**Curriculum Plan: Generic III (Maths) II Year (Semester III) Differential Equation. ODD SEM (2025-26)**

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| **Teacher Profile:**  **Sanjay Kumar**  Department of Mathematics  Kalindi College, University of Delhi,  Delhi- 110008  Mobile: +91-8800982887  **E- mail**: sanjaykumar@kalindi.du.ac.in | |  | **Marks Distribution** | **Theory** | 90 Marks | |
| **Internal Assessment** | Assignments 12 Marks | |
| Class- Test 12 Marks | |
| Attendance 6 Marks | |
|  | **Tut Assessment** | 40 Marks | |
|  | **Total Marks** | 160 | |
| **Classes Assigned** | **Lectures** | 3 per week | |
| **Practical Groups**  (per week per Student) |  | |
| **Reference** | **[1]** | Myint-U, Tyn and Debnath, Lokenath (2007). Linear Partial Differential Equations for Scientist and Engineers (4thed.). Birkkäuser Boston. Indian Reprint. | | | | |
|  | **[2]** | Ross, Shepley. L. (1984). Differential Equations (3rd ed.). John Wiley & Sons. | | | | |
| **Section** | **Week** |  | | | |  | |
| Session 1 | 1st week | First order ordinary differential equations: Basic concepts and ideas. | | | |  | |
|  | 2nd week | First order Exact differential equations, integrating factors and rules to find integrating factors | | | |
| Session 2 | 3rd week | Linear equations and Bernoulli equations, Initial value problems. | | | |  | |
| 4th week | Applications of first order differential equations: Orthogonal trajectories and Rate problems. | | | |  | |
| 5th week | Basic theory of higher order linear differential equations, Wronskian and its properties. | | | |  | |
|  | 6th week | Linear homogeneous equations with constant coefficients, | | | |  | |
|  | 7th week | Linear non-homogeneous equations, Linear non-homogeneous equations, | | | |  | |
| Session 3 | 8th week | Method of variation of parameters, Two-point boundary value problems, | | | |  | |
|  | 9th week | Cauchy-Euler equations, System of linear differential equations. | | | |  | |
|  | 10th week | Classification and Construction of first-order partial differential equations. | | | |  | |
|  | 11th week | Method of characteristics and general solutions of first-order partial differential equations. | | | |  | |
| Session 4 | 12th week | Canonical forms and method of separation of variables for first order partial differential equations. | | | |  | |
|  | 13th week | Canonical forms and method of separation of variables for first order partial differential equations. | | | |  | |
|  | 14th week | Classification and reduction to canonical forms of second-order linear partial differential  equations and their general solutions. | | | |  | |
| Session 5 | 15th, 16th week | Revision and assignment Problems | | | |  | |