

Subject :	Mathematics I	Units :	3
Code	E111		
Level	1st level	Theoretical :	3 Hr/wk
Pre-requisite:	None	Practical :	

Algebraic Preliminaries

Numbers, Sets, Inequalities, Absolute value.

Functions

Domain, Range, graphs, Symmetry, Asymptotes.

Limits

Definition of Limit, Theorems, Continuity, One-Sided Limits, Limits at Infinity, L Hopital's rule.

Derivatives

Definition, Power and Sum Rules, Product and Quotient Rules, Chain rule, High-Order derivatives, Implicit differentiation.

Applications of Derivative

Maximum and minimum, mean value theorem, Increasing and Decreasing Functions, Concavity and Points of inflection, Second Derivative Test.

Definite Integration

Definition, Integral Theorems, Length of a Curve, Areas, Volume of Solids, Surface Area, Indefinite Integrals.

Transcendental Functions

Trigonometric Functions, Graphs, Derivatives of trigonometric functions, Inverse trigonometric functions, Graphs, Derivatives of Inverse trigonometric functions, Natural Logarithm Functions, Exponential Functions, Functions a^u and $\log_a u$.