

University of Computer Studies (Thaton)
2024-2025 Academic Year
First Year (B.C.Sc. / B.C.Tech.)
Lecture Plan

CST-1141 Calculus

First Semester

Textbook : Thomas' Calculus 15th Edition

Prerequisite : NIL

Credit Unit : 3 ACUs

Periods : 64 periods for 16 weeks (4 periods * 16 weeks) (1 period – 1 hr)

No	Topics	Week	Remark
I	Chapter 4 Applications of Derivative		
1	4.2 The Mean Value Theorem	week 1&2	
2	4.5 Indeterminate Form and L'Hopital's Rule		
3	4.7 Newton's Method		
II	Chapter 5 Integrals		
4	5.1 Area and Estimating with Finite Sums	week 3&4	
5	5.2 Sigma Notation and Limits of Finite Sums		
6	5.6 Definite Integral Substitutions and the Area Between Curves (w.r.t 'y')		
III	Chapter 6 Application of Definite Integral		
7	6.2 Volume Using Cylindrical Shells	week 5&6	
8	6.3 Arc Length		
9	6.4 Area of Surfaces of Revolution		
IV	Chapter 7 Integrals and Transcendental Functions		
10	7.2 Exponential Change and Separable Differential Equations	week 7&8	
11	7.3 Hyperbolic Function (and its inverse)		
V	Chapter 8 Techniques of Integration		
12	8.4 Trigonometric Substitutions	week 9&10	
13	8.5 Integration of Rational Functions by Partial Fractions		
14	8.7 Numeric Integration		
VI	Chapter 10 Infinite Sequences and Series		
15	10.1 Sequences	week	
16	10.2 Infinite Series		
17	10.3 The Integral Test		
18	10.4 Comparison Test		

No	Topics	Week	Remark
19	10.5 Absolute Convergence; The Ratio and Root Tests	11,12&13	
20	10.6 Alternating Series and Conditional Convergence		
21	10.7 Power Series		
22	10.8 Taylor and Maclaurin		
VII	Chapter 11 Parametric Equations and Polar Coordinates		
23	11.1 Parametrizations of Plane Curves	week 14,15&16	
24	11.2 Calculus with Parametric Curves		
25	11.3 Polar Coordinate		
26	11.4 Graphing Polar Coordinate Equations		
27	11.5 Areas and Lengths in Polar Coordinates		

Assessment Plan for the Course

Assignment	20%
Tutorial/Test	10%
Quizzes	10%
Exam	60%