Syllabus template

Semester: 1	
Course : Multi-DIsciplinary	
Paper Title: INTRODUCTORY DATA ANALYSIS USING SPSS	
Paper code: M1EC230111P	**Credits: 3**
Hours/week : 3	
Category: Core/MDC/SEC/VAC : MDS	
Theory / Practical / Composite : Practical	
No of Modules : 2	

Course Overview:

1. **To study** the use of SPSS software for statistical data analysis.
2. **To study** how to analyze data using descriptive statistical tools.
3. **To study** the fundamentals of data analysis and its applications in research contexts.

Course Outcome:

Module 1:

1. Identify the key features and functions of SPSS, including opening data files, saving, importing from other sources, and data entry.
2. Demonstrate techniques for data manipulation in SPSS, such as labeling, recoding variables, transposing data, inserting variables and cases, and merging datasets.
3. Apply methods of diagrammatic representation—including bar diagrams, multiple and sub-divided bar diagrams, percentage diagrams, pie charts, frequency tables, histograms, scatter diagrams, and box plots—to visualize data effectively.
4. Interpret graphical outputs from SPSS to extract meaningful insights and summarize data trends.
5. Analyze data by fitting linear and non-linear curves and evaluating the goodness of fit for applied datasets.
6. Construct well-organized SPSS datasets, diagrams, and fitted models to support data-driven decision-making in research or practical applications.

Module 2:

1. List descriptive statistical measures, including mean, median, mode, standard deviation, skewness, and kurtosis.
2. Summarize the principles of correlation, including Karl Pearson’s and Spearman’s rank correlation, and their applications.
3. Implement normality tests and reliability analysis to evaluate datasets for statistical modeling.
4. Differentiate between types of correlation and assess relationships among variables in given datasets.
5. Judge the suitability of linear and non-linear curve fitting methods for summarizing data patterns.
6. Formulate fitted models using linear and non-linear curves to represent trends and support applied analysis.

Prerequisites: ***No prior knowledge required***

SYLLABUS

UNIT/Module	CONTENT	HOURS or NUMBER OF CLASSES	CO Mapping	COGNITIVE LEVEL
I.	• **Data Handling** Open SPSS data file – save – import from other data source – data entry – labeling for dummy numbers - recode in to same variable – recode in to different variable – transpose of data – insert variables and cases – merge variables and cases. • **Diagrammatic Representation** Simple Bar diagram – Multiple bar diagram – Sub-divided Bar diagram - Percentage diagram - Pie Diagram – Frequency Table – Histogram – Scatter diagram – Box plot.	3 classes per week	CO1, CO2, CO3, CO4, CO5, CO6	K1,K2, K3, K4, K5, K6
II.	• **Descriptive Statistics:** Mean, Median, Mode and Standard Deviation - Skewness-Kurtosis. Correlation – Karl Pearson's and Spearman's Rank Correlation-Normality Test-Reliability Analysis. • **Methods of Curve Fitting:** Fitting linear and non-linear curves	3 class per week	CO1, CO2, CO3, CO4, CO5, CO6	K1,K2, K3, K4, K5, K6

Text Books

1. Clifford E.Lunneborg (2000). Data analysis by resampling: concepts and applications. Dusbury Thomson learning. Australia
2. Everitt, B.S and Dunn, G (2001). Applied multivariate data analysis. Arnold London
3. Jeremy J. Foster (2001). Data analysis using SPSS for windows. New edition. Versions 8-10. Sage publications
4. Michael S. Louis – Beck (1995). Data analysis an introduction, Series: quantitative applications in the social sciences. Sage. Publications. London.

Suggested readings

NA

Web Resources

NA

Evaluation :Continuous Evaluation: 48 marks, Attendance: 2 marks; Total 50 marks

Paper Structure for Theory Semester Exam: NA

Course outcomes (COs) and Cognitive Level Mapping

COs	CO Description	Cognitive levels

	Module 1	
CO1	Identify the key features and functions of SPSS, including opening data files, saving, importing from other sources, and data entry.	K1
CO2	Demonstrate techniques for data manipulation in SPSS, such as labeling, recoding variables, transposing data, inserting variables and cases, and merging datasets.	K2
CO3	Apply methods of diagrammatic representation—including bar diagrams, multiple and sub-divided bar diagrams, percentage diagrams, pie charts, frequency tables, histograms, scatter diagrams, and box plots—to visualize data effectively.	K3
CO4	Interpret graphical outputs from SPSS to extract meaningful insights and summarize data trends.	K4
CO5	Analyze data by fitting linear and non-linear curves and evaluating the goodness of fit for applied datasets.	K5
CO6	Construct well-organized SPSS datasets, diagrams, and fitted models to support data-driven decision-making in research or practical applications.	K6
	Module 2	
CO1	List descriptive statistical measures, including mean, median, mode, standard deviation, skewness, and kurtosis.	K1
CO2	Summarize the principles of correlation, including Karl Pearson's and Spearman's rank correlation, and their applications.	K2
CO3	Implement normality tests and reliability analysis to evaluate datasets for statistical modeling.	K3
CO4	Differentiate between types of correlation and assess relationships among variables in given datasets.	K4
CO5	Judge the suitability of linear and non-linear curve fitting methods for summarizing data patterns.	K5
CO6	Formulate fitted models using linear and non-linear curves to represent trends and support applied analysis.	K6