Semester	IV
Course	Major
Paper Code	C2EC230411T
Paper Title	STATISTICAL METHODS FOR ECONOMICS
No. of Credits	4
Theory/Composite	Theory
Minimum No. of preparatory hours per week a student has to devote	4
Number of Modules	2
Learning Outcomes	1. The course begins with some basic concepts and terminology-population, sample, descriptive and inferential statistics and so on-and continues with detail survey of important numerical descriptive methods. 2. The objective is to make concepts clearer to students without weakening the statistical rigour. 3. Special attention is paid to correlation and regression analysis in case of bivariate data. 4. A rather traditional development of probability theory followed by axiomatic approach to study important theories and applications as a prerequisite for studying econometrics in higher semester. 5. Concepts of probability distributions of discrete and continuous random variables with special emphasis on theoretical distributions. 6. Fundamentals of joint distributions of discrete and continuous random variables with stress on bivariate normal distribution.
Syllabus	**Module 1 (35 marks)** **1. Descriptive Statistics** Presentation of Data; Frequency Distribution; Measures of central tendency, Dispersion, Moments, Skewness and Kurtosis; Bivariate Frequency Distribution- correlation and regression. **2. Elementary Probability Theory** Sample Space and events; probability axioms and properties; counting techniques; conditional probability; Bayes' rule and independence of events. **Number of classes per week: 2** **Module 2 (35 marks)** **3. Univariate Probability Distribution** Random variable and probability distributions; Discrete and continuous, Expectation of a random variable; Discrete Distribution-Binomial, Poisson; Continuous Distributions- Uniform, Normal, Exponential (Properties of each distribution; mean and variance). **4. Jointly Distributed Random Variables** Joint Probability mass function, marginal and conditional probability function; Joint density function, marginal and conditional density function; Density function of Bivariate normal distribution and obtaining means, variances, and correlation coefficients. **Number of Classes per week: 2**

Readings	1.Jay L. Devore, Probability and Statistics for Engineers, Cengage Learning, 2010. 2. John E. Freund, Mathematical Statistics, Prentice Hall, 1992. 3. Richard J. Larsen and Morris L. Marx, An Introduction to Mathematical Statistics and its Applications, Prentice Hall, 2011. 4. William G. Cochran, Sampling Techniques, John Wiley, 2007.
	5.R.V. Hogg . and A.T. Craig , An Introduction to Mathematical Statistics, Third Edition, Amerind, New York, London. 6.Mood, A.M., F.A.Graybill and D.C. Boes: Introduction to The Theory of Statistics, McGraw Hill, 1974.

Paper Structure for End Sem Theory	Module	No. of Questions to be Answered	No. of Alternatives	Marks
	Module 1	3	4	5 x 3 = 15
		2	3	10 x 2 = 20
	Module 2	3	4	5 x 3 = 15
		2	3	10 x 2 = 20
	Total Marks			70
Evaluation	Continuous Internal Assessment: 30 marks End- Semester Theory Examination: 70 marks			