CLUSTER UNIVERSITY SRINAGAR

SYLLABUS (FYUP UNDER NEP 2020)

Offered By Department Of STATISTICS

Semester 2nd (Major Course)

Course Title: Descriptive Statistics-II

Course Code: UGSTA22J201 **Max. Marks 100**
Credits: 4 (Theory: 3, Practical: 1) **Theory External: 60; Min Marks: 24**
Contact Hrs: 75 (Theory: 45, Practical: 30) **Theory Internal (Continuous Assessment): 15 Marks, Min Marks: 06**
Practical Experimental Basis= 15, Min. Marks: 06
Practical Experimental (Continuous assessment) = 10, Min. Marks: 04

Objective:

- To find the summary measures, viz. measures of skewness and kurtosis of a univariate data.
- To find the association between attributes and also the degree of association in case of a bivariate data so as to use in real life problems.
- To fit linear and various non-linear curves for predicting the value of one variable, given the value of another, in case of bivariate data.
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Course Outcome: After completing the course, students will have

- Ability to understand measures of skewness, kurtosis and moments.
- Ability to understand the concept of attributes and measures of association.
- Knowledge of curve fitting and method of least squares.

UNIT I **15 Hrs**

Skewness and Kurtosis: Various measures of Skewness, Karl Pearson's coefficient of skewness, Bowley's coefficient of skewness, Kelly's coefficient of skewness. Measure of skewness based on moments. Kurtosis and its types. β and γ coefficients.

Moments: Moments about mean and arbitrary mean. Relation between central moments and raw moments and converse. Effect of change of origin and scale on moments. Sheppards correction and related examples on above measures.

UNIT II **15 Hrs**

Analysis of Categorical Data: Notations, Classes and class frequencies, order of classes, Relation between class frequencies, Consistency of categorical data, Independence of attributes, Association of attributes, Yule's coefficient of association, Coefficient of colligation.

UNIT III **15 Hrs**

Curve fitting: Concept, dependent and independent variable, Types of curves, Method of least square for fitting straight line, Fitting of parabola, Fitting of exponential curve $y = ab^x$. Fitting of Power curve of the form $y = ax^{\mathrm{b}}$ and related examples. Free-hand method of curve fitting.

PRACTICALS (List of Practicals preferably through Computers) **30 Hrs**

1. Computing skewness and kurtosis for data set.
2. Computing moments about mean for data set.
3. Computing moments about arbitrary mean for data set.
4. Predicting value of dependent variable in case of straight line and second degree parabola for data set.
5. Obtaining frequencies and class frequencies.

References:

1. Statistics: A Beginners Text Vol. I. New Age International Ltd.
2. Goon, A.M., Gupta, M.K. and Dasgupta, B. (2013). Fundamental of Statistics, Vol I, World Press, Kolkata.
3. Gupta, S.C. and Kapoor, V.K. (2000). Fundamentals of Mathematical Statistics (10th ed.), Sultan Chand and Sons.
4. Das N,G. Statistical Methods Vol I, McGraw Hill Education India.