**DATA ANALYSIS USING STATISTICAL TECHNIQUES**

**OBJECTIVE**

**This course is meant for students who do not have sufficient background of Statistical Methods. The students would be exposed to concepts of statistical methods and statistical inference that would help them in understanding the importance of statistics. It would also help them in understanding the concepts involved in data presentation, analysis and interpretation. The students would get an exposure to presentation of data, probability distributions, parameter estimation and tests of significance, regression and multivariate analytical techniques. This course is meant for exposing the students in the usage of various statistical packages for analysis of data. It would provide the students, hands on experience in the analysis of their research data. This course is useful to all disciplines.**

UNIT I

Concepts of statistical population and  
sample from a population; qualitative and quantitative data; nominal, ordinal, ratio,  
interval data; cross sectional and time series data; discrete and continuous data.  
Collection and scrutiny of data: Primary data; designing a questionnaire and a schedule;  
secondary data and sources of secondary data. Presentation of data: Diagrammatic and  
graphical representation of data; Descriptive  
statistics: Concepts of central tendency or location, Absolute and relative measures of  
dispersion; Box plot, Lorenz curve; skewness and kurtosis. (8hours)

UNIT II

Fitting and testing the goodness of fit of discrete and continuous probability distributions; Testing of hypothesis based on large sample test statistics; Testing of hypothesis using chi-square, t and F statistics. (10 hours)

UNIT III

Concept of analysis of variance and covariance of data for single factor, multi-factor, one-way and multi-classified experiments, contrast analysis, multiple comparisons, Analyzing crossed and nested classified designs. (10 hours)

UNIT IV

Testing the significance of contrasts; Correlation and regression including multiple regression. (2hours)

References:

1. Dutta, N. K. (2004). Fundamentals of Biostatistics, Kanishka Publishers.
2. Sundaram, K.R.(2010) Medical Statistics-Principles & Methods, BI Publications,New  
   Delhi
3. Hogg R.V. and Tanis E.A.(2001). Probability and Statistical Inference, Prentice Hall  
   International Inc.
4. Rohatgi, V.K. and Saleh, A.K.Md.(2001). An Introduction to Probability and Statistics,  
   John Wiley & Sons.
5. Das M.N. & Giri N.C. (2006). Design and Analysis of Experiments, New Age  
   Publications
6. Des Raj and Chandhok (1998). Sampling Theory, Narosa.