SC-502 Probability Theory

Instructor: Prof. Jaideep Mulherkar

Credit structure (L-T-P-Cr): 3 0 0 1.5

Course outline

- Introduction to Probability Theory
- Counting, Permutations and combinations
- Multinomial theorem, Bins and balls problems
- Axiomatic probability, Inclusion-Exclusion principle
- Conditional probability and Independence
- Random Variables
  - Distribution function,
  - Probability mass and density function
  - Expectation, properties of expectation.
- Some probability distributions
  - Binomial, Poisson, Geometric (Discrete)
  - Uniform, Normal, Exponential (Continuous)
- Joint distribution of random variables, Correlations, Transformation of random variables
- Law of large numbers, Central Limit Theorem, Markov and Chebyshev’s inequality
- Statistical Estimation

Books
- A first course in probability By Sheldon Ross, Sixth edition.

Grading Policy
- One Midterms and Final exam