

Semester-II

Subject Code:	NS103a	Course Title	Mathematics-II
Contact Hours	L-3, T-1, P-0	Credit	4
Programme	B.Tech (ECE, ME, SM)	Semester	II
Pre-requisites	NIL		
Evaluation scheme	Quiz I (15%), Mid term (30%), Quiz II (15%), End term (40%)		
Module 1: <i>Ordinary Differential Equations</i>		[21 H]	
Introduction to Differential equations, Existence & Uniqueness of solutions, Geometrical interpretation of solutions, First order ODEs; Separation of variables, Exact differential equations, Integrating factors, Linear ODEs, Euler-Cauchy equations, Orthogonal Trajectories, Solution of higher order ODEs with constant & variable coefficients; method of undetermined coefficients, method of variation of parameters, Wronskin, Series solution method, Special function; Legendre Equations, Bessel's equations etc. Solution of system of ODEs, Laplace Transform, Z Transforms.			
Module 2: <i>Partial Differential Equations</i>		[21 H]	
Classification of PDEs, First and Second order PDEs, Fourier series and Fourier Transform, Discrete Time Fourier Transform, Discrete Fourier Transform, Introduction to parabolic (Heat Equation), elliptic(Laplace Equation) and hyperbolic equations(Wave Equation).			
Text/Reference books:			
1. Advanced Engineering Mathematics by Erwin O. Kreyszig,			
2. An elementary Course in PDE by T. Amarnath.			
3. E. A. Coddington and N. Levinson, Theory of Ordinary Differential Equations			