## Semester III

| **Subject Name: Statistics** | **Duration: 5 hrs /Cycle** |
|---|---|
| **Subject Code: 3PGM3(2015 on)** | **Credit : 4** |

**Unit I: Distributions of functions of Random Variables**: Sampling theory - Transformation of variables of discrete type - Continuous type - T-distribution - F-distribution

**Unit II: Order Statistics:** Order statistics and its distribution - Moment generating function technique - Distribution of $\overline{X}$ and $\frac{ns^2}{\sigma^2}$

**Unit III: Limiting distribution:** Stochastic convergence - Limiting moment generating function - Central limit theorem, some theorems on limiting distribution

**Unit IV: Estimation Theory:** Point estimations - measures of quality estimators, confidence of intervals and means - Confidence interval for variances - Bayesian estimation.

**Unit V: Testing of hypothesis:** Statistical hypothesis - Cartesian best tests - Uniformly most powerful tests - Likely hood ratio test.

**Text Book:** Introduction to Mathematical Statistics by Robert V. Hogg, Alex T. Craig, 4th edition, Macmillan Publishing Co. Inc(1970).

Chapters: 4, 5, 6, 7.

**Reference Books:** 1. Statistical Methods by S. P. Gupta Revised Edition 2011, S.Chand Publishing.

2. Fundamentals of Mathematical Statistics by S.C. Gupta, V.K. Kapur, Reprint 2000, Sultan Chand & Sons.