**SARASWATI MAHILA MAHAVIDYALAYA,PALWAL**

SESSION:**2021-22**

**LESSON PLAN** Sem : Even

Name of faculty : Ms. Bijendri Class : BA-I

Designation : Assistant Professor in Maths Subject : Ordinary Differential Equation

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| **Sr.No.** | **Topics/chapters** | **Lectures** | **Topics of assignment/test** |
| 1. | Geometrical meaning of a differential equation. Exact differential equations, integrating factors. First order higher degree equations solvable for x,y,p Lagrange’s equations, Clairaut’s equations. Equation reducible to Clairaut’s form. Singular solutions. | Lect 1 to Lect 20 | Test of Lagrange’s equations, Clairaut’s equations. |
| 2. | Orthogonal trajectories: in Cartesian coordinates and polar coordinates. Self orthogonal family of curves. Linear differential equations with constant coefficients. Homogeneous linear ordinary differential equations. Equations reducible to homogeneous. | Lect 21 to Lect 40 | Assignment of Linear differential equations with constant. |
| 3. | Linear differential equations of second order: Reduction to normal form. Transformation of the equation by changing the dependent variable/ the independent variable. Solution by operators of non-homogeneous linear differential equations. Reduction of order of a differential equation. | Lect 41 to Lect 60 | Test of transformation of the equation by changing the dependent variable/ the independent variable. |
| 4. | Ordinary simultaneous differential equations. Solution of simultaneous differential equations  involving operators x (d/dx) or t (d/dt) etc. Simultaneous equation of the form dx/P = dy/Q = dz/R. Total differential equations. Condition for Pdx + Qdy +Rdz = 0 to be exact. General method of solving Pdx + Qdy + Rdz = 0 by taking one variable constant. Method of auxiliary equations. | Lect 61 to Lect 80 | Test of Method of auxiliary equations. |