**MA\*711 Probability Theory-I**

Sample space, Sigma fields, Measurable spaces, Events. Measure spaces, Probability measure and its properties, Independence of events, Measurable functions, Approximations through simple functions, Random variables, Probability distribution functions: discrete, continuous and absolutely continuous, Independence of random variables, Borel-Cantelli lemma, Integration in measure spaces, Expectation, Fatou’s lemma, Monotone convergence and dominated convergence theorems, Markov, Chebyshev, Cauchy-Schwarz, Minkowski, Holder, Jensen, Absolute continuity of measures, Conditional expectation, Conditional probability measures. Fubini’s theorem, Convolution.

**References:**

1. K. R. Parthasarathy, Introduction to Probability and Measure, TRIM Series, Vol .33, Hindustan book agency, New Delhi, 2005.
2. Krishna B.Athreya and S. Lahiri, Measure theory and probability theory. Springer Texts in Statistics, Springer Verlag, 2006