Syllabus
Certificate Course in
Research and Data Analysis

Outcome of the course:

1. Students will gain the capability to design and implement fundamental research studies, manage effective data collection, and handle data entry and coding through SPSS software.

2. Students will acquire the skills to perform and understand basic statistical analyses such as descriptive statistics & Inferential Statistics and will learn to precisely report their results.

3. Students will apply their knowledge of research methodologies and proficiency with SPSS to analyze data from real-world scenarios, thereby increasing their competence in managing independent research projects across various academic or professional environments.

Syllabus

(2 Credit) (30 Hours)

Module 1: Introduction to Research

- Definition of research and its importance.
- Overview of the research process.
- Formulating research questions and hypotheses.
- Selecting an appropriate research design.
- Sampling techniques: Probability and non-probability sampling.
- Types of Variables

Module 2: Data Collection Methods, Data Coding and Entry in SPSS

- Overview of data collection techniques: Surveys, interviews, observation, and existing data sources.
- Designing surveys and questionnaires.
- Introduction to SPSS interface and features.
- Setting up a data file: Defining variables and entering data.

- Managing data: Importing and exporting data, handling missing data.
- Coding qualitative data for quantitative analysis.

Module 3: Descriptive and Inferential Statistics in SPSS

- Descriptive statistics: Mean, median, mode, standard deviation.
- Creating charts and tables in SPSS.
- Summarizing data using frequencies and cross-tabs.
- Parametric Tests
  - Pearson Correlation Coefficient
  - Simple Linear Regression
  - T-Tests
- Non-Parametric Tests
  - Spearman's Rank Correlation Coefficient
  - Mann-Whitney U Test
  - Kruskal-Wallis H Test
- Interpreting outputs from SPSS.

References

1. Field, A. (2013). Discovering statistics using IBM SPSS statistics (4th ed.). Sage.
2. Pallant, J. (2016). SPSS survival manual: A step by step guide to data analysis using IBM SPSS (6th ed.). Open University Press.
3. Allen, M., Bennett, K., & Heritage, B. (2014). SPSS statistics version 22: A practical guide. Cengage Learning Australia.