Syllabus template

Semester: 4	
Course : Economics	
Paper Title: Data Analysis	
Paper code: S2EC230411T	**Credits: 3**
Hours/week : 3	
Category: Core/MDC/SEC/VAC : SEC	
Theory / Practical / Composite : Theory	
No of Modules : 2	

Course Overview:

1. To study the fundamental methods of data collection, organization, and analysis used in social science research.
2. To study the techniques for gathering primary and secondary data and distinguishing between population and sample surveys.
3. To study the principles and applications of various sampling techniques.
4. To study the classification of variables and attributes, construction of frequency distributions, and effective methods of data presentation.
5. To study the basic components of time series and methods of curve fitting for identifying trends and patterns.
6. To study the analytical and technical skills necessary to conduct, interpret, and present quantitative research with accuracy and clarity.

Course Outcome:

Module 1:

1. Define and differentiate between primary and secondary data in the context of social science research.
2. Describe various methods used for the collection of primary data through surveys, interviews, and observations.
3. Apply the concepts of population and sample to implement appropriate survey designs.
4. Analyze different sampling techniques to determine suitable methods for data collection in specific research contexts.
5. Interpret and classify variables and attributes to construct accurate frequency distributions.
6. Develop effective methods for presenting data through tables, charts, and diagrams to communicate research findings clearly

Module 2

1. Recognize the fundamental components of a time series and their relevance in data analysis.
2. Explain the nature and behavior of trend, seasonal, cyclical, and irregular variations in time series data.
3. Use appropriate techniques to illustrate and separate the components of a time series.
4. Examine different methods of curve fitting and compare their suitability for various data patterns.
5. Evaluate the accuracy and effectiveness of fitted curves in representing real-world data trends.

6. Construct trend equations or fitted curves to predict future patterns in quantitative research.

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

SYLLABUS

UNIT/Module	CONTENT	HOURS or NUMBER OF CLASSES	CO Mapping	COGNITIVE LEVEL
I.	Primary data Secondary data Collection of primary data Population versus sample surveys Sample selection Variables and attributes, Frequency Distribution, Presentation of data	**2 classes per week**	**CO1, CO2, CO3, CO5, CO6**	K1, K2, K3, K4, K5, K6
II.	Components of time series Curve fitting	**1 class per week**	**CO1, CO2, CO3, CO5, CO6**	K1, K2, K3, K4, K5, K6

Text Books

1. A.M. Goon, M.K. Gupta, B. Dasgupta Fundamentals of Statistics, Volume 1, World Press Private Ltd (2013)
2. R.J. Freund & W.J. Wilson, Statistical Methods, Academic Publications (2003)

Suggested readings

1. L.C. Hamilton, Modern Data Analysis: A First Course in Applied Statistics, Brooks/Cole (1998)
2. K.W. Elifson, Fundamentals of Social Statistics, Mc Graw Hill Inc, US (1990)

Web Resources

NA

Evaluation :CIA: 15 (10+3+2)+ End Semester:35

Paper Structure for Theory Semester Exam Module :

Module	No. of questions to be answered	No. of alternatives given	Marks
Module 1 (20 marks)	2	3	2×10=20
Module 2 (15 marks)	2	3	2×7.5=15
		Total	**35**

Course outcomes (COs) and Cognitive Level Mapping

COs	CO Description	Cognitive levels
	Module 1	
CO1	Define and differentiate between primary and secondary data in the context of social science research.	K1

CO2	Describe various methods used for the collection of primary data through surveys, interviews, and observations.	K2
CO3	Apply the concepts of population and sample to implement appropriate survey designs.	K3
CO4	Analyze different sampling techniques to determine suitable methods for data collection in specific research contexts.	K4
CO5	Interpret and classify variables and attributes to construct accurate frequency distributions.	K5
CO6	Develop effective methods for presenting data through tables, charts, and diagrams to communicate research findings clearly	K6
	Module 2	
CO1	Recognize the fundamental components of a time series and their relevance in data analysis. .	K1
CO2	Explain the nature and behavior of trend, seasonal, cyclical, and irregular variations in time series data.	K2
CO3	Use appropriate techniques to illustrate and separate the components of a time series.	K3
CO4	Examine different methods of curve fitting and compare their suitability for various data patterns.	K4
CO5	Evaluate the accuracy and effectiveness of fitted curves in representing real-world data trends.	K5
CO6	Construct trend equations or fitted curves to predict future patterns in quantitative research	K6