UNDERGRADUATE PROGRAMME: COURSE OUTCOME

Name of the Programme: B.A. Statistics

Name of the Class	Course Code	Course Title	Course Outcomes	
SEMESTER I				
F.Y.B.A.	ST- 13871	Descriptive Statistics I	CO1	The student will be acquainted the scope and importance of role of basic statistics in the current scenario and shape his life as per his interest in the respective field.
			CO2	The student will be able to identify data types represent by graphical and diagrammatically also compute various measures of central tendency, dispersion, skewness and kurtosis
			CO3	The student will be able to analyse data pertaining to attributes and to interpret the results
			CO4	The student will be able to compute different summary statistics with their interpretation and process categorically.
	ST- 13271	Discrete Probability and Probability Distributions	CO1	The learners will be able to understand the basics of Probability, and the implement the concept of conditional probability and its related to Bayes' Theorem for computation of probability.
			CO2	The student will be able to understand concept of Univariate Probability distributions and apply to compute mathematical Expectation in real life situations.
			CO3	The Learner will compute the coefficients of Skewness and Kurtosis based on moments for

				discrete random variable.
			CO4	The student will learn the concept of some standard discrete probability univariate distributions and compute the probabilities as per the real life situations by choosing the particular distribution.

SEMESTER II				
F.Y.B.A.	ST- 13872	Descriptive Statistics II	CO1	The student will know the concept of correlation, its types and measures.
			CO2	The student understands the fitting of proper regression lines and will be able to fit appropriate equation to the given/collected data.
			CO3	The learner understands the concept of curve fitting to fit linear , quadratic and exponential curves to the bivariate data to investigate relation between two variables.
			CO4	The learner understands the concept of Index numbers and construction of index numbers by using various methods.
	ST- 13272	Discrete Probability Distributions	CO1	The learner will understand some Standard Discrete Probability Distributions such as Poisson and Geometric distributions and their application in real life situations.
			CO2	The learner understands basic concepts of Bivariate Probability Distributions.
			CO3	The student will learn to compute Mathematical Expectation based on Bivariate Random variable also theorems on expectations.
			CO4	The learner will be aware of some basic definitions such as conditional mean, variance, Covariance and Correlation.

SEMESTER III				
S.Y.B.A.	ST-23843	Sampling Techniques	CO1	The student will be acquainted the scope and importance of different sampling methods.
			CO2	The student will be able to determine

				sample size for attribute and variable.
			CO3	The student will be able to understand the basis of stratification and its uses.
			CO4	The student will be able to study various types of sampling methods and compare the results for better performance in real life situations.
	ST-23243	Discrete Probability Distributions And Time Series	CO1	The student will be acquainted the scope and importance univariate discrete distributions such as Negative Binomial Distribution and multinomial distribution and their properties.
			CO2	The student will be able to understand the concept of truncated distributions and its applications in real life situations.
			CO3	The student will be able to analyse data pertaining to time series by applying various methods.
			CO4	The student will be able to fit autoregressive models (AR).
	ST-23853	Continuous Probability Distributions	CO1	The learners will be able to understand the basics of Univar ate and Bivariate continuous distributions and applied in our real life situations.
			CO2	The student will be able to learn some Standard Univariate Continuous Distributions and distinguish it as per the data sets for analyse purpose for further interpretations.
			CO3	The Learner will compute the probabilities by using different continuous distributions such as

				Uniform, Normal and Exponential.
	ST-23863	Practicals	CO1	Students will be able to fit Negative Binomial and Normal Distribution to different types of data , manually as well as using EXCEL.
			CO2	Student will be able to grasp the knowledge of various applications of Multinomial, NBD and Normal distributions in real life.
			CO3	Student will be able to compute time series estimation.
			CO4	Students will be able to analyse the time series data sets by using Ms-Excel.
			CO5	Students will perform the Projects on applied field by collecting data and interpreting by using Ms Excel.
	Skill Enhancement Course SEC – 2A	Data Handling Through Ms-Excel	CO1	Student will able to do analysis of data for computing summary statistics.
			CO2	Student will learn basics of Excel and functions to compute probabilities using various distributions.
			CO3	Student will able to do analysis of bivariate data using statistical measures as correlation and regression.
			CO4	Student will able to graphical representation of data.
			CO5	Student will able to fit various regression models to data
SEMESTER IV				
S.Y.B.A.	ST-23244	Tests Of Significance And Statistical Methods.	CO1	The student will perform the tests based on Means and Proportions.
			CO2	The learner understands the fitting of trivariate data using regression model.
			CO3	The student also studies the Demography, understands the current situations regarding population studies.
			CO4	The learner will be study Queuing model as an application of

				Exponential and Poisson distribution.
	ST-23854	Sampling Distributions And Exact Tests	CO1	The learner will understand some continuous Distributions such as Gamma, Chi-square , t and F distributions and their application in real life situations.
			CO2	The learner will apply the test of hypothesis based on the above distributions.
			CO3	The student will learn to apply the tests as per data sets in day to day life.
			CO4	The learner will be handy to use the above tests for their interpretations.
	ST-23864	Practicals	CO1	The learner will be able to compute demographic results.
			CO2	The learner will be able to test for means and proportions.
			CO3	The student will be able to do tests based on Chi-square, t and F distributions.
			CO4	The student will learn about basic concept of R software and perform the practical.
			CO5	The learner will be able to apply statistical techniques collected data and perform the Project.
	ST-23844	Statistical Quality Control	CO1	The student will be able to study on line methods of Statistical Process Control.
			CO2	The learner will understands and interprets the control charts for variables.
			CO3	The student will also able to draw and interpret the control charts for attributes such as P chart, C-Chart etc.
			CO4	The learner will able to Statistical Process control using Off-line methods.
			CO5	The student will be able to compute capability indices under the study of capability studies.

