Curriculum Plan: B.A (Programme) (Semester III)
DSC-A3, Differential Equations (2024-25)

Dr. Mohd Nadeem
Assistant Professor
Department of Mathematics
Kalindi College
University of Delhi
Delhi- 110008
E- mail:
mohdnadeem.jmi@gmail.com

Marks Distribution	**Theory** -90
	IA+CA-30+40
Classes Assigned	**Theory: 3 per week**

Reference		**References:** 1. Myint-U, Tyn and Debnath, Lokenath (2007). Linear Partial Differential Equations for Scientist and Engineers (4th ed.). Birkhäuser. Indian Reprint. 2. Ross, Shepley L. (1984). Differential Equations (3rd ed.). John Wiley & Sons. **Suggestive Readings** ● Edwards, C. Henry, Penney, David E., & Calvis, David T. (2015). Differential Equations and Boundary Value Problems: Computing and Modeling (5th ed.). Pearson Education. ● Kreyszig, Erwin. (2011). Advanced Engineering Mathematics (10th ed.). Wiley India. ● Sneddon I. N. (2006). Elements of Partial Differential Equations. Dover Publications.
Section	**Week**	**Topics**
	1st week	First order ordinary differential equations: Basic concepts and ideas, First order Exact differential equations,
	2nd week	Integrating factors and rules to find integrating factors, Linear equations and Bernoulli equations, Initial value problems,
	3rd week	Applications of first order differential equations: Orthogonal trajectories and Rate problems;
	4th week	Basic theory of higher order linear differential equations, Wronskian and its properties.
	5th week	**Assignment submission and class test scheduled**

	6th week	Linear homogeneous equations with constant coefficients
	7th week	, Linear non-homogeneous equations, Method of undetermined coefficients, Method of variation of parameters
	8th week	, Two-point boundary value problems, Cauchy-Euler equations,
	9th week	System of linear differential equations.
	10th week	Classification and Construction of first-order partial differential equations
		Semester break and Home Exam
	11th week	, Method of characteristics and general solutions of first-order partial differential equations
	12th week	, Canonical forms and method of separation of variables for first order partial differential equations;
	13th week	Classification and reduction to canonical forms of second-order linear partial differential equations and their general solutions.,
	14th week	Classification and reduction to canonical forms of second-order linear partial differential equations and their general solutions.,
	15th week	Classification and reduction to canonical forms of second-order linear partial differential equations and their general solutions.
Dispersal of classes, preparation leave and practical examination		