

DEPARTMENT OF STATISTICS

Course Outcomes

Semester - I

Subject: DESCRIPTIVE STATISTICS

Paper-I

Course Objective: The objective of the paper is to understand the descriptive statistics and the application of Probability in real time problems.

Course Outcomes:

Co1: Students will be able to draw the descriptive statistics for the data and interpret the data with the appropriate graphs.

Co2: Learn how to calculate measures of central tendency and measures of dispersion.

Co3: Gain the knowledge of skewness and kurtosis.

Co4: Use basic probability rules including Additive and Multiplicative laws using the terms independent and Mutually Exclusive events.

Co5: Translate real world problems into probability models Derive the probability density function of Transformation of random variables.

Semester - II

Subject: Probability and probability Distributions

Paper-II

Course Objective: The objective of this paper is

The course is aimed at exposing the students to learn the various discrete and continuous probability distribution.

Course Outcomes:

Co1: The students will be equipped with the Application of Random variables in real time problems.

Co2: Understand the concept of discrete and continuous random variables.

Co3: Get an idea of bivariate random variable, learn how to calculate joint, marginal and conditional, independence of random variables.

Co4: Learn the applications of chebyshev's and Cauchy-schwartz's inequalities.

Co5: Understand the definitions of various generating functions, learn the statements of their properties with applications.

Co6: Derive various descriptive statistics and verify the existence of reproductive property of

distribution using generating functions, their limitations and advantages of discrete distributions.

Co7: Distinguish between discrete and continuous distribution.

Co8: Derive various descriptive statistics and verify the existence of reproductive property of distribution using generating functions, their limitations and advantages of continuous distributions.

Co9: Understand the importance and application of normal distribution.

Co10: Practical Exposure to the fitting of discrete and continuous distribution by using MS-EXCEL.

Semester - III

Subject: STATISTICAL INFERENCE

Paper-III

Course Objective: The objective of this paper is

The course is aimed at exposing the students to learn the various statistical methods and Estimation of parameters in Distribution theory.

Course Outcomes:

Co1: Understand the concept of characteristics of a good estimator.

Co2: Understand difference between point estimator and interval estimation.

Co3: Understand the theory of Maximum Likelihood estimation and the method of moments.

Co4: Students will be able to apply the confidence interval and estimate the unknown parameters of Normal Distribution by pivot method.

Co5: Gain the knowledge on definitions, properties and applications of chi-square, t and F distributions.

Co6: Application of Large sample tests and small sample tests, Framing the hypothesis, level of significance, computation of statistic, comparison between tabulated value and calculated value, decision making and statistical inference.

Co7: Understand how to compare between parametric and non-parametric tests their advantages and disadvantages.

Co8: learn the various non-parametric tests of one sample and two independent samples.

Semester - IV

Subject: SAMPLING TECHNIQUES AND DESIGN OF EXPERIMENTS

Paper-IV (B)

Course Objective: The objective of this paper is

1. Students will be able to understand the concept of ANOVA and will be able to apply ANOVA one way and two way to real life applications.
2. Setting null and alternative hypothesis to one way and two way ANOVA, expectations of various sum of squares and calculating missing observations are taught.
3. Designs of experiments: CRD, RBD and LSD are taught.

Course Outcomes:

Co1: Introduced to various statistical sampling schemes such as simple, stratified and systematic sampling.

Co2: An idea of conducting the sample surveys and selecting appropriate sampling techniques,

Co3: Knowledge about comparing various sampling techniques.

Co4: Carryout one way and two way Analysis of Variance,

Co5: Understand the basic terms used in design of experiments,

Co6: Use appropriate experimental designs to analyze the experimental data.

Co7: Perform a Sample survey, understand the errors in sampling design, apply the necessary sampling technique based on the objective.

Semester –IV

Subject: APPLIED STATISTICS

Paper-IV(A)

Course Objectives: The objective of this paper is

1. To make students understand the definition, importance, and uses of time series data. Will be able to measure trend and seasonal variations.
2. The utility of index number are to provide a value useful for comparing magnitudes of related variables to each other and to measure the changes in these magnitude over time.
3. Students will be able to understand the concept of demand, supply and price. Different measures of demand analysis and elasticity of demand and supply are taught.

Course Outcomes:

Co1: Understand the time series data, compute and eliminate trend component using different methods and calculate seasonal indices by various methods.

Co2: Understand how demand and supply related with the price of a product and quantity of the same product.

Co3: Acquire the knowledge of determining demand curve from time series data by Leontief's and Pigou's method.

Co4: Computation of simple and weighted index numbers by using various methods.

Co5: Know the changes in the price level in the current year w.r.t. to the base year.

Co6: Construction of Cost of Living Index numbers.

Co7: Understand the concept of Base shifting, Splicing and deflation of index numbers.

Co8: Practical Exposure to the measurement of trend by the method of least squares and moving averages and determination of seasonal indices by various methods in MS-EXCEL.

Co9: Construction of Lorenz curve and fitting of Pareto law to income data by using MS-EXCEL.

Semester –V

Subject: Operations Research - I

Paper -VI(A)

Course Objectives: The objective of this paper is

Students will be able to find optimum solution to a given linear programming problem using various methods.

Course outcomes:

Co1: To formulate the LPP and solve the same by using Graphical, Simplex and artificial variable techniques.

Co2: To know the scope of Operations Research

Co3: To link the OR techniques with business environment and life sciences

Co4: To convert real life problems into mathematical models

Co5: To inculcate logical thinking to find a solution to the problem Syllabus

Semester –V

Subject: Operations Research-2

Paper – VIIA

Course Objectives: The objective of this paper is

1. Students will be able to find optimum solution to a given linear programming problem using various methods.
2. Optimum solutions for Transportation problem, Assignment problems and travelling salesman problems are taught.
3. Students are taught how to find the optimum sequence to a given job sequencing problem.

Course outcomes:

Co1: Obtain IBFS to the transportation problem by using NWCR, VAM, and Matrix Minima method and hence obtain optimum solution by using MODI method.

Co2: To frame the assignment problem as a special case of TP and obtain optimal solution through Hungarian method.

Co3: To obtain optimal sequence of N jobs on two and three machines without passing.

Co4: To perform Project scheduling of a given project (Deterministic case- CPM).

Co5: To perform Project scheduling of a given project (Probabilistic case-PERT).

Co6: Graphical method of solving form $x \times 2$ and $2 \times n$ games.

Co7: Solution of $m \times n$ games by dominance rule.

Co8: Linear programming method for solving $m \times n$ games.