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| Hard Core | STP 506: Practical V: Based on STH502<br>and Soft Course 1 | No. of credits: 3 |
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**Course Outcomes:**

CO1: Construct complete and partially confounded factorial designs and their analysis.

CO2: Able to analyse the experimental designs with missing values.

CO3: A running knowledge of R in the estimation techniques in the other applied areas.

CO4: To construct life tables

**Practicals on STH502: Testing of Hypothesis**

- 1) Computing size of the test, power of the test and plotting power function.
- 2) Most powerful tests (Continuous as well as discrete distributions).
- 3) UMP one sided test including plotting of power function: Discrete distributions.
- 4) UMP one sided test including plotting of power function: Continuous distributions.
- 5) UMPU test based on one parameter exponential family.
- 6) Interval estimation: Pivotal approach and Interval estimation: Through the acceptance region of one sided UMP test and two sided UMPU tests for one parameter exponential family.
- 7) Likelihood ratio test for finite sample based on one and two independent sample from normal distribution and exponential distribution.
- 8) Bartlett test for homogeneity of variances.
- 9) Wald and Score test for large samples.
- 10) Non parametric test 1: Tests based on one and two sample sign and Wilcoxon signed rank test, Kolmogorov Smirnov goodness of fit test, run test.
- 11) Non parametric test 2: Two and k-sample median test, two sample Wilcoxon-Mann Whitney test, two sample Kolmogorov Smirnov test.

**Practicals on STH504: ACTUARIAL STATISTICS**

1. Future lifetime random variable and related measures.
2. Computation of various measures using Gompertz and Makeham's Model.
3. Life Tables under UDD assumption and constant force of mortality. Construction of Select Life Tables.
4. Calculation of Premiums and Annuities.
5. Actuarial present values of insurance schemes.
6. Calculation of Benefit Reserves.