Program Outcomes (PO):

By the end of the program the students will be able to:

PROGRAM	OBJECTIVES
PO 1	Acquire fundamental/systematic or coherent understanding of the academic field of Statistics and its different learning areas and applications.
PO 2	Develop and demonstrate an ability to understand major concepts in various disciplines of Statistics.
PO 3	Demonstrate the ability to use skills in Statistics and different practicing areas for formulating and tackling Statistics related problems and identifying and applying appropriate principles and methodologies to solve a wide range of problems associated with Statistics.
PO 4	Understand procedural knowledge that creates different types of professionals related to subject area of Statistics, including professionals engaged in government/public service and private sectors.
PO 5	Plan and execute Statistical experiments or investigations, analyze and interpret data/information collected using appropriate methods, including the use of appropriate statistical software including programming languages, and report accurately the findings of the experiment/investigations.
PO 6	Have a knowledge regarding use of data analytics tools like Excel and R-programming.
PO 7	Developed ability to critically assess a standard report having graphics, probability statements
PO 8	Analyze, interpret the data and hence help policy makers to take a proper decision.

PO 9	Recognize the importance of statistical modeling and computing, and the role of approximation and mathematical approaches to analyze the real problems using various statistical tools.
PO 10	Demonstrate relevant generic skills and global competencies such as i) Problem-solving skills that are required to solve different types of Statistics related problems with well-defined solutions, and tackle open-ended problems, that belong to the disciplinary-area boundaries; ii) Investigative skills, including skills of independent thinking of Statistics- related issues and problems; iii) Communication skills involving the ability to listen carefully, to read texts and reference material analytically and to present information in a concise manner to different groups/audiences of technical or popular nature; iv) Analytical skills involving paying attention to details and ability to construct logical Arguments using correct technical language related to Statistics and ability to translate them with popular language when needed; ICT skills v) Personal skills such as the ability to work both independently and in a group.
PO 11	Undertake research projects by using research skills- preparation of questionnaire, conducting national sample survey, research projects using sample survey, sampling techniques.
PO 12	Understand and apply principles of least squares to fit a model to the given data, study the association between the variables, applications of Probability Theory and Probability Distributions.

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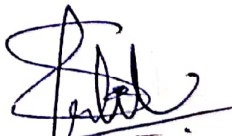Department of Statistics
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B.Sc I Semester (DSC) Descriptive Statistics (Theory)
Course Outcomes(CO):

CO1	Understanding the fundamental concepts of statistics.
CO2	Diagrammatic and Graphical representation.
CO3	Evaluation of Measures of Dispersion and Location.
CO4	Measures of Skewness
CO5	Using Multivariate data students will learn multiple correlation and partial correlation and multiple and linear regressions.

B.Sc I Semester (DSC) Descriptive Statistics (Practical)
Course Outcomes (CO):

CO1	Understand the computation of frequency distribution for both classified and unclassified data.
CO2	Interpretation of data using diagrams and graphs.
CO3	Computation of Arithmetic mean, geometric mean, harmonic mean for unclassified and classified data.
CO4	Computation median and mode for unclassified and classified data.
CO5	Computation of measures of dispersion for classified and unclassified data.
CO6	Student will learn the computation of skewness and kurtosis.
CO7	Students will learn computation of multiple and partial correlation and multiple and linear regressions.

BSc I Sem (OEC) Statistical Methods
Course Outcomes (CO):
Students will be able to;

CO1	Acquire knowledge of statistical methods.
CO2	Identify types of data and visualization, analysis and interpretation.
CO3	Know about elementary probability and probability models.
CO4	Employ suitable test procedures for given data set.

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BSc II Sem(DSC) Probability and Distributions(Theory)
Course Outcomes (CO):

CO1	Student will learn the concept of Evaluation of chance of occurrence of an event through probability.
CO2	Student will learn the concept of random variables and mathematical expectation.
CO3	Students will learn about the standard distribution.
CO4	Students will learn about the data analysis using R.

