

NAME OF THE DEPARTMENT	Department of Statistics	
PROGRAMME CODE AND PROGRAMME NAME		
PROGRAMME OUTCOMES (POs)	PO.1	Not Applicable
	PO.2	
	PO.3.	
	PO.4	
	PO.5	
	PO.6	
PROGRAMME SPECIFIC OUTCOMES (PSOs)	PSO.1.	Not Applicable
	PSO.2.	
	PSO.3.	
	PSO.4.	
	PSO. 5.	
	PSO.6.	
		<b>Semester I</b>
COURSE CODE, COURSE NAME AND COURSE OUTCOMES (COs)		<b>BASIC STATISTICS AND PROBABILITY STS1C01</b>
	CO.1.	Basic probability axioms and rules and the moments of discrete and continuous random variables as well as be familiar with common named discrete and continuous random variables.
	CO.2.	To derive the probability density function of transformations of random variables and use these techniques to generate data from various distributions.
	CO.3.	To calculate probabilities, and derive the marginal and conditional distributions of bivariate random variables.

	CO.4.	To calculate probabilities of absorption and expected hitting times for discrete time Markov chains with absorbing states.
	CO.5	To translate real-world problems into probability models.
	CO.6.	To read and annotate an outline of a proof and be able to write a logical proof of a statement.
	CO.7.	Discrete time Markov chains and methods of finding the equilibrium probability distributions.
	CO.8.	Use of basic computing statistical tools.
	CO.9.	Ability to read and understand statistical texts from several scientific areas.
	CO 10.	Introduction to the basics of Probability.
		<b>Semester II</b>
COURSE CODE, COURSE NAME AND COURSE OUTCOMES (COs)		<b>PROBABILITY DISTRIBUTIONS STS2C02</b>
	CO.1.	To understand of the principles of probability theory.
	CO.2.	To recognise common probability distributions for discrete and continuous variables.
	CO.3.	To apply methods from algebra and calculus to derive the mean and variance for a range of probability distributions
	CO.4.	To Calculate probabilities relevant to multivariate distributions, including marginal and conditional probabilities and the covariance of two random variables.
	CO.5	To derive probability distributions relevant to functions of random variables.
	CO.6.	To understand the concept of an estimator, common methods for evaluating an estimator's performance and properties of desirable estimators.
	CO.7.	To understand the central limit theorem and large-sample approximations for common statistics.

	CO.8.	To utilize a comprehensive set of descriptive statistical methods, using industry standard statistical software, in order to organize, summarize, and display data in a meaningful way.
	CO.9.	Master statistical techniques for data compilation and descriptive statistics calculation.
	CO 10.	Master techniques for solving problems on probabilities.
		<b>Semester III</b>
COURSE CODE, COURSE NAME AND COURSE OUTCOMES (COs)		<b>STATISTICAL INFERENCE</b> <b>STS3C03</b>
	CO.1.	To explain in detail the notion of a parametric model and point estimation of the parameters of those models.
	CO.2.	To explain in detail and demonstrate approaches to include a measure of accuracy for estimation procedures and our confidence in them by examining the area of interval estimation.
	CO.3.	To demonstrate the plausibility of pre-specified ideas about the parameters of the model by examining the area of hypothesis testing.
	CO.4.	To explain in detail and demonstrate the use of non-parametric statistical methods, wherein estimation and analysis techniques are developed that are not heavily dependent on the specifications of an underlying parametric model.
	CO.5	To demonstrate computational skills to implement various statistical inferential approaches.
	CO.6.	To demonstrate knowledge of, and a critical understanding of, statistical methodologies
	CO.7.	To understand and apply a range of statistical techniques based on the main theories and concepts which comprise the syllabus, including the central limit theorem

	CO.8.	To determine properties of estimators: efficiency, Cramer-Rao lower bound, (approx.) large sample distributions of MLEs
	CO.9.	To perform inference on parameter estimates, including constructing confidence intervals and testing hypotheses on the values of parameters
	CO 10.	To communicate meaningfully and productively with others (including practitioners and professionals in the financial services industry and elsewhere) on matters relating to and/or requiring the use of statistical methods
		<b>Semester IV</b>
COURSE CODE, COURSE NAME AND COURSE OUTCOMES (COs)		<b>APPLIED STATISTICS STS4C04</b>
	CO.1.	To use the normal probability distribution including standard normal curve calculations of appropriate areas, sampling distributions of statistics, central limit theorem, sampling distribution of sample mean, normal approximation to the binomial distribution, and statistics that passes normal sampling distributions.
	CO.2.	To test large estimation principles including confidence intervals and point estimates for estimating a population mean, estimating the parameter of a binomial distribution, estimating the difference between two means, estimating the difference between two binomial parameters, and choosing the sample size.
	CO.3.	To examine large sample tests of hypothesis including elements of a hypothesis test, type I and II errors, and using p values to indicate significance tests for population proportion and difference between two population proportions.
	CO.4.	To state and define the inference from small samples including difference between two means, paired differences, population variances, and two population variances.
	CO.5	To employ the principles of linear regression and correlation, including least square method, predicting a particular value of y for a given value of x and significance of the correlation coefficient.

	CO.6.	To analyze enumerative data including Chi-square test for goodness of fit and Chi-square test for independence.
	CO.7.	To design experiments for the process of random sampling.
	CO.8.	To use analysis of variance techniques to test the equality of two or more means.
	CO.9.	To choose the appropriate non parametric statistical method.
	CO 10.	To practise cooperative learning in applying statistical methods to data from different disciplines.