UNITED INTERNATIONAL UNIVERSITY
Department of Computer Science and Engineering (CSE)
Course Syllabus

1.	Course Title : Calculus and Linear Algebra
2.	Course Code : MATH 2183
3.	Trimester and Year: Fall 2023
4.	Credit Hours: 3
5.	Section: AG, AL
6.	Instructor's Name: Md. Asadujjaman (MAJ), Assistant Professor in Mathematics, INS.
7.	Email: asad132@du.ac.bd, Mobile – 01790062065, Room No. 619

Course Syllabus of Math 183/2183

Class	Topics/Assignments	COs	Reading Reference	Activities
	Calculus			
1, 2	Analysis of Function I: Slope and Concavity		**4.1:** Definition-4.1.1, Theorem-4.1.2, Definition-4.1.3, Theorem-4.1.4, Inflection points, Definition-4.1.5. Examples: 1-5 Exercise Set 4.1: 9,10, 15-20	Q/A Test, Assignment
3, 4	Analysis of function II: Relative Extrema and Polynomials		**4.2:** Definition-4.2.1, Theorem-4.2.2, First Derivative Test, Theorem-4.2.3, Second Derivative Test, Theorem-4.2.4, Analysis of polynomials. Examples: 1-8 Exercise Set 4.2: 33-54	Q/A Test, Assignment
5, 6	Partial Derivatives		**13.3:** Definition-13.3.1,Examples: 1-5, 10-14 Exercise Set 13.3: 1-13, 25-52, 85-92, 95-104	Q/A Test, Assignment
7, 8	The Chain Rule		**13.5:** Theorem-13.5.1, Theorem-13.5.2, Theorem-13.5.3, Related rates problems, Theorem-13.5.4, Theorem-13.5.5, Other versions of chain rule. Examples:1-8 Exercise Set 13.5: 1-10, 17-34, 41-44, 50-54	Q/A Test, Assignment
	Ordinary Differential Equations			
9	Introduction to the differential equations		**BD**1.3: Exercise: (1-27)odd	Q/A Test, Assignment
10-13	Methods for the solution of the 1st order differential equations		**BD** 2.1: Examples: 1-4 Exercise: (1-19) odd **BD** 2.2: Examples: 1-3 Exercise: (1-19) odd **BD** 2.6: Example: 1, 2 Exercise: (1-13) odd **Zill** 2.5: Example: 1, 2 Exercise: 1-10, 15-22	Q/A Test, Assignment
14-16			**BD** 3.1: Example: 1-3 Exercise: 1-16 **BD** 3.3: Example: 1-3 Exercise: 7-22	Q/A Test, Assignment

	Methods for the solution of the higher Or, 2nd order homogeneous and non-homogeneous linear differential equations with constant coefficients		**BD** 3.4: Example: 1-3 Exercise: 1-14 **HKD 3** Exercise 3.20: 1-11 Example : 51, 52 Exercise 3.21: 1, 2, 4-6, 8 Exercise 3.22: 1-2, 5, 6, 8-11, 13, 15, 17; Example : 54-56 Exercise 3.23: 1, 4, 5, 11 Example: 57, 58, 59 & 61.	
Linear Algebra				
17-19	Introduction to the system of linear equations.		**HR** 2.1: Examples: 1-7 Exercise:(1-23) odd **HR** 2.2: Examples: 1–7 Exercise : (1-37)odd, 43, 45	Q/A Test, Assignment
20-24	Matrices and Matrix Algebra		**HR** 3.1: Examples: 1-8, 10 Exercise: (1-19)odd **HR** 3.2: Examples: 1-12 Exercise: (1-15)odd **HR** 3.3: Examples:3 Exercise: 11 **HR** 4.3: Examples: 1-6 Exercise: 1-10 **HR** 4.4: Examples: 1-4 Exercise: 3, 4 **HR** 8.2: Examples: 2, 3	Q/A Test, Assignment

Textbook	1. Contemporary Linear Algebra, Howard Anton, Robert C. Busby (**HR**). 2. Elementary Differential Equations, Boyce &Diprima (**BD**) [9[th]Edition]. 3. Calculus 10-th Edition by Howard Anton, Irl Bivens and Stephen Davis
Reference	1. A First Course in Differential Equations with Modeling Applications, Dennis G. Zill (**Zill**) [10th Edition]. 2. Engineering Mathematics, H. K. Dass (**HKD**) [15th Edition].

Appendix 1: Assessment Methods

Assessment Types	Marks
Attendance	5%
Assignments	5%
Class Tests	20%
Mid Term	30%
Final Exam	40%

Appendix 2: Grading Policy

Letter Grade	Marks %	Grade Point	Letter Grade	Marks%	Grade Point
A (Plain)	90-100	4.00	C+ (Plus)	70-73	2.33
A- (Minus)	86-89	3.67	C (Plain)	66-69	2.00
B+ (Plus)	82-85	3.33	C- (Minus)	62-65	1.67
B (Plain)	78-81	3.00	D+ (Plus)	58-61	1.33
B- (Minus)	74-77	2.67	D (Plain)	55-57	1.00
			F (Fail)	<55	0.00