BSc II Sem(DSC) Probability and Distributions(Practical)
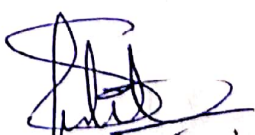### Course Outcomes (CO):

CO1	Students will learn the probability concept through problems.
CO2	Student will learn the random variables and mathematical expectation through problems.
CO3	Students will learn about the standard distribution.
CO4	Students will learn about the data analysis using R.

BSc II Sem(OEC) Business Statistics
Course Outcomes (CO):
Upon the completion of this course students should be able to:

CO1	Frame and formulate management decision problems.
CO2	Understand the basic concepts underlying quantitative analysis.
CO3	Use sound judgment in the applications of quantitative methods to management decisions.

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BSc III Sem(DSC) Calculus and Probability Distributions(Theory)
Course Outcomes (CO):

CO1	Students will learn about applications of Chebyshev's Inequality and its role in various distributions.
CO2	Students will learn about Order Statistics.
CO3	Students will learn about testing of Hypothesis.
CO4	Students will learn about χ^2-distribution.
CO5	Students will learn about Student's t-distribution and Snedecore's F-distribution.

BSc III Sem(DSC) Calculus and Probability Distributions (Practical)
Course Outcomes (CO):

CO1	Students will learn about test for mean, equality of means when variance is known or unknown under normality (small & large samples)
CO2	Students will learn about test for single proportion and difference of proportions.
CO3	Students will learn about test for variance & equality of two variances under normality.
CO4	Students will learn about applications of χ^2-distribution-I & II.
CO5	Students will learn about applications of Student's t-distribution and Snedecore's F-distribution.

BSc III Sem(OEC) Population Studies
Course Outcomes (CO):

CO1	Students will learn about test for mean, equality of means when variance is known or unknown under normality (small & large samples)
CO2	Students will learn about test for single proportion and difference of proportions.
CO3	Students will learn about test for variance & equality of two variances under normality.
CO4	Students will learn about applications of χ^2-distribution-I & II.
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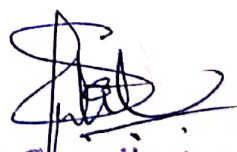## BSc IV Sem(DSC) Statistical Inference-I(Theory)

Course Outcomes (CO):

CO1	Students will learn about Concepts of Estimation.
CO2	Students will learn about Methods of Estimation.
CO3	Students will learn about Interval Estimation.
CO4	Students will learn about Testing of Statistical Hypothesis.
CO5	Students will learn about Sequential testing.

BSc IV Sem(DSC) Statistical Inference-I (Practical)

Course Outcomes (CO):

CO1	Students will learn about to find Unbiased & Consistent Estimators.
CO2	Students will learn about Cramer-Rao Inequality & MVB Estimators.
CO3	Students will learn about Estimation of parameters by MLE & MME.
CO4	Students will learn about Confidence Interval.
CO5	Students will learn about to test SPRT.

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BSc V Sem(CBCS) Inference and Statistical Quality Control (Theory-P-I)
Course Outcomes (CO):

CO1	Students will learn about the non-parametric tests.
CO2	Students will learn about the index numbers.
CO3	Students will learn about Time Series Analysis
CO4	Students will learn about the basic concepts of SQC. Control Charts for Attributes.
CO5	Students will learn about Control Charts for Attributes and for Variables

BSc V Sem(CBCS) Inference and Statistical Quality Control (Practical-P-I)
Course Outcomes (CO):

CO1	Students will learn about, how to use non parametric tests.
CO2	Students will learn about to solve problems on index numbers.
CO3	Students will learn about to fitting trend lines in time series.
CO4	Students will learn about drawing control charts for variables & attributes.

BSc V Sem(CBCS) Sampling Theory & Demography (Theory-P-II)
Course Outcomes (CO):

CO1	Students will learn about basic concepts about sampling.
CO2	Students will learn about Simple Random Sampling.
CO3	Students will learn about Stratified Random Sampling.
CO4	Students will learn about Systematic Random Sampling.
CO5	Students will learn about Demography & Life Tables.

BSc V Sem(CBCS) Sampling Theory & Demography (Practical-P-II)
Course Outcomes (CO):

CO1	Students will learn about drawing random samples using random number tables (grouped & ungrouped data).
CO2	Students will learn about the SRS technique.
CO3	Students will learn about the S_rRS technique.
CO4	Students will learn about the S_yRS technique.
CO5	Students will learn about Measurement of Mortality Rates, Fertility Rates & Construction of Life tables.

