



G.VENKATASWAMY NAIDU COLLEGE (Autonomous), KOVILPATTI.

Affiliated to Manonmaniam Sundaranar University – Tirunelveli.

(Re-Accredited with 'A' Grade by NAAC)

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli).

(Under the Management of The Kuppasamy Naidu Charity Trust for Education and Medical Relief, Coimbatore-37)

Programme Outcomes - Department of Statistics

GPO No.	Programme Outcomes
PO1	Assimilate strong foundation of statistics.
PO2	Identify and apply appropriate principles and methodologies to solve a wide range of problems associated with statistics.
PO3	Apply the knowledge of statistics in science, arts and management principles to solve the complex problems.
PO4	Develop language skills by helping them express their ideas and views clearly and effectively and Assist students in understanding the statistical skills and develop their ability to work both independently and in groups.
PO5	Involve students in various activities thereby help them apply the moral and ethical standards of statistics in their career.
PO6	Help students do research projects and apply them for the upliftment for their career and gain proficiency in using statistical software for data analysis.
PO7	To make them familiar with the modern concepts in statistics and engage them in self-regulating and life-long learning in the broadest perspective of hi-tech change.

Programme Specific Outcomes - Department of Statistics

PSO No.	Intended Programme Specific Outcomes
PSO1	Understand how to collect, present, analyze and interpret the data.
PSO2	Ability to analyze the data by using advanced MS-Excel and R-Software.
PSO3	Motivate students to pursue career in related disciplines, especially the Data Sciences, Bio-Statistics and Actuarial Sciences.



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Course Outcome - Department of Statistics

B.Sc., Statistics

First Semester

Core -1

Descriptive Statistics (U20ST101)

CO No.	Course Outcome
CO1	Recall the basic terminology of statistics, descriptive measures, skewness, moments and kurtosis, correlation and regression and theory of attributes and identify the types of data.
CO2	Compare the statistical concepts of central tendency, dispersion, skewness, Kurtosis, correlation, regression, associate the theory of attributes and Classify the statistical data graphically and diagrammatically.
CO3	Apply the data using the measures of location and measures of dispersion, diagrams and graphs for grouped and ungrouped data cases and interpret the attributes, correlation and regression analysis.
CO4	Analyze and categorize the statistical data using types of diagrams and graphs, measures of central tendency, dispersion, correlation and regression and the attributes.
CO5	Determine the statistical data graphically, diagrammatically using frequency distributions, cumulative frequency distributions and summarize the properties, coefficients of various measures of central tendency, dispersion, moments, correlation, regression and attributes.



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Core - 2

Probability Theory (U20ST102)

CO No.	Course Outcome
CO1	Remember the basic knowledge on fundamental probability concepts, random variable, distribution function and mathematical expectation.
CO2	Understand the concept of addition and multiplication probability, conditional probability, probability mass function and probability density function.
CO3	Apply the related concept of discrete and continuous random variables and their probability distributions including expectation and moments.
CO4	Analyze the properties of probability mass function, probability density function and bivariate random variables.
CO5	Evaluate the theory of probability, conditional probability and mathematical Expectation.

Elective-Generic-I

Ancillary Mathematics (U20ST1A1)

CO No.	Course Outcome
CO1	Define and identify the Mathematical Series, Theory of Equations, Finite Differences, Differential Calculus and Trigonometry.
CO2	Summarize formulas such as finding roots, various algebraic series, difference operators, higher derivatives and trigonometrically expansions.
CO3	Classify and solve the problems using the related formulas.
CO4	Categorize and calculate the nature of roots, interpolation, trigonometric, algebraic series and derivatives.
CO5	Discuss the various series, derivatives, finite difference operators.



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Second Semester

Core - 3 Distribution Theory (U20ST203)

CO No.	Course Outcome
CO1	Define the several theories of distributions.
CO2	Understand the concept of discrete, continuous and sampling distributions.
CO3	Apply the concept of discrete, continuous and sampling distributions.
CO4	Analyze and classify the moment generating functions, moments and cumulant generating functions of various distributions.
CO5	Discuss and assess the recurrence relations and limiting cases of some distributions.

