

Maharana Pratapsinh. Shikshan Sanstha Mumbai's
ANANDIBAI RAORANE ARTS, COMMERCE AND SCIENCE COLLEGE, VAIBHAVWADI,
SINDHUDURG
DEPARTMENT OF STATISTICS
COURSE OUTCOME OF B.Sc. IN STATISTICS

i. Descriptive Statistics-I and II (USST101 and USST 201)

- This program is organized to get basic knowledge of exploratory data analysis as like classification, manipulation and presentation of the available data.
- Finding some crucial inference from observed dataset is the main outcome of this course. Alternatively measures of central tendency, dispersion, moments, skewness and kurtosis helps to find depth of data.

ii. Statistical Methods-I: (USST102)

- Use the basic probability rules, including additive and multiplicative laws, using the terms, independent and mutually exclusive events.
- Translate real-world problems into probability models.
- Calculate probabilities, and derive the marginal and conditional distributions of bivariate random variables.
- Use discrete probability distributions.

iii. Statistical Methods-2 (USST202)

- Understand concept of continuous random variable & its properties.
- Use discrete and continuous probability distributions,
- Identify the type of statistical situation to which different distributions can be applied.
- Use uniform, exponential, normal distributions to solve statistical problems.

iv. Probability distribution (USST301)

- Introduce the concept of M.G.F., C.G.F, Characteristic function, & their properties.
- Study discrete distributions & their properties.
- Calculate probabilities, and derive the marginal and conditional distributions of continuous bivariate random variables.

v. Theory of Sampling (USST302)

- Being expert in sample survey, random sampling and sample size determination by reducing bias and sampling variability.
- This course is also organized to represent population characteristic through random sample.

vi. Probability & Sampling distribution (USST 401)

- Use uniform, exponential, Gamma, Beta, normal distributions to solve statistical problems.
- Understand & study the sampling distribution like Chi-square, t, F distributions and their applications.

vii. Operations Research I and II (USST303 and USST403)

- Identify and develop operational research models from the verbal description of the real system.
- Understand the mathematical tools that are needed to solve optimization problems.
- Use mathematical software to solve the proposed models (TORA).
- Develop a report that describes the model and the solving technique, analyze the results and propose recommendations in language understandable to the decision-making processes in Management Engineering.

viii. Analysis of variance and Design of Experiment (USST402)

- That course aims to describe and explain the variation of information under conditions that are hypothesized to reflect the variation.
- Study the techniques for comparison of several means under certain assumptions is useful for agricultural research.

ix. Probability and Distribution Theory (USST501)

- Basic probability axioms, rules and models are studied in this course which is applicable to real world process.
- To study and extend various characteristics of probability models and order statistics is a sense of this course.

x. Theory of Estimation (USST502)

By the end of this Program, the students will be able to:

- Understand problem of statistical inference, problem of point estimation
- Properties of point estimator such Consistency, Unbiasedness, Sufficiency
- Obtain minimum variance unbiased estimator
- Obtain estimators using estimation methods such as Maximum likelihood, Minimum chi square, method of moments. Properties of maximum likelihood estimator.
- Quantify information in statistic using Fisher Information
- Understand the Bayesian Estimation procedure.
- Understand problem of Interval estimation & Construct Confidence Interval.
- Introduce Linear Models with Gauss Markoff theorem.

xi. Biostatistics (USST503)

- To apply theoretical statistics tools on the clinical or biological application.
- Study of epidemiological spread, comparison of different drugs and procedures in clinical field are the essence of this course.

xii. Statistical Data Analysis Using PYTHON (USST 504B)

- Understand the basic concepts of PYTHON like Numpy, Padas etc.
- Develop programs for plotting various graphs,
- Develop programs to Analyze the data using PYTHON.

xiii. Distribution Theory and Stochastic Process (USST601)

- Study of different probability models as like bivariate normal distribution, generating functions, Poisson process, birth and death processes predict real world processes.
- As the population of world is increases with time the problem of queue in the every situation is observed, to overcome this problem a single unitqueuing theory is introduced in this course.

xiv. Testing of hypothesis (USST602)

- Understand the procedure of Parametric & nonparametric test.
- Derive MP test, UMP test, LRT test & SPRT for various distributions.
- Develop nonparametric test& to give the decision for the give data.

xv. Operations Research Techniques (UUST603)

- Identify and develop operational research models from the verbal description of the real system.

- Study advanced models of programming problem and some basic knowledge of reliability and simulation is useful to optimize and model various industrial field and financial assets.

xvi. Introduction to SIX Sigma (USST604B)

- Introduce the basic statistics & Understand the basic principles of Six sigma.
- Understand seven tools of Quality & develop them for various dataset.
- Obtain the control charts for attributes & control charts for variables with capability index.
-

xvii. Elements of Operations Research (USACOR501 & USACOR601)

- Identify and develop operational research models, information theory, and financial models, to strengthen decision making is the main outcome of this course.
- Alternatively practical knowledge with different statistical software's makes course more fruitful.

#####