SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Mathematics)
Semester: IV
Syllabus with Effect from: November-2013

Paper Code: PS04EMTH22	**Total Credit: 4**
Title Of Paper: Mathematical Probability Theory	

Unit	Description in detail	Weighting (%)
I	Introduction of probability space, random variables and random vectors, convergence in probability, probability distribution of a random variable. Mixtures of distributions with examples, joint distributions.	25%
II	Jordan decomposition theorem, decomposition of mixture distribution functions into absolutely continuous and singular parts. Convergence of distribution function, weak convergence and complete convergence.	25%
III	Weak compactness theorem, Helly Bray theorem. Characteristic function and its properties, inversion theorem, applications to various distributions, continuity theorem.	25%
IV	Weak and strong laws of large numbers, Kolmogorov's inequality. The central limit theorem, Linberg-Levy's theorem, Liapounov's theorem, Lindberg-Feller theorem.	25%

Basic Text & Reference Books:-

- Burrill, C. W., Measure, Probability and Integration.
- Bhat, B. R., Modern Probability Theory, New Age International Publication (2000).
- Basu, A. K., Measure Theory and Probability, Prentice Hall of India (1999).
- Ash, Robert, Real Analysis and Probability, Academic Press (1972).