CE/BOS/BS201/0412

K L UNIVERSITY

PROBABILITY AND STATISTICS (11 – BS 201)

SYLLABUS

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Descriptive Statistics: Frequency distribution, graphical presentation of data by histogram, frequency curve and cumulative frequency curves. Mean medium, mode and their simple properties (without derivation) and calculation of median by graphs, range, mean deviation, standard deviation and coefficient of variation.

Correlation and Regression: Bivariate data, simple correlation and regression coefficients and their relations. Limits of correlation coefficients, effect of change of origin and scale on correlation coefficient, linear regression and equations of line of regression.

Probability and sampling distributions: Random experiments, events exhaustive, mutually exclusive and equally likely. Axiomatic definition of probability and probability measures, definitions and simple properties of binomial, Poisson and normal distributions and their inter relations. Concept of population and sample, random sample, methods of taking simple random sample. Sampling distributions of mean both σ known and σ unknown.

Statistical tests of hypothesis: Sampling distribution of mean and standard error, Large sample tests (Test for an assumed mean and equality of two population means with known SD). Small sample tests (t-test for an assumed mean and equality of means of two populations when sample observations are independent). Chi-square test –independence of attributes, goodness of fit.

Analysis of Variance: General principles, completely randomized design, randomized block designs.

Text Books:

1. Miller & Freund's, "Probability and Statistics for Engineers", Richard A Johnson, PHI, New Delhi, 11th Edition (2011).

Reference Books:

- 1. Fundamentals of Mathematical Statistics", S C Gupta and V K Kapoor, S Chand & Sons, New Delhi, 11th Edition
- 2. "Higher Engineering Mathematics", by Dr. B. S. Grewal, Khanna Publishers, 40th Edition, New Delhi.