



**MARWADI SIKSHA SAMITHI**

**Ramnath Guljarilal Kedia College of Commerce**

(Affiliated to Osmania University, NAAC Re-Accredited)  
3-1-336, Esamia Bazar, Opp. New Chaderghat Bridge, Hyderabad- 500027.

**Program Name:- B.Sc.(Statistics)2022-2023**

**DEPARTMENT OF STATISTICS**

### **Program Outcomes**

- Acquire understanding of theoretical and practical aspects of statistics and to be able to relate them to real life.
- Applying various statistical tools to draw inferences.
- To learn the knowledge of latest tools & technologies in the area of statistics and enable students to effectively use statistical software's to problems relating in real life.

### **Program specific outcomes**

- To select modern computing tools and techniques to meet the desired needs of the society such as safety, security and applicability.
- To get the knowledge of the advanced software tools which is very useful for further career in IT.?
- Using Statistical software tools and applying the logical and analytical skills to solve real life problems in related areas.
- Gain knowledge on theorems in Algebra, Analysis, Differential Equations and Linear Algebra and enhance themselves in mathematical skills for better employability

### **Course Outcomes Semester - I**

**Subject: Descriptive Statistics and Probability Paper-I (DSC-2A)**

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

#### **Course Outcomes:**

- Students will be able to understand the descriptive statistics for the data and interpret the data with the appropriate graphs.
- Learn how to calculate measures of central tendency and measures of dispersion.
- Students will be able to learn probability and its applications in real life with examples.
- Understand the concept of discrete and continuous random variables.
- Understand the definitions of various generating functions, with their statements and properties with applications which will be useful in next semester.

## Semester - II

### **Subject: Probability Distribution Paper-II (DSC-2B)**

#### **Course Objective:**

The course is designed for the students to learn the various discrete and continuous probability distributions.

#### **Course Outcomes:**

- Distinguish between discrete and continuous distribution.
- Derive various descriptive statistics using generating functions, their limitations and advantages of discrete and continuous distributions.
- Understand the importance and application of normal distribution.
- Practical problems in fitting of discrete and continuous distribution by using MS-EXCEL.

## Semester - III

### **Subject: Statistical Methods and Theory of Estimation Paper-III (DSC-2C)**

#### **Course Objective:**

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

#### **Course Outcomes:**

- Perform qualitative data analysis using theory of attributes.
- Understanding the concepts of partial and multiple correlation coefficients.
- Regression Analysis is performed by using least square methodology.
- Understand the concept of characteristics of a good estimator.
- Understand difference between point estimator and interval estimation.
- Understand the theory of Maximum Likely hood estimation and the method of moments.
- Definitions, properties and applications of chi-square, t and F distributions.
- Practical knowledge of curve fitting by the method of least squares, correlation and regression lines by using MS-EXCEL.

## Semester - IV

### **Subject: Statistical Inference Paper-IV (DSC-2D)**

**Course Objective:** The purpose of this paper is to draw the inference to the population parameters based on sample tests.

#### **Course Outcomes:**

- Application of Large sample tests and small sample tests, framing the hypothesis, level of significance, comparison between tabulated value and calculated value, decision making and statistical inference.
- Comparison between parametric and non-parametric tests their advantages and disadvantages and the concept of measurement scale.
- Use of central limit theorem in various sample tests.
- Learn the various non-parametric tests of one sample and two independent samples.

- Practical knowledge to the small sample test, chi-square and non-parametric tests by using MS-EXCEL.

## Semester – V

**Subject: Sampling Theory, Time series, Index numbers and Demand Analysis.**

### **Paper-V (DSC-2E)**

**Course Objectives:** The objective of this paper is

1. To make students to be able to draw samples using different methods and estimate mean and variance of sampling methods.
2. To make students understand the definition, importance, and uses of time series data.
3. The uses 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 magnitudes over time.
4. Students will be able to understand the concept of demand, supply and price. Different measures of demand analysis and elasticity of demand and supply.

**Course Outcomes:**

- Principles of Sample survey understand the errors in sampling design; apply the necessary sampling technique based on the objective.
- Understand the time series data, compute trend component using different methods and calculate seasonal indices by various methods.
- Understand how demand and supply related with the price of a product and quantity of the same product.
- Understanding demand curve from time series data by Leontief's and Pigou's method.
- Construction of Cost of Living Index numbers.
- Understand the concept of Base shifting, Splicing and deflation of index numbers.
- Practical knowledge in measurement of trend by the method of least squares and moving averages and determination of seasonal indices by various methods in MS-EXCEL.

### **Subject: Statistical Quality Control and Reliability**

**Paper – VIA (DSE-2E) Course\_**

**Objectives:**

1. Students will be able to understand the Definition, uses and applications of SQC. Concept of process control and can use various variable and attribute charts to draw interpretations to the given data.
2. Product control: Accepting sampling plans, single sampling plan, double sampling plan with their properties are taught.
3. Definition of reliability, series and parallel configurations in system reliability are taught.

**Course Outcomes:**

- Students will be able to apply the control charts for variables and attributes to the problem to ensure that the production process is under control or not.
- Understand the concept of natural tolerance limits, specification limits, process capability index and modified control charts.
- To arrive on the decision regarding the sample size while implementing Acceptance Sampling Plans.
- Understand Definitions of Producer risk and consumer risk, AQL and LTPD
- Gain the knowledge of single and double sampling plans for their attributes and their OC and ASN functions.
- Practical knowledge to the control charts for variables and control charts for attributes by using MS-EXCEL.

## Semester – VI

**Subject: Design of Experiments, Vital Statistics, Official Statistics & Business Forecasting.**

**Paper – VII (DSC-2F) Course Objectives:**

1. Students will be able to understand the concept of ANOVA and will be able to apply ANOVA one way and two way in real life applications.
2. Designs of experiments: CRD, RBD and LSD are explained.
3. To make students understand the functions of NSSO and CSO.
4. Students gain the knowledge on the concept of national income.
5. Different measures of fertility, mortality and population growth rates are explained to students.

**Course Outcomes:**

- Perform ANOVA and interpret the results.
- Gain the skills to use life tables and calculate survival rates, birth rates.
- Understanding the Functioning of various statistical organizations. Various measures of population growth.
- To perform ANOVA by using CRD, RBD, and LSD and Construction of mortality rates fertility rates and life tables by using MS-EXCEL.

**Subject: Operations Research Paper – VIIIA (DSE-2F)**

**Course Objectives:**

1. An outcome of this course is 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 will be able to learn how to find the optimum sequence to a given job sequencing problem.

**Course outcomes:**

- To formulate the LPP and solve the same by using Graphical, Simplex and artificial variable techniques.
- Obtain IBFS to the transportation problem by using NWCR, VAM, and Matrix Minima method and hence obtain optimum solution by using MODI method.
- To obtain optimal solution through Hungarian method.
- To obtain optimal sequence of N jobs on two and three machines without passing.
- Practical exposure to the problems in operations research by using Statistical tool TORA.

  
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