

**5-Year Dual Degree B. Tech. (Computer Science & Engineering) + M.Tech. / MBA****Effective from: 2011 -2012**

QUANTITATIVE TECHNIQUES			
<b>Course Code:</b>	<b>MA201</b>	<b>Credits:</b>	<b>4</b>
<b>No. of Lectures (Hrs/Week):</b>	<b>3+1</b>	<b>Mid Sem Exam Hours:</b>	<b>2</b>
<b>Total No. of Lectures:</b>	<b>45+15</b>	<b>End Sem Exam Hours:</b>	<b>3</b>

**UNIT-I**

Random Events, Independent and dependent events, axioms of the theory of probability, Simple and conditional probability, Bayes theorem.

**UNIT-II**

One dimensional random variables (discrete and continuous), distribution of a random variable (density function and cdf), Characteristic function of a random variable and its utility, Bivariate random variable, joint, marginal and conditional distributions, joint characteristic function, Moments, Moment Generating functions, Skewness, Kurtosis.

**UNIT-III**

Bernoulli, Binomial, Poisson, Geometric, Uniform, Exponential, Normal, Earlang, Weibull, Method of least squares (Fitting of straight lines, Polynomials, Exponential and logarithmic curves), covariance and correlation.

**UNIT-IV**

Sampling theory (small and large), Test of hypothesis and significance: Chi-square test, t-test, z-test, F-test, Questionnaire design.

**UNIT-V**

Markov chain, Chapman- Kolmogorov Equation, Classification of states.

**Text Books:**

1. T. Veerarajan. Probability, Statistics and Random Processes, Tata McGraw-Hill.

**Reference Books:**

2. V. K. Rohatgi: An Introduction to Probability Theory and Mathematical Statistics. John Wiley & Sons 1976.
3. John Freund: Introduction to Probability. Dover Publications.
4. Marylees Miller, John E. Freund, Irwin Miller: John E. Freund's Mathematical Statistics: With Applications, Prentice Hall, 2003.
5. Levin and Rubin, Statistics for Management, Prentice Hall.