Basic Statistics

Unit I

Unit II
Review of permutations and combinations. Deterministic and random experiment, Sample space, event mutually exclusive, equally likely and independent events with examples. Mathematical, Statistical and axiomatic definition of probability. Addition theorem, conditional probability and multiplication theorem of probability. Statistical independence and Bayes theorem – simple examples (all theorems without proofs and only statements).

Unit III
Definition and sample examples of random variables and distribution function, probability mass function and probability density function. Mathematical expectation and moments – simple examples. Discrete probability distributions: Bernoulli, Binomial, Poisson, Geometric, and Negative binomial distributions (concept, definition, statements of mean and variance only) with real life examples.

Unit IV
Concept of testing Statistical hypothesis-Definition of Null and Alternative hypothesis, Critical region, Types of errors, level of Significance and Power of a Test. Tests of significance based on Chi-Square, t and F distributions and ANOVA (One and Two way) with examples (No mathematical derivation only methodology).

References: