MA501: Probability and Statistics

Teaching Scheme			Credits	Marks Distribution				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE	CE	ESE	CE	
3	2	0	5	70	30	30	20	150

Course Content:

Sr. No.	Topics	Teaching Hrs.
1	Preparation and standardization of data; measure of dispersion moments, skewness and kurtosis; Basic concept of probability; Independent & Dependent events. Mutually exclusive events Additions & Multiplication theorems, conditional probability and Bayes formula.	09
2	Random variables; discrete and continuous probability distribution; joint probability distribution; Laws of Expectation.	09
3	Main feature of Binominal, Poisson & Normal distributions and their properties, applications in engineering and industrial problems; Exponential, Rayleigh, Weibull, Gamma, Pearson, and log-normal distributions; transformation of random variables, moment generating functions.	09
4	Concepts of stochastic process, processes with independent; Process Furry Yale process, Pol ya process. Homogeneous macro chains analysis; Correlation and Regression, Multiple, partial and Rank Correlation, Analysis of Time Series data.	09
5	Element of sampling theory; large and small samples, fiducial limits for unknown mean standard error; test of significance, T & F test. Introduction to theory of estimation; simple analysis of variants of one and two way classification.	09
	Total Hrs.	**45**

Reference Books:

1. Hoel P.G., "*Introduction to Mathematical Statistics".*
2. Fisz M., "*Probability and Mathematical Statistics".*
3. Alder H.L, "*Introduction to Probability and Statistics".*
4. Walpole R.E., Mayers R.H., "*Probability and Statistics for Engineers and Scientist".*
5. Montogomery and Runger GC., "*Applied statistics and probability for Engineer",* student edition, Wiley.