



Paper Code : MAT:101
Paper Name : Mathematics-I

Teaching Hours (Per Week)		Examination Scheme		
TH. (hours)	Pr. (hours)	Internal	External	Total
		Th. (marks)	Th. (marks)	
4		30	70	100 (marks)

Lectures = 68 Hours

Details Syllabus

UNIT I
DETERMINANTS **14 Hrs.**

Definition, Co-factors, Properties of Determinants MATRICES: Definition, Types of Matrices, Addition, Subtraction, Scalar Multiplication and multiplication of Matrices, Adjoint, Inverse, Cramer's rule, Rank of Matrix, Gaussian elimination Eigen vectors of a Matrix, Caley- Hamilton theorem (without proof).

UNIT II
PROGRESSIONS: **12 Hrs.**

Arithmetic Progression, Sum of Series in A.P, Arithmetic Mean, Geometric Mean, Geometric Progression, Sum of a Series in G.P. Harmonic Progressions. Mathematical Induction, Sequences and Series.

UNIT III
DIFFERENTIAL CALCULUS: **15 Hrs.**

Derivative of a function, important derivatives using first principle, derivative of sum, differences, derivatives of composite functions, Mean value theorem, partial differentiation, successive differentiation, Total Differentiation.

UNIT IV
INTEGRAL CALCULUS **15Hrs.**

Definition, fundamental theorem of calculus, Methods of integration by parts, by substitution, integration of algebraic and trigonometric functions, Definite integrals.

UNIT V
PERMUTATIONS & COMBINATIONS: **12 Hrs.**

Fundamental rule of counting, factorial notation, permutations, Circular permutations, permutation of n different things, permutation of things not all different. Combinatons, restricted combinations, combinations of things not all different.



RECOMMENDED BOOKS

1. Kresyig E, "Advanced Engineering Mathematics", 5th Edition, John Wiley & Sons.
2. D. C. Sanchetti & V. K. Kapoor, "Business Mathematics"
3. H. K. Dass, "Advanced Engineering Mathematics"
4. Shanti Narayan, "Differential calculus" & "Integral Calculus".
5. Thomas & Finney: "Calculus with Analytical Geometry"