Semester	**Six**
Course	**Major**
Paper Code	**C3ST230641P**
Paper Title	**Data Analysis 2**
No. of Credits	**4**
Theory/Composite/Practical	**Practical**
Minimum No. of preparatory hours per week a student has to devote	**6**
Module	**NIL** -
Syllabus	**Suggested Problems** **Introduction to Survey Sampling** 1. Selection of SRS with and without replacement estimation of Mean, standard error. 2. Stratified random Sampling: allocation of sample to strata by proportional and Neyman's methods. Compare the efficiencies of above two methods relative to SRS. 3. Gain in precision in stratified sampling. **Design of Experiments** 1. Analysis of CRD, RBD, LSD 2. Analysis of RBD and LSD with one missing observation 3. Analysis of 2^2 and 2^3 factorial experiments in CRD, RBD and LSD 4. Analysis of a completely and partially confounded two level factorial design in 2 and 4 blocks **Multivariate Probability Distributions** 1. Applications of Multinomial Distribution 2. Applications of Multivariate Normal Distribution 3. Drawing sample from multivariate normal distribution and simulating the sampling distributions of mean vector and variance- covariance matrix **Introduction to Asymptotic Theory** 1. Test of significance and confidence intervals for single proportion and difference of two proportions using CLT. 2. Test of significance and confidence intervals for single Poisson mean and difference of two Poisson means using CLT. 3. Determination of the minimum sample size required to achieve normality by sample proportion and sample mean. **Time Series Analysis**

	1. Determination of trend by curve fitting 2. Determination of trend by moving averages 3. Determination of seasonal indices by method of averages 4. Conversion of an evolutive series to a stationary series 5. interpretation of acf and pacf plots **Non-Parametric Methods** 1. Test for randomness based on total number of runs 2. Kolmogrov Smirnov test for goodness of fit 3. Sign test and signed rank test 4. Wilcoxon rank sum test and Mann-Whitney U-test 5. Kruskal-Wallis test 6. Mood test, Ansari-Bradley test and Seigel-Tukey test
Learning Outcomes	1. Application of Survey Sampling Techniques 2. Application of Design of Experiments 3. Application of Multivariate distributions 4. Application of Time Series 5. Application of Non-Parametric methods 6. Application of Large Sample theory
Evaluation	Continuous Assessment