DEPARTMENT OF STATISTICS

PROGRAMME OUTCOMES AND COURSE OUTCOMES OF UNDER GRADUATE (2020 ONWARDS)

NAME OF THE PROGRAMME: B.Sc STATISTICS – PROGRAMME OUTCOME	
PO1	To know about theatrical and applied Statistical concepts with adequate preparation leading to pursue post graduate degree in top institution
PO2	To create students able to become entrepreneur/consultant for data analysis related project
PO3	To know theoretical concept to real world problem
PO4	To know about applied knowledge on statistics via statistical computing and programming helps to make better decision on issues related society

NAME OF THE PROGRAMME: B.Sc STATISTICS – COURSE OUTCOMES	
SEMESTER I	
DESCRIPTIVE STATISTICS	1. The students will be able to understand the theory and applications basic statistics 2. Students will be able to identify about various techniques of presentation of data 3. Students will be able to identify measures of location and dispersion 4. Students will be able to perform correlation and regression 5. Students will be able to know Association of Attributes
MATHEMATICS I	The student will be able to 1. Compute the problems in partial fractions 2. Carry out results for theory of equations 3. Effectively interpret the results on matrices 4. Possess clear idea about trigonometric expansions 5. Understand the importance of differential calculus
SEMESTER II	
PROBABILITY & RANDOM VARIABLES	1. Students will be able to know the concept of probability 2. Students will be able to know Bayesian formula and its application 3. The students will be able to understand random variables and its Properties 4. Students will be able to know moment generating function and its computations of moments 5. Students will be able to identify bivariate distribution and related features

STATISTICAL PRACTICAL I	The student will be able to 1. Construct frequency distributions and diagrammatic representations 2. Carry out measures of location, dispersion, skewness and kurtosis 3. Fit principle of least squares 4. Compute correlation and regression 5. Construct contingency table and association of attributes
MATHEMATICS II	The student will be able to 1. Compute the problems in partial fractions 2. Carry out results for theory of equations 3. Effectively interpret the results on matrices 4. Possess clear idea about trigonometric expansions 5. Understand the importance of differential calculus
SEMESTER III	
DISTRIBUTION THEORY	1. The student will be able to know various discrete distributions 2. The student will be able to know various continuous distributions 3. Student will be able to know random variables and its properties 4. The student will be able to know Limiting distribution and convergence concepts 5. The student will be able to know the concept of order statistics
NUMERICAL METHODS	1. The student will be able to know how to solve problem of interpolation with equal intervals 2. Student will be able to know how to solve problem of interpolation with unequal intervals 3. The student will be able to know the concept of central differences formula and its usage of solving problem 4. The student will be able to know how to solve problem with inverse interpolation 5. The student will be able to know the concept of numerical differentiation and integration and its usage of real time applications
ELEMENTARY MATHEMATICS	1. Student will be able to know basics of differential calculus 2. The student will be able to know the various methods solving differential calculus 3. The student will be able to know solving asymptote problems 4. The student will be able to know solving problems using reduction formula 5. The student will be able to know solving double integral problems

STATISTICAL METHODS - I	1. The student will be able to know visualization of data 2. The student will be able to know computations of various statistical measures of data 3. The student will be able to know sample selection and various sampling procedures 4. The student will be able to know relationship among variables and fitting of simple regression model 5. Student will be able to know computation of interest calculations
SEMESTER IV	
SAMPLING THEORY	1. Student will be able to know the concept of sample survey and its features 2. Student will be able to know simple random sampling procedure 3. Student will be able to know stratified random sampling procedures 4. The student will be able to know systematic sampling procedure 5. Student will be able to know ratio and regression estimators
STATISTICAL PRACTICAL-II	The student will be able to 1. Solve the problems using the concept of probability distributions 2. Fit distribution models 3. Compute correlation coeffcients 4. Find population mean and variance under various sampling procedures 5. Apply ratio and regression estimators
PROGRAMMING IN 'C'	1. 1.Student will be able to know the basic data types of programming in c 2. Student will be able to know the various control structures and its usage 3. Student will be able to know the concept of arrays and pointers 4. Student will be able to know the concept of structures and unions. 5. Student will be able to know to file structures and its manipulations
NUMERICAL METHODS AND PROGRAMMING IN C	Students to solve problems related to numerical methods using Programming in C

STATISTICAL DATA ANALYSIS-I (USING R PROGRAMMING)	The student will be able to 1. Write and apply R commands 2. Develop and design data frames 3. Construct suitable graphs by writing R codes 4. Compute descriptive statistics with the help of R programming 5. Compute correlation Coefficients and fitting regression models
STATISTICAL METHODS - II	1. Student will be able to know computation of population growth rate 2. The student will be able to know the concept of mortality and its calculations 3. The student will be able to know the concept of estimation of parameter 4. The student will be able to know various parametric testing procedures 5. The student will be able to know various non-parametric testing procedures
SEMESTER V	
STATISTICAL INFERENCE-I	1. The student will be able to know sampling distributions and its applications 2. The student will be able to know point estimation 3. The student will be able to know properties of estimators and related results 4. The student will be able to know various methods of estimation 5. The student will be able to know interval estimation and test of significance
STATISTICAL QUALITY CONTROL	1. The student will be able to know the need of statistical quality control techniques 2. The student will be able to know control charts for variables and its applications in industries 3. The student will be able to know control charts for attributes and its applications in industries 4. The student will be able to know acceptance sampling plans for attributes 5. The student will be able to know the concept of variable sampling Plans and it features.

