the Previous Lectures. **Class Test-01** (Based on Mid-Term Syllabus), **Solve Class**
MID-TERM EXAMINATION	

7	**Result of Mid Term Exam by Showing Answer Script** Partial Differentiation, Euler's formula
8	Maxima and Minima with applications
9	Indefinite integral: Physical meaning of integration of a function, method of Substitution, Integration by parts, special trigonometric functions and rational and partial fractions, different techniques of integration.
10	Discussion and Review of the Previous Lectures, **Class Test-02** (Assignment, Based on Group-A), **Solve Class**
11	Fundamental Theorem, General Properties and Evaluations of Definite Integral and Reduction Formula, Definite Integral as the limit of a sum, Integration by method of successive reduction,
12	Gamma and Beta Function, Jacobian Theorem, Double Integral, Change of order of Integration, Triple Integral, Physical Application of double and Triple Integral. Quadrature,
13	Determination of length of Curves, Finding Area of a region, Areas of surfaces of revolution, Volumes of solids of revolution.
14	Real world problem using calculus.
15	Discussion and Review of the Previous Lectures, **Class Test-03** (Based on Group-B), **Solve Class**
SEMESTER FINAL EXAMINATION	

Course Instructor Contact Details:

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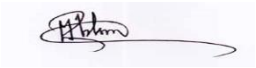
Signature of the Course Teacher



Md. Rashedul Islam

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Chairman
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