Core Lab - 1 Statistics Practical – I (U20ST2P1)

CO No.	Course Outcome
CO1	Recite the basic notations and formulas of descriptive statistics, probability theory and distribution theory.
CO2	Summarize the concept of statistical data using frequency distributions, addition and multiplication probability, conditional probability, discrete and continuous random variables such as Bernoulli, Binomial, Poisson and normal distributions.
CO3	Examine the bivariate data of descriptive statistics, discrete and continuous random variables and discrete probability distributions.
CO4	Analyze the regression lines, two dimensional random variables in probability theory and continuous probability distributions.
CO5	Evaluate the concept of attributes, mathematical expectation and Sampling distributions such as t, F, Chi-Square distributions.



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Elective-Generic-2

Real Analysis (U20ST2A2)

CO No.	Course Outcome
CO1	Define and recognize the basic properties of the field of real numbers.
CO2	Understand demonstrate the analytical concepts of open, closed, countable, uncountable, limits of sequence and series.
CO3	Illustrate and examine the theorems in a correct mathematical way to find the limit superior, limit inferior, the differentiability and integrability of real functions and Construct the mathematical proofs of basic results in real analysis.
CO4	Analyze and calculate the solutions to problems and proofs of theorems for the sets, continuity, differentiability and integrability, sequence and the various comparison tests of positive term series of real functions.
CO5	Justify and evaluate the need for a real number system and determine the understanding of limits and how they are used in sequences, series and integration.



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Third Semester

Core - 4

Statistical Estimation Theory (U20ST304)

CO No.	Course Outcome
CO1	Knowledge about important inferential aspects such as point estimation, unbiasedness, consistency, efficiency, sufficiency, interval estimation and Bayesian estimation.
CO2	Learn the concept of sampling distribution of a statistic, standard error, minimum variance unbiased estimator, maximum likelihood estimator, confidence interval, prior and posterior distribution.
CO3	Derive the inferences from Bernoulli, Binomial, Poisson, Normal, Exponential Distributions and loss function.
CO4	Explain the properties of consistent estimator, regularity condition of Cramer-Rao Inequality, methods of estimation, confidence interval for large samples and loss function.
CO5	Solve the problems related to point estimation and interval estimation.



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Core -5

Time Series and Index Number (U20ST305)

CO No.	Course Outcome
CO1	Define and use the basic terminology and formulas of Time Series and Index Numbers.
CO2	Understand the components of Time Series and types of index numbers.
CO3	Explain and apply the methods of the trend, seasonal variations of time series, construction and mathematical tests of index numbers.
CO4	Analyze the different methods of finding iterated averages, merits and demerits of time series and index numbers, problems in the construction of index number.
CO5	Determine the concepts of measurement of trend and seasonal variations of time series, methods of constructing index numbers and cost of living index number.

Elective Generic – 3

Programming with C (U20ST3A3)

CO No.	Course Outcome
CO1	Remember the essential notions of C Programming.
CO2	Understand the concepts of C programming.
CO3	Apply different features of C Programming to real time applications.
CO4	Analyze and discover bugs in the program.
CO5	Calculate the different programs to apply the various statistical methods.



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Elective Generic Lab – 1

Programming in C & MS – Excel (U20ST4AP)

CO No.	Course Outcome
CO1	Recall programming skills using the fundamentals of C language.
CO2	Comment the C code for a given algorithm.
CO3	Apply the statistical concepts in C program.
CO4	Develop programs using the basic elements like Control statements, Arrays and Strings.
CO5	Experiment the C code for Arithmetic mean, Median and Mode.

Employability Enhancement – 1 Fundamentals of Statistics – I (U20ST3EEA)

CO No.	Course Outcome
CO1	Define the concept of frequency distribution, Central tendencies and Measures of dispersion, correlation and regression.
CO2	Understand the various formulas of Central tendencies, Measures of Dispersion correlation and analysis.
CO3	Solve the problems using the related formulas.
CO4	Analyze the concept of collection of data, central tendencies, curve fitting and rank of correlation.
CO5	Compare and Evaluate the Frequency distributions, Central tendencies, dispersion, Skewness and Kurtosis.



