CLUSTER UNIVERSITY SRINAGAR

SYLLABUS (FYUP UNDER NEP 2020)

Offered By Department Of STATISTICS

Semester 1st to 3rd (Multi-Disciplinary Course)

Course Title: Introductory Statistics

Course Code: UGSTA22D101 **Max. Marks: 75**
Credits: 3 **External: 55; Min Marks: 22**
Contact Hrs: 45 **Internal (Continuous Assessment): 20 Marks, Min Marks: 08**

Course Objective:

1. To develop in students from multidisciplinary subjects, ability to identify the area of population, the art of collection of data, meaningful segregation, presentation of data and interpretation of collected data so as to deal with data analysis.
2. To handle various types of data and their graphical representation. To use the data for further analysis using measures of central tendency.
3. To find the summary measures, viz. measure of dispersion, measures of skewness and kurtosis of a univariate data.

Course Outcome: After completing the course, a student will have**:**

- Knowledge of Statistics, its scope and importance in various fields.
- Ability to understand concepts of sample vs population and different types of data.
- Knowledge of methods for summarising data sets, including common graphical tools (such as boxplots, histograms and stem plots), Interpret histogram and boxplots.
- Ability to describe data with measures of central tendency and measures of dispersion.
- Ability to understand measures of Skewness and Kurtosis and their utility and significance.

Unit I: **15 Hrs**

Introduction to Statistics and Basic Concepts: Meaning, origin, definition, functions, limitations and applications of Statistics. Primary and secondary data, different methods of collection of primary data with merits and demerits. Sources of secondary data. Classification: Meaning, objectives of classification, types of classification- Chronological, Geographical, Qualitative and Quantitative classifications with illustrations. Formation of discrete and continuous frequency distributions.

Tabulation: Meaning, Objectives and Rules of tabulation, Format of a statistical table and its parts. Types of table, examples of preparation of a blank table and tables with numerical information.

Diagrammatic and Graphical representation of Data: Diagrams: Meaning, importance of diagrams and general rules of construction of diagrams. Types of Diagrams- simple, multiple, component, percentage bar diagrams and pie diagrams with simple illustrations.

Graphs**:** Types of Graphs-Histogram, Frequency polygon, Frequency curve and Ogives, Simple problems, location of mode, median and partition values from the graphs, Difference between diagrams and graphs.

Unit II: **15 Hrs**

Measures of Central Tendency: Meaning of central tendency and essentials of a good measure of central tendency. Types of measures of central tendency: Arithmetic mean, Median, Mode, Geometric mean and Harmonic mean- definition, merits and demerits, Properties of arithmetic mean, Empirical relation between mean, median and mode. Problems on both grouped and ungrouped data for all the measures

Unit III: **15 Hrs**

Measures of Dispersion: Meaning and objectives of measures of dispersion. Essentials of a good measure of dispersion, absolute and relative measures of dispersion. Types of measures of dispersion- Range, Quartile deviation, Mean deviation and standard deviation with relative measures-definition, merits and demerits. Properties of Standard deviation, simple problems on ungrouped and grouped data.

Skewness and Kurtosis: Skewness-Definition, objectives and types of skewness, explanation of positive and negative skewness with diagrams. Measure of skewness- Karl Pearson's coefficient of skewness and Bowley's coefficient of skewness. Simple problems. Kurtosis: Definition and types of Kurtosis, Explaination of types of Kurtosis with neat diagrams. Measure of skewness based on moment, Difference between skewness and Kurtosis.

References:

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3. Gupta, S.C. and Kapoor, V.K. (2000). Fundamentals of Mathematical Statistics (10th ed.), Sultan Chand and Sons.
4. Goon, A.M., Gupta, M.K. and Dasgupta, B. (2013). Fundamental of Statistics, Vol I, World Press, Kolkata.
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9. Bhat B. R, Srivenkataramana T and Rao Madhava K. S (1997): Statistics: A Beginner's Text, Vol 1, New Age International (P) Ltd.
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12. Das N,G. Statistical Methods Vol I, McGraw Hill Education India.
13. Croxton F. E. Cowden D.J and Kelin S (1973): Applied General Statistics, Prentice Hall of India
14. Fruend J.E (2001): Mathematical Statistics, Prentice Hall of India.
15. Croxton F. E. Cowden D.J and Kelin S (1973): Applied General Statistics, Prentice Hall of India