SYLLABUS FOR LECTURER 10 +2 STATISTICS

UNIT – I  PROBABILITY
Sample space, classical and Aromatic definition of probability. Conditional probability, Baye's theorem and Independent events. Random variable, probability distribution of a random variable, discrete and continuous r.v. Expectation of theorems on expectation. Conditional expectation, moments, moment generating function and characteristic function with their elementary properties.

UNIT – II  STANDARD PROBABILITY DISTRIBUTIONS
Binomial, Poisson, Negative Binomial, geometric and Hyper Geometric distributions – their derivation, moments, m.g.f and problems based on them.

UNIT – III  CONTINUOUS DISTRIBUTIONS
Uniform or rectangle distribution, Normal distribution, Beta and Gamma distributions. Bivariate Normal distribution and its conditional and marginal distribution. Derivation of X(Chi-square), t and F their moments and m.g.f.

UNIT – VI  ESTIMATION

UNIT – V  TESTING OF HYPOTHESIS
Simple and composite Hypothesis, Errors of first and second kind, critical region, power of a test. Most powerful test. Neyman pearson Lemma and is generalization with applications of NPL. Derivation of common tests of a simple Hypothesis against a simple alternative. Uniformly most powerful tests of U.M.P. unbiased tests. Likelihood ratio tests.

UNIT – VI  SAMPLING THEORY
SRSWR/SRSWOR expected values and sampling variances of the sample mean, expected value of sample mean square. Stratified random sampling, proportional and optimum allocation, choice of sample sizes in different strata. Variances under different allocations. Comparison with un-stratified sampling. Systematic sampling, sample mean and its variance. Comparison of systematic sampling with SRS and stratified sampling.

UNIT – VII  DESIGN OF EXPERIMENTS
Principles of experimental design. Analysis of DRD, RBD and LSD, missing plot techniques. Factorial experiments with factors at two and three levels. Confounding and partial confounding in factorial experiment.

UNIT – VIII  INTRODUCTION OF LINEAR PROGRAMMING PROBLEMS (LPP)
UNIT – IX  MULTIVARIATE NORMAL DISTRIBUTION THEORY
Marginal and conditional distribution, joint distribution, Linear function of correlated normal variable. Characteristic function of multivariate normal distribution.

UNIT – X  NON – PARAMETRIC METHODS
Order Statistics
Two sample scale problem: Mood test,
Ansari-Eradley test. Test of randomness based on total number of runs and successive differences.
Students are advised to go through elementary topics i.e. Measures of location/dispersion/Skewness/Kurlosns and correlation and Regression.

Sd/-
Secretary & COE
JK PSC