OPERATIONS RESEARCH	1. The student will be able to know the basics of optimization Techniques 2. The student will be able to know procedures of solving linear Programming problems. 3. The student will be able to know solving transportation and Assignment problems. 4. The student will be able to know game theory and solving sequencing problems 5. The student will be able to know critical path method of solving Network problems.
APPLIED STATISTICS	1. The student will be able to know time series and its components 2. The student will be able to know measuring seasonal variations in the data 3. The student will be able to know index numbers and its usage 4. The student will be able to know cost of living index and its applications 5. The student will be able to know theory and applications of Demand analysis
DEMOGRAPHY	1. The student will be able to know the concept of demography and its sources 2. The student will be able to know computation of mortality rates and its variants 3. The student will be able to know computation of fertility rates and its variants 4. The student will be able to know construction of life tables 5. The student will be able to know statistical tools for projection of populations

DATABASE MANAGEMENT SYSTEM	1. The student will be able to know structure of DBMS. 2. The student will be able to know the concept of entity relationship models 3. The student will be able to know relational data based designs 4. The student will be able to know standard query language 5. The student will be able to know the concept of PL/SQL
STATISTICAL GENETICS	1. The student will be able to know the basics of genetics 2. The student will be able to know estimation of parameters using Probit models 3. Student will be able to know estimation of parameters using logit models. 4. The student will be able to know various computational method indices 5. The student will be able to know applications of exponential and Weibull distribution
ELEMENTARY MATHEMATICS-III	1. The student will be able to know about differential equations 2. The student will be able to know Linear equations 3. The student will be able to know Partial differential equations 4. The student will be able to know Laplace Transformation 5. The student will be able to know Fourier series
SEMESTER VI	
STATISTICAL INFERENCE-II	1. The student will be able to know Neyman-Pearson Lemma and its Applications in hypothesis testing 2. The student will be able to know uniformly most powerful tests 3. The student will be able to know sequential probability ratio test and its applications. 4. The student will be able to know various nonparametric tests 5. The student will be able to know the concept of decision theory.
	1. The student will be able to know the principles of experimental designs.

DESIGN OF EXPERIMENTS	2. The student will be able to know ANOVA and multiple comparison tests. 3. The student will be able to know various design procedures 4. The student will be able to know missing plot techniques 5. The student will be able to know the concept of factorial Experiments.
STOCHASTIC PROCESSES	1. The student will be able to know random processes and its classification. 2. The student will be able to know Markov chain and its applications. 3. The student will be able to know limiting distribution of transition Probability 4. The student will be able to know Poisson process and its applications 5. The student will be able to know the concept of branching Processes.
STATISTICAL PRACTICAL-III	The student will be able to 1. Draw conclusion on the estimation of the Population Parameters 2. Study the variation of the different characteristics based on control chart 3. Draw inferences on the Population parameters based on Test Statistic 4. Know the preparation of ANOVA Table 5. .Draw inference on the effect of various factors in the Experimental designs
MATHEMATICAL ECONOMICS	1. The student will be able to know basics of mathematical economics 2. The student will be able to know relationship between supply and demand 3. The student will be able to know to Execute cost analysis 4. The student will be able to know market structure

	5. The student will be able to know production function and its Properties
REAL ANALYSIS-I	1. The student will be able to know the concept of set theory and applications 2. The student will be able to know the concept of real numbers and Sequences 3. The student will be able to know the concept of series of real number and its convergence and divergence 4. The student will be able to know functions and extreme value theorem and it usage 5. The student will be able to know mean value theorems and its applications
ACTUARIAL STATISTICS	1. The student will be able to know computation of interest and its variants 2. The student will be able to know computation of annuities 3. The student will be able to know various related features of annuities 4. The student will be able to know computation of stochastic interest rates 5. The student will be able to know computation of mortality
REGRESSION ANALYSIS	1. The student will be able to know about regression model and test of hypothesis 2. The student will be able to know Transformation of variables 3. The student will be able to know multiple regression model 4. The student will be able to know test of hypothesis in linear Model 6. The student will be able to know about searching linear functions of regression coefficient
REAL ANALYSIS-II	1. The student will be able to know about Riemann integrals 2. The student will be able to know about integrals 3. The student will be able to know Sequence of functions 4. The student will be able to know integrations and differentiation

	of functions 5. The student will be able to know about Metric Spaces
ECONOMETRIC METHODS	1. The student will be able to know Role of econometrics 2. The student will be able to know Least squares model 3. The student will be able to know Gaass and markov theorem 4. The student will be able to know linear model 5. The student will be able to know about special models
STATISTICAL DATA ANALYSIS -II (Software based	The student will be able to handle software to 1. Visualize data and compute various statistical measures 2. Fit regression models 3. Perform various parametric and nonparametric tests 4. Construct ANOVA tables 5. Draw control charts for variables and attributes