Open Elective	**STE501 : Statistical Testing in Data Analysis**	No. of credits: 3

Unit 1

Population and sample, parameter, statistic, estimator, statistical properties of estimators.

Basic concepts concerning testing of hypotheses, procedure for hypothesis testing. Null hypothesis, alternate hypothesis, statistical test procedures, test statistic, two types of errors, level of significance, p-value, size and power of the test. One sided and two sided test procedures. Parametric and nonparametric tests. (10 hours)

Unit 2

Assumptions, test procedures and examples - One sample Z test, hypothesis testing of means, hypothesis testing for differences between means under equal variance and unequal variances, paired t-test, tests for proportions. Sample size and its determination.

Hypothesis testing for comparing a variance to some hypothesized population variance, testing the equality of variances of two normal populations, hypothesis testing of correlation coefficients, confidence intervals. (14 hrs)

Unit 3

Non-parametric tests, sign test, Wilcoxon signed rank test, Wilcoxon rank sum test-Mann-Whitney test, Contingency tables - Chi-square test for independence of attributes,

Principles of design of experiments, basic principle of ANOVA, ANOVA – CRD, RBD, LSD. Tukey multiple comparison test with equal sample sizes, Tukey-Kramer test with unequal sample sizes. (16 hrs.)

References:

1. J.Medhi (1992): Statistical Methods : An Introductory Text, Wiley Eastern Limited.
2. Douglas A. Lind, William C. Marchal, Samuel A. Wathen (2012), “Basic Statistics for Business & Economics” McGraw-Hill Education