MTH107 Calculus I

Level: 1

Credit Units: 5 Credit Units

Language: ENGLISH

Presentation Pattern: EVERY SEMESTER

Synopsis:

MTH107 Calculus I will introduce students to the study of limits, continuity and differential calculus. Students will be exposed to computational techniques in evaluating limits and derivatives and applications of differentiation to optimization. The course will be foundational to everyone who wants to delve further into optimization.

Topics:

- Inequalities
- Limits
- Continuity
- Differentiability
- Implicit Differentiation
- Relative Extrema
- Absolute Extrema
- Mean Value Theorem
- Concavity
- Graph Sketching
- L'Hôpital's Rule
- Taylor's Theorem

Textbooks:

James Stewart: Calculus: Early Transcendentals.International Metric Edition, 9th Cengage
ISBN-13: 9780357439197

Learning Outcome:

- Discuss the continuity or differentiability of certain functions of one variable.
- Apply derivative tests to find relative extremum of certain functions of one variable.
- Show the existence of certain points in certain open interval satisfying certain identities using the Intermediate Value Theorem or Mean Value Theorem.
- Sketch graphs of certain functions of one variable.
- Determine limits of certain functions of one variable.
- Use the Taylor polynomial of certain degree of a given function to estimate the value of the function at certain point up to certain degree of accuracy.

Assessment Strategies (Evening Class):

Components	**Description**	**Weightage Allocation (%)**
Overall Continuous Assessment	COMPUTER MARKED ASSIGNMENT 1	8
	TUTOR-MARKED ASSIGNMENT 1	16
	ADAPTIVE LEARNING SYSTEM 1	6
Overall Examinable Components	Written Exam	70
Total		**100**