Course Specifications of MATH 3111

Course No.	Course Title	No. of Units			Pre-requisites
		Th.	Pr.	Credit	
MATH 3111	Calculus I	3	-	3	Pre-Calculus

Course Objectives:

On completion of the course, the students should be able to:

- The concept and calculation of limits and continuity of functions.
- The concept, calculation of derivatives of functions.
- Some applications of differentiation.

Course Description:

Calculus I of Mandatory course in the second level of the common first year and serves other programs that are physics, chemistry, engineering, and Computer Science. The course is concerned with the study of Limits (Definition of the limit, Calculating limits using the limits laws, Limits at Infinity), continuity (continuous and discontinuous functions, theorems of continuity, Vertical and Horizontal Asymptotes), derivation of one-variable functions (Derivatives and Rates of Change, Derivatives of polynomials and Exponential Function, The Product and Quotient Rules, Derivatives of Trigonometric Function, The Chain Rule, Implicit Differentiation, Derivatives of Logarithmic Functions, Hyperbolic Function) and applications of differentiation (Maximum and Minimum Values, The Mean Value Theorem, Graph Sketching, Indeterminate forms, and L'Hospital's Rule, Taylor and Maclaurin expansions).

Main Textbook:

- Stewart, J. Calculus: Early Transcendentals, 9th Edition, Cengage Learning, 2019.

Subsidiary Books:

- Rogawski, J. and Adams, C. Calculus: Early Transcendental, 3rd Edition, Macmillan Education, 2015.