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BSc VI Sem(CBCS) ANOVA, Design of Experiments & SPRT (Theory-P-I) Course Outcomes (CO):

CO1	Students will learn about Analysis of Variance.
CO2	Students will learn about Design of Experiments.
CO3	Students will learn about Factorial Experiments.
CO4	Students will learn about Split-plot Design.
CO5	Students will learn about Sequential testing.

BSc VI Sem(CBCS) ANOVA, Design of Experiments & SPRT (Practical-P-I) Course Outcomes (CO):
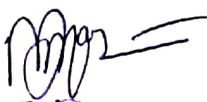
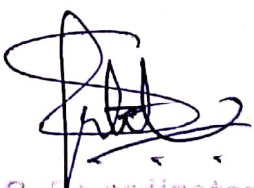|	
CO1	Students will learn about ANOVA for one-way & two-way classified data.
CO2	Students will learn about Analysis of CRD, RBD & LSD & Efficiency.
CO3	Students will learn about missing plot technique for RBD & LSD with single observation missing.
CO4	Students will learn about Analysis of 2^2 & 2^3- factorial experiments.
CO5	Students will learn about to test SPRT for various distributions.

BSc VI Sem(CBCS) Operations Research-I (Theory-P-II) Course Outcomes (CO):

CO1	Students will learn about Linear Programming Problem.
CO2	Students will learn about Transportation Problem.
CO3	Students will learn about Assignment problem and Sequencing Problems.
CO4	Students will learn about Game Theory.
CO5	Students will learn about Inventory Theory.

BSc VI Sem(CBCS) Operations Research-I (Practical-P-II) Course Outcomes (CO):

CO1	Students will learn about formulation of LPP, Solving LPP by its methods.
CO2	Students will learn about how to solve Transportation Problems.
CO3	Students will learn about how to solve Assignments problems.
CO4	Students will learn about to solve problems on Game Theory.
CO5	Students will learn about to solve problems on Inventory theory.

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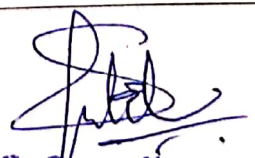S.B. Arts and KCP Science College
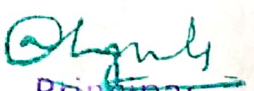VIJAYAPUR

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PO 9	Recognize the importance of statistical modeling and computing, and the role of approximation and mathematical approaches to analyze the real problems using various statistical tools.
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BA V Sem(CBCS) Theory of Sampling (Paper-I)
Course Outcomes (CO):

CO1	Students will learn about the Indian Official Statistics.
CO2	Students will learn about basic concepts of Sampling theory.
CO3	Students will learn about Simple Random Sampling.
CO4	Students will learn about Stratified Random sampling.
CO5	Students will learn about Systematic Random Sampling.

BA V Sem(CBCS) Population Studies (Paper-II)
Course Outcomes (CO):

CO1	Students will learn about the national population census.
CO2	Students will learn about Basic concepts of census survey.
CO3	Students will learn about population studies and fertility measures.
CO4	Students will learn about measurement of mortality.
CO5	Students will learn about the industrial Statistics.

BA VI Sem(CBCS) ANOVA and Designs of Experiments (Paper-I)
Course Outcomes (CO):

CO1	Students will learn about the basic concepts of ANOVA one-way classification.
CO2	Students will learn about basic concepts of ANOVA two-way classification.
CO3	Students will learn about basic concepts of Design of experiments-CRD.
CO4	Students will learn about basic concepts of Design of experiments-RBD
CO5	Students will learn about basic concepts of Design of experiments-LSD.

BA VI Sem(CBCS) Operations Research-I (Paper-II)
Course Outcomes (CO):

CO1	Students will learn about the LPP.
CO2	Students will learn about basic concepts Transportation Problem.
CO3	Students will learn about basic concepts of Assignment problem.
CO4	Students will learn about basic concepts game theory.
CO5	Students will learn about replacement theory.

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