

CONTENTS

Unit-1

- Ordinary differential equations of first order
- Exact differential equations
- Linear differential equations of nth order with constant coefficients
- Homogeneous differential equations
- Simultaneous linear differential equations
- Solutions of second order differential equations by changing dependent and independent variables
- Variation of parameters.

Unit-2

- Laplace transform
- Existence theorem
- Laplace transform of integrals
- Inverse Laplace transform
- Unit step function
- Dirac delta function
- Laplace transform of periodic functions
- Convolution theorem
- Laplace transform of derivatives
- Application to solve simple linear and simultaneous differential equations

Unit-3

- Periodic functions
- Trigonometric series
- Fourier series of period 2
- Eulers formulae
- Functions having arbitrary period
- Change of interval
- Even and odd functions
- Half range sine and cosine series
- Introduction of partial differential equations
- Linear partial differential equations with constant coefficients of 2nd order and their classifications

Unit-4

- Method of separation of variables
- Wave equation up to two-dimensions
- Laplace equation in two-dimensions
- Heat conduction equations of one-dimensions

Unit-5

- Principal of Least square
- Solution of Cubic equation
- Solution of Biquadratic equation