**FOUNDATIONAL MATHEMATICS FOR NON MATHS (60 HOURS)**

**[ 5 WEEKS, 12 HOURS/WEEK, 2 HOURS/LECTURE]**

**Basic Algebra (6 hrs)**

* Addition, subtraction, multiplication and division of algebraic fractions
* Equations with algebraic fractions,
* Simultaneous equations,
* Quadratic equations

**Sets and Relations (4 hrs)**

* Concept of sets,
* classification of sets,
* Ven diagram

**Matrices (6 hrs)**

* Concept of matrices
* Matrix operations , inverse and determinant of matrices

**Functions (6 hrs**)

* Classifications of functions
* Composition of functions
* Log function and exponential function
* Domain, codomain and range
* ­ Inverse of a function
* Laws of logarithms (base 10 & e)

**Differentiation (6)**

* Basic Rules of Differentiation
* The Product and Quotient Rules
* The Chain Rule

Integration (8)

* Introduction to indefinite Integration
* Rules of Integration
* Definite Integration

Introduction to Statistics (10)

**Population and sample**

**Introduction to collection of data**: primary and secondary data, data classification and tabulation.

**Graphical presentation of data:** bar chart, line chart, pie chart, frequency distribution, histogram, frequency polygon, frequency curve, Ogive.

**Measure of central tendency:** means (AM, GM, HM, TM), median, mode, quartiles, deciles and percentiles for ungrouped and grouped data.

**Measure of dispersion:** inter quartile range (IQR), quartile deviation, variance, coefficient

of mean deviation, coefficient of variance, skewness, kurtosis, moments.

**Representation of data**: stem and leaf diagram and box plots.

**Random variables:** discrete and continuous random variables, probability mass function, probability density function, cumulative distribution function,

**Basic Probability (10)**

* Concept of Probability
* Three Types of computation of probability (theoretical, relative, subjective)
* Type of events
* Probability of an event
* Basic probability laws
* Condition/Joint/Marginal probability
* Multiplicative theorem
* Bayes' Theorem and applications

**Coordinate Geometry & Trigonometry (6)**

Basic shapes of Geometry

Euclidean geometry

Cartesian coordinates

Trigonometry

Concept of vector