Curriculum Plan (ODD SEM 2025-26): B.Sc. (Physical Science) III Sem

DSC- A-3:Differential Equations

Teacher'S Profile

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Marks Distribution	**Theory**	90 Marks
	Internal Assessment	30 Marks
	Continuous Assessment	40 Marks
		Assignments -12 Marks
		Test - 12 Marks
		Attendance - 6 Marks
Classes Assigned	**Lectures**	3 Per Week
	Tutorial	

Essential Readings

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.

Week	Topics
1st Week (1-9 AUG)	First order ordinary differential equations: Basic concepts and ideas
2nd Week (11-16 AUG)	First order exact differential equations, integrating factors and rules to find integrating factors.
3rd Week (18-23 AUG)	Linear equations and Bernoulli equations, Initial Value Problems, Applications of first order differential equations: Orthogonal trajectories and Rate Problems.
4th Week (25-30 AUG)	Basic theory of higher order linear differential equations
5th Week (1-6 SEP)	Wronskian and its properties
6th Week (8-13 SEP)	Linear homogeneous equations with constant coefficients
7th Week (15- 20 SEP)	Linear non-homogeneous equations, Method of undetermined coefficients
8th Week (22-27 SEP)	Method of variation of parameters (only second order)
9th Week (29 SEP-4 OCT)	Two-point boundary value problems, Cauchy- Euler equations, Systems of linear differential equations
10th Week (6-11 OCT)	Partial differential equations: Basic concepts and definitions, Classification and construction of first-order partial differential equations
11th Week (13 -18 OCT)	Method of characteristics and general solutions of first order partial differential equations
12th Week (27 OCT-1 NOV)	Canonical forms and method of separation of variables for first-order partial differential equations
13th Week (3-8 NOV)	Canonical forms and method of separation of variables for first-order partial differential equations
14th Week (10-15 NOV)	Classification and reduction to canonical forms of second-order linear partial differential equations and their general solutions
15thWeek (17–22 NOV)	Classification and reduction to canonical forms of second-order linear partial differential equations and their general solutions
16th Week (24-26 NOV)	Revision