1.1 10001 ENGINEERING MATHEMATICS

UNIT 1: **FACTORIAL**
- Introduction to factorials
- Application of factorial

UNIT 2: PERMUTATION AND COMBINATION
- Meaning of permutation and combination
- Meaning of $P(n,r)$ and $C(n,r)$
- Relation between permutation and combination
- Basic problems

UNIT 3: BINOMIAL THEOREM
- Introduction to binomial theorem
- Expanding with binomial theorem
- Finding Nth term
- Middle term of expansion

UNIT 4: ARITHMETIC PROGRESSION (A.P.)
- Introduction to arithmetic progression
- Nth term of arithmetic progression
- Sum of Nth term of arithmetic progression

UNIT 5: MATRIX AND DETERMINANT
- Introduction to matrix and determinant
- Properties of determinant

UNIT 6: COORDINATE GEOMETRY
- Introduction
- Distance formula
- Ratio formula

UNIT 7: DIFFERENTIAL CALCULUS
- Derivative of sum, difference, multiplication, division of two function
- Derivative of function of function
- Logarithmic differentiation
- Differentiation of implicit function
- Differentiation by trigonometric transformation
- Differentiation with respect to other function

UNIT 8: APPLICATION OF DIFFERENTIATION
- Geometrical meaning of dy/dx
- Angle of intersection between two curves

UNIT 9: INTEGRATION
- General introduction
- Integration of sum and difference of function
- Integration by simplification

- Integration by substation
- Integration by parts
- Integration of rational and irrational functions
- Integration of trigonometric function

Reference Book:

1. Mathematics XI & XII- NCERT Polytechnic Mathematics - H.K.
2. Text Book of Differential Calculus - Chandrika Prasad Applied Mathematics -1 – Dr. P.K. Srivastava