APPLIED MATHEMATICS-I
1st Semester

Module-I (13 Hours)

Calculus:

Asymptote, Curvature , Partial differentiation, Taylor's theorem for function of two variable, Maxima and Minima for function of two variables.

Module II (12 Hours)

Differential Equation-1
Differential Equation: First order differential equations, Separable Equation, Exact differential equation,
Linear differential equation, Bernoulli's equation and application to Electrical circuits.
Differential Equation-II
Linear differential equation of second and higher order, Homogeneous equation with constant co-efficient, Euler-Cauchy equations, Solution by undetermined co-effficient, Solutions by variation of parameters, Modeling of electric circuits

Module-III (10 Hours)

Series solution of differential equations, Power series method, Legendre equation and Legendre polynomials,
Linear algebra, Matrices, Vectors, Determinants, System of linear equations,

Module-IV (10 Hours)

Eigen values and eigen vectors, Symmetric and skew-symmetric matrices, Orthogonal matrices, Complex matrices, Hermitian and skew-Hermitianmatrices, Unitary matrices and similarity of matrices.

TextBooks:
1. Differential Calculus by Santi Narayan and Mittal, Chapters 14, 15 Publication

2. Advanced Engineering Mathematics by E. Kreyszig, Tenth Edition , Willey

3. Higher Engineering Mathematics by B.V.Raman, Chapter 4.1,4.2, McGraw Hills Education

References:

1. English Mathematics by paland s Bhunia, Oxford Publication

2. Ordinary and Partial Differential equations by J. Sihna Ray and S Padhy, Kalyani Publishers

3. Advance Engineering Mathematics by P.V.O'NEIL, CENGAGE