

**Department of Mathematics & Statistics**  
**St. Xavier's College, Ranchi**

**Certificate Course on Data Analysis using SPSS Software**  
 (Duration: 60 Hours)

**About the Course:**

Department of Mathematics and Statistics, St. Xavier's College, Ranchi; has specially designed certificate course in Data Analysis using SPSS SOFTWARE for the students pursuing degree in Social Sciences, Biological Science, Computer Science (CA/IT), Humanities, Education, Commerce, Commerce Vocational Courses and Management Course. In this course the students shall undergo hands on training in SPSS Software. The course is of 60 hours (20 hours Theory & 40 hours Practical) duration and course will be taught in computer lab using SPSS Software. The course will be conducted two times in a year.

**Course Content:**

S. No.	Title	Content of syllabus
1	Introduction	Type of Scale of Measurements, choosing appropriate scale and measurements to the data, preparing codebook Getting to know SPSS, starting SPSS, working with data file, SPSS windows, Menus, Dialogue boxes. Preparing the Data file: creating data file and entering data, defining the variable, entering data, modifying data file, import file. Screening and cleaning data, Manipulation of data.
2	Preliminary Analysis	Descriptive Statistics: categorical variables, continuous variables, checking normality, outlier checking. Choosing the right statistics: overview of different statistical techniques, Decision making process.
3	Statistical techniques: Explore relationship among variables	Correlation: Pearson product moment correlation: Spearman's rank correlation, partial correlation, simple linear regression Multiple linear regression: Assumptions, overall significance, variable selection methods.
4	Statistical techniques: Compare means	One sample and two independent sample t-test, paired sample t-test, one way ANOVA, two way ANOVA, MANOVA, Analysis of covariance, repeated measures.
5	Non – parametric statistics	Independent chi – square test, Mann- Whitney test, Wilcoxon signed rank test, Kruskal – Wallis test.
6	Advanced Models: Multivariate statistical techniques	Logistic regression and Discriminant analysis, Factor analysis, Cluster analysis