1st Semester

MATHEMATICS

Module I (8hrs)

Asymptote, Curvature (Cartesian and polar), Gamma & Beta function , Partial differentiation, , Maxima and Minima for function of two variables.

Module II (8hrs)

Differential Equation: First order differential equations, Separable Equation, Exact differential equation, Linear differential equation, Bernoulli's equation application to Electrical circuits.

Module III (9hrs)

Linear differential equation of second order, Homogeneous equation with constant co-efficient, Euler-Cauchy equations, Solution by undetermined co-efficient, Solutions by variation of parameters, Modelling of electric circuits.

Module IV (10hrs)

Series solution of differential equations, Power series method, Legendre equation and Legendre polynomial. Bessels function and its properties.

Module V (8hrs)

System of linear equations, eigen values and eigen vectors, Symmetric and skew-symmetric matrices, Orthogonal matrices, Complex matrices, Hermitian and skew-hermitian matrices, Unitary matrices and similarity of matrices.

TEXT BOOKS:

1. Differential Calculus by Santi Narayan and Mittal, Chapters 14, 15 ,Publisher: S. Chand
2. **Mathematical Methods by Potter Goldberg ,Publisher: PHI**

REFERENCE BOOKS:

1. Higher Engineering Mathematics by B. V. Ramana ,Publisher: TMH
2. Engineering Chemistry by Jain and Jain (15th edition
3. Physical Chemistry-Thomas Engel, Philip Reid by Pearson Education.