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Employability Enhancement - 1 Mathematics for Competitive Examination – I (U20ST3EEB)

CO No.	Course Outcome
CO1	Remember and understand the basic operations on mathematics.
CO2	Apply the mathematical ideas to model real-world problems.
CO3	Analyze and communicate the mathematical problems.
CO4	Evaluate the mathematical problems in a short way.
CO5	Develop the problem-solving skills.

Fourth Semester

Core -6 Testing of Statistical Hypotheses (U20ST406)

CO No.	Course Outcome
CO1	Remember the knowledge of statistical hypothesis.
CO2	Understand the basic knowledge of Neyman-Pearson Lemma, Likelihood Ratio Test, Sampling distributions of chi-square, t and F.
CO3	Apply the concept of Likelihood Ratio Test, Sampling distributions of chi-square, t and F and non-parametric tests.
CO4	Analyze the concepts of Large sample tests, Sampling distributions of chi-square, t and F and non-parametric tests.
CO5	Evaluate the concepts of non-parametric tests.



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Core Lab - 2

Statistics Practical – II (U20ST4P2)

CO No.	Course Outcome
CO1	Remember the knowledge of Statistical Estimation Theory, Time Series and Index Number and Statistical Hypothesis Tests
CO2	Understand the basic knowledge of applying method of moments and maximum likelihood method, point estimation and interval estimation and test the mean and variance of normal populations and two normal populations, methods of the trend, seasonal variations of time series, index numbers and Tests of Consistency of index number, and Cost of living index number.
CO3	Apply the concept of the size and power of most powerful tests and to Test the mean and variance of normal populations and two normal populations, methods of the trend, seasonal variations of time series, index numbers and Tests of Consistency of index number, Chain Base Index Numbers and Cost of living index number, Non parametric tests for one sample and two sample tests.
CO4	Analyze the concepts of trend, seasonal variations of time series, index numbers and Tests of Consistency of index number , Chain Base Index Numbers and Cost of living index number, Non parametric tests for one sample and two sample tests.
CO5	Evaluate the concepts of statistical data to estimates applying method of moments and maximum likelihood method.



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Elective Generic –4

Demographic Methods (U20ST4A4)

CO No.	Course Outcome
CO1	Remember the knowledge of demographic methods.
CO2	Understand the basic knowledge of mortality, fertility measurements, population growth and concepts of life tables.
CO3	Apply the concept of mortality, fertility measurements, Life tables, migration and statistical organization in real life problems.
CO4	Analyze the concepts of mortality, fertility migration, population growth and statistical organization.
CO5	Evaluate the mortality, fertility measurements and life table calculation.

Elective Generic Lab – 1

Programming in C &MS – Excel (U20ST4AP)

CO No.	Course Outcome
CO1	Recall programming skills using the fundamentals of MS Excel.
CO2	Comment the MS Excel code for a given algorithm.
CO3	Apply the statistical concepts in MS Excel program.
CO4	Develop programs using the basic elements like Control statements, Arrays and Strings.
CO5	Experiment the MS Excel code for parametric and non-parametric tests.



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Open Elective -Self Study Course

Applied Statistics (U20ST6OE)

CO No.	Course Outcome
CO1	Recall the basic terms in statistics such as statistics, statistical survey, index numbers, vital statistics and population statistics.
CO2	Follow the characteristics of statistics, stages in statistical survey, uses and classification of index numbers, uses of vital statistics and population census.
CO3	Develop the statistical survey, constructing the price index numbers, understand and apply the concept of population census.
CO4	Relation of Statistics to other sciences, time reversal test and factor reversal test, fertility and mortality and relationship between different years of census.
CO5	Determine the importance of statistics, planning and executing of the survey, measures of fertility and mortality and importance and defects of population census.