

BS1101 - MATHEMATICS-I (3-1-0)
(1st Sem)

Module -1 (15 Hours)

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

Module-II (15Hours)

Calculus: Asymptote, Curvature

Series solution of differential equations, Power series method, Legendres equation and Lagenders polynomials, Bessels equation, Bessels function and its application

Module-III (15 Hours)

Linear algebra, Matrices, Vectors, Determinants, 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. Advanced Engineering Mathematics by E. Kreyszig

Publisher: John Willey & Sons Inc- 8th Edition

Chapter 1(1.1 to 1.6),

Chapter 2(2.1 to 2.12)

Chapter 4(4.1 to 4.3, 4.5, 4.6

Chapter 6(6.1 to 6.6)

Chapter 7(7.1 to 7.5)

Reference Books:

1. Higher Engineering Mathematics by B. V. Ramana

Publisher: TMH

2. Mathematical Methods by Potter Goldberg

Publisher: PHI