1. **Introduction**

Credits: 4 -0-0

2. **Course Outline**

UNIT - I: Ordinary Differential Equations
Order and degree of a di_erential equation, _rst order equations: variables separable method, homogeneous equations of degree zero, nonhomogeneous equations, exact equations, integrating factor, linear equations, Bernoulli's equation. Higher order homogeneous linear equations with constant coefficients, second order homogeneous linear equation with variable coefficients, variation of parameters, 2 x2 autonomous system of equations, power series solution, meaning of existence and uniqueness of a solution and some counter examples.

UNIT - II: Laplace Transforms
Definition, L.T. of some elementary function, e_ect of L.T. on translation, scaling, convolution. Inverse Laplace transform, applications of L.T. to ODE.

UNIT - III: Fourier series
Fourier series of a periodic function, half range Fourier series.

UNIT - IV: Sets, relations and functions
Sets, relations, equivalence, partial ordered relations, mathematical induction, elements of