



**Y.A. Government College for Women**

**Chirala - 523155, A.P.**

Re-accredited with 'B' grade by NAAC(Cyc-2)

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## **Course Outcomes (COs)**

### **DESCRIPTIVE STATISTICS**

- 1) knowledge of Statistics and its scope and importance in various areas such as Medical, Engineering, Agricultural and Social Sciences etc.
- 2) knowledge of various types of data, their organization and evaluation of summary measures such as measures of central tendency and dispersion etc.
- 3) knowledge of other types of data reflecting quality characteristics including concepts of independence and association between two attributes,
- 4) insights into preliminary exploration of different types of data.
- 5) Knowledge of correlation, regression analysis, regression diagnostics, partial and multiple correlations.

### **PROBABILITY THEORY AND DISTRIBUTIONS**

- 1) Ability to distinguish between random and non-random experiments,
- 2) Knowledge to conceptualize the probabilities of events including frequentist and axiomatic approach. Simultaneously, they will learn the notion of conditional probability including the concept of Bayes Theorem,
- 3) Knowledge related to concept of discrete and continuous random variables and their probability distributions including expectation and moments,
- 4) Knowledge of important discrete and continuous distributions such as Binomial, Poisson, Geometric, Negative Binomial and Hypergeometric, normal, uniform, exponential, beta and gamma distributions,
- 5) Acumen to apply standard discrete and continuous probability distributions to different situations

### **Statistical Inference**

- 1) Concept of law large numbers and their uses
- 2) Concept of central limit theorem and its uses in statistics
- 3) concept of random sample from a distribution, sampling distribution of a statistic, standard error of important estimates such as mean and proportions,



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- 4) knowledge about important inferential aspects such as point estimation, test of hypotheses and associated concepts,
- 5) knowledge about inferences from Binomial, Poisson and Normal distributions as illustrations,
- 6) concept about non-parametric method and some important non-parametric tests.

## **SAMPLING TECHNIQUES AND DESIGNS OF EXPERIMENTS**

- 1) Introduced to various statistical sampling schemes such as simple, stratified and systematic sampling.
- 2) an idea of conducting the sample surveys and selecting appropriate sampling techniques,
- 3) Knowledge about comparing various sampling techniques.
- 4) carry out one way and two way Analysis of Variance,
- 5) understand the basic terms used in design of experiments,
- 6) use appropriate experimental designs to analyze the experimental data.

## **APPLIED STATISTICS**

After completion of this course, the students will know about

- 1) time series data, its applications to various fields and components of time series,
- 2) fitting and plotting of various growth curves such as modified exponential, Gompertz and logistic curve,
- 3) fitting of trend by Moving Average method,
- 4) measurement of Seasonal Indices by Ratio-to-Trend , Ratio-to-Moving Average and Link Relative methods,
- 5) Applications to real data by means of laboratory assignments.
- 6) Interpret and use a range of index numbers commonly used in the business sector
- 7) Perform calculations involving simple and weighted index numbers
- 8) Understand the basic structure of the consumer price index and perform calculations involving its use
- 9) Various data collection methods enabling to have a better insight in policy making, planning and systematic implementation,



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- 10) Construction and implementation of life tables,
- 11) Population growth curves, population estimates and projections,
- 12) Real data implementation of various demographic concepts as outlined above through practical assignments.

### **OPERATIONS RESEARCH- I**

After leaning this course, the student will be able

1. To know the scope of Operations Research
2. To link the OR techniques with business environment and life sciences
3. To convert real life problems into mathematical models
4. To find a solution to the problem in different cases
5. To inculcate logical thinking to find a solution to the problem

### **OPERATIONS RESEARCH- II**

1. To solve the problems in logistics
2. To find a solution for the problems having space constraints
3. To minimize the total elapsed time in an industry by efficient allocation of jobs to the suitable persons.
4. To find a solution for an adequate usage of human resources
5. To find the most plausible solutions in industries and agriculture when a random environment exists.