			CO1	Student will get acquainted with various function in R.
	Skill Enhancement Course SEC- 2B	Data Handling Through R-Software	CO2	Student will learn basics of R software its functions, compute probabilities for various distributions.
			CO3	The learner will be able to compute the probabilities by using various discrete and continuous distributions in the real life situations.

SEMESTER V

			CO1	Students will familiar with basic concepts of design of experiments, ANOVA, factorial design, etc.
			CO2	Students will get idea regarding a use of design of experiments tools in real life situations.
	ST-33875	Statistics (General-III) Design and Analysis of Experiments (CC-1E)	CO3	Students will be able to plan and conduct smaller experiments within given time frames and also present the planning, implementation and analysis of a conducted experiment, in oral and written form.
T.Y.B.A.			CO4	Students will be able to describe the purpose of factorial experiments and how it is applied in experimental design.
			CO5	Students will be able to analyse experimental data with suitable software.
	ST-33885	Statistics (Special-III) Distribution Theory–I (DSE-1C)	CO1	Students will be able to evaluate various univariate continuous distributions.
			CO2	Students will be able to obtain the distributions of order statistics.
			CO3	Students will be able to apply Chebychev's theorem to evaluate upper bound for different discrete and continuous distributions.

			CO4	Students will be able to understand the Pareto distribution with its scope in Economics.
			CO5	Students will be able to apply Central Limit Theorem and Weak Law of Large Numbers in real life situations.
	ST-33895	Statistics (Special-IV) Statistics Practical (DSE -2C)	CO1	Students will be able to conduct and analyse the data by using suitable designs of experiment with the help of ANOVA technique.
			CO2	Students will be able to analyse the design having one dependent variable and one concomitant variable with suitable design using ANCOVA technique.
			CO3	Students will be able to construct confidence intervals for various population parameters.
			CO4	Students will be able to identify applications of Chebychev's inequality, Order Statistics, CLT and WLLN.
			CO5	Students will be able to obtain the estimates of parameters of various distributions.
			CO6	Students will be able to estimates parameters related to truncated distributions using method of moments and MLE.
			CO7	Students will be able to conduct research project by using real field survey
	ST-33275	Mathematical Statistics (General-IV) Theory of Estimation (CC-2E)	CO1	Students will be able to use different methods of point estimations to real life data sets.
			CO2	Students will be able to construct interval estimations for different parameters.
			CO3	Students will be able to compare estimators of parameters using various criterions of it.
			CO4	Students will be able to check Unbiasedness, Sufficiency, Efficiency and Consistency of given estimators.
	SEC 2C	Medical Statistics	CO1	Students will be able to set the model

		And Clinical Trials		for population growth.
			CO2	Students will be able to decide various factors related to epidemiology.
			CO3	Students will get acquainted with various terminology related to clinical trials.
			CO4	Students will be able to design and analyse clinical trial data.
	GE-1	Generic Elective Course (GE) Time Series Analysis	CO1	Students will be able to estimate various effects occurs in time series data.
			CO2	Students will be able to analyze the time series data by using regression analysis.
			CO3	Students will be able to apply Box Jenkins Techniques.
			CO4	Students will be able to analyse real life time series data related to Economics, Commerce, Weather etc.
SEMESTER VI				
T.Y.B.A.	ST-33876	Statistics (General-III) Operations Research (CC-1F)	CO1	Students will familiar with basic concepts of operation research, Linear Programming, CPM, PERT, etc.
			CO2	Students will familiar with various mathematical models used in operation research.
			CO3	Students will get idea regarding uses of optimization techniques in real life situations.
			CO4	Students will be able to analyse data with suitable software and interpret results.
	ST-33886	Statistics (Special-III) Distribution Theory–II (DSE-1D)	CO1	Students will be able to correlate Weibull distribution with other distributions such as Exponential and Gamma distribution.

			CO2	Students will be able to develop the relation of Laplace's distribution with Exponential distribution under certain conditions.
			CO3	Students will be able to prove non-existence of moments of Cauchy's distribution.
			CO4	Students will be able to develop the relation between Normal and Lognormal Distribution.
			CO5	Students will be able to use of bivariate Normal distribution and its applications and relation with Cauchy's distribution under assumptions.
	ST-33896	Statistics (Special-IV) Statistics Practical (DSE-2D)	CO1	Students will be able to draw/Simulate the sample observations from Cauchy and Laplace distribution.
			CO2	Students will be able to construct various parametric and non-parametric test various population parameters.
			CO3	Students will be able to formulate and obtain the optimal solution to Linear Programming Problem.
			CO4	Students will be able to solve problems related to Transportation, Assignment, CPM and PERT.
			CO5	Students will be able to conduct research project by using real field survey.
	ST-33276	Mathematical Statistics (General-IV) Testing of Hypothesis (CC-2F)	CO1	Students will get acquainted with various terminology related to parametric tests.
			CO2	Students are able to apply the LRT to different parameters of various

				distributions.
		CO3	Students are able to apply the SPRT to different parameters of various distributions.
		CO4	Students are able to apply various non-parametric tests to real life situations.
		CO5	Students are able to apply the testing of hypothesis on real life data set.
SEC 2D	Data Analytics	CO1	Students are able to apply data cleaning tools and data mining process.
		CO2	Students are able to apply various types of classification techniques.
		CO3	Students are able to do market basket analysis.
		CO4	Students are able to apply Artificial Neutral Network(ANN) and Support Vector Machine(SVM) in real life.
GE2	Operations Management	CO1	Students are able to solve the problems of replacement theory.
		CO2	Students are able to solve various problems related to inventory.
		CO3	Students are able to solve various problems related to decision theory.
		CO4	Students are able to solve various problems related to game theory and sequencing.