**Lesson Plan**

**Jan 2024to April 2024**

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| **Name of Assistant/Associate Professor** | **Dr.Jyoti** |
| **Class and Semester** | **B.Sc./ B. A (Semester – 2)** |
| **Subject** | **Mathematics** |
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| **January** |
| Week – 1Week -2Week-3 | Definition of differential equation, order and degree of differential equation, formation of differential equation. Questions based on order and degree of differential equation, formation of differential equation. Que based on formation of differential equation.Geometrical meaning of a differential equation. Solution of an exact differential equation. Solution of an exact differential equation |
| Week – 4 | Definition of integrating factor, Finding integrating factor by inspection. Rule1,2,3,4 & 5 for finding integrating factor and question based on it. |
| Week - 5 | Doubts on previous topics. |
| **February** |
| Week - 1Week-2 | Introduction of equation of first order but not of first degree. Working rule and que for the equation solvable for p. Working rule and que for equation solvable for y. Working rule and que for equation solvable for x. Solution of the equation of the type y=xΦ(p)+f(p). Solution of the equation reducible to Clairaut’s form. Singular solution, p and c-discriminant.

| Orthogonal trajectory in cartesian and polar coordinates |
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| Week – 3 | Definition of linear differential equation with constant coeff., D operator, definition of auxiliary equation, complete solution for differential equation with constant coeff. Inverse operator, complementary function, particular integral, few theorems & question based on above topic |
| Week – 4 | Evaluate 1/f(D) xᵐ, 1/f(D) (xV) and que based on it. Method to solve homogeneous linear equation. Explanation of the method of solution of linear differential equation reducible to homogeneous linear form. Question based on linear differential equation reducible to homogeneous linear form |
| **March** |
| Week – 1 | Introduction to linear differential equation of second order. method to find P.I. of d²y/dx²+Pdy/dx+Qy=0. Queaction based on P.I. of d²y/dx²+Pdy/dx+Qy=0. |
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| Week – 2 | Solution of a linear differential equation of second order by removing the first derivative and changing the dependent variable. Solution of a linear differential equation of second order by changing the independent variable. |
| Week – 3 | Solution of a linear differential equation of second order by the method of variation of parameters. Solution of a linear differential equation of second order by the method of undetermined coefficient |
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| **April** |
| Week - 1 |  Introduction to ordinary simultanious differential equation. Solution of simultaneous differential equations involving operators x (d/dx) or t (d/dt) etc. Solution of Simultaneous equation of the form dx/P = dy/Q = dz/R. |
| Week – 2 | Concept of Second integral found with the help of first. Introduction to total differential equation and condition for exactness. Method to solve total differential equation. Solution when one variable is constant out of three variable in Pdx+Qdy+Rdz=0 |
| Week – 3 | Method of solving homogeneous equation. Method of auxiliary equation. |
| Week – 4 | Assignment, Test, Doubts Session  |