KU4SECECO201: DATA ANALYSIS WITH SPREADSHEET

Semester	Course Type	Course Level	Course Code	Credits	Total Hours
IV	SEC	200-299	KU4SECECO201	3	45

Learning Approach (Hours/ Week)			Marks Distribution			Duration of ESE (Hours)
Lecture	Practical/ Internship	Tutorial	CE	ESE	Total	
1	2	0	30	45	75	1.5 Hrs

Course Description:

This course provides essential Excel skills tailored for economic data analysis. Students learn data import, manipulation, advanced formulas, and visualization techniques. Through practical projects on real economic issues, students gain hands-on experience and develop critical thinking skills. The course also emphasizes data ethics, ensuring students are equipped for responsible data-driven decision-making in economic contexts.

Course Prerequisite: NIL

Course Outcomes:

At the end of the course, the student will be able to,

COs	Expected Outcome	Learning Domains
1	Confidently import, clean, and organize economic data in Excel spreadsheets.	R, U, A
2	Apply relevant formulas and functions to analyse and summarize data, drawing relevant economic conclusions.	R, U, A
3	Create various data visualizations (charts, graphs, etc.) to effectively communicate their findings to different audiences.	U, A, C
4	Gain familiarity with advanced Excel techniques for more complex data analysis tasks encountered in economic research.	R, U, A
5	Demonstrate an understanding of data ethics and responsible data-driven decision making in the economic context.	A, C

****Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)***

Mapping of Course Outcomes to PSOs

COs	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO 1	✔		✔				
CO 2	✔			✔			
CO 3		✔			✔		
CO 4		✔			✔		
CO 5		✔			✔		

COURSE CONTENTS

Contents for Classroom Transaction:

MODULE	UNIT	DESCRIPTION	HOURS 45
1		EXCEL FOUNDATIONS AND DATA IMPORT	**10**
	1	a) Launching Excel, navigating the interface, basic operations.	10
		b) Importing data from different sources (CSV, text files, web), creating and managing tables. Applying data validation to ensure data accuracy and consistency.	
		c) Exploring the Ribbon and menus, customizing your Excel environment.	
		d) Learning basic file management: saving, sharing, and version control.	
		e) Practicing working with multiple worksheets and workbooks in your data analysis.	
2		DATA MANIPULATION AND FORMULAS	**9**
	1	a) Sorting and filtering data based on various criteria for efficient analysis.	9
		b) Mastering basic formulas and functions: sum, average, count, max, min, etc.	
		c) Using logical functions (if, and, or) for conditional calculations and data segmentation	
		d) Applying lookup functions (VLOOKUP, MATCH) to integrate data from different sources.	
		e) Exploring advanced functions like SUMIF, AVERAGEIF, COUNTIF for targeted calculations.	
		f) Creating and using names for ranges and cells in excel	
3		DATA VISUALIZATION AND ANALYSIS	**9**
	1	a) Creating different chart types (bar, line, pie, scatter) based on your data.	9

		b) Customizing charts for visual impact: titles, labels, legends, data labels, formatting.	
		c) Data visualization and interpretation of charts.	
		d) Descriptive statistics (mean, median, standard deviation, variance): calculation and interpretation.	
4	ESSENTIAL DESCRIPTIVE STATISTICS IN EXCEL		**9**
	1	Measures of Central Tendency:	3
		a) In-depth exploration of mean, median, mode, and weighted averages	
		b) Calculation and interpretation of percentiles and quartiles for understanding data distribution	
	2	Measures of Variability:	3
		a) Variance and standard deviation: mastering calculations and Interpretations.	
		b) Range, inter-quartile range, and coefficient of variation for understanding data spread.	
		c)Introduction to skewness and kurtosis for assessing data symmetry	
	3	Advanced Data Analysis Functions	3
		a) Mastery of VAR.P, STDEV.P, SKEW, KURT, and other descriptive statistics functions	
		b) Correlation analysis using Pearson's correlation coefficient and scatter plots	
5	**TEACHER SPECIFIC MODULE**		**8**
	Directions: Activity Based on Excel		-
	● Choosing an actual economic issue relevant to India (e.g., inflation, trade, poverty). ● Accessing and exploring relevant economic datasets from Indian or international sources. ● Applying your learned skills to analyze the chosen economic issue using Excel. ● Creating visualizations and descriptive statistics to support your analysis of the economic issue. ● Preparing a final project report summarizing your findings and economic insights. ● Class Presentations: Sharing your projects, receiving feedback, and engaging in discussions on real-world data analysis applications.		8

Essential Readings:

1. Basic Computational Techniques for Data Analysis An Exploration in MS Excel, 2nd Edition (D Narayana, Sharad Ranjan, Nupur Tyagi)
2. Microsoft Excel 2019 Step by Step by Curtis Frye, Pearson Education

3. Microsoft Excel 2019: Data Analysis & Business Modelling by Wayne Winston, PHI Learning
4. Don't Fear the Spreadsheet: A Beginner's Guide to Overcoming Excel's Frustrations by Tyler Nash, Bill Jelen, Kevin Jones, Tom Urtis, Holy Macro! Books

5. Reference Distribution:

Module	Unit	Reference No.	Remarks
1	1	Essential Readings 1 - 4	
	2	Essential Readings 1 - 4	
	3	Essential Readings 1 - 4	
	4	Essential Readings 1 - 4	
2	1	Essential Readings 1 - 4	
	2	Essential Readings 1 - 4	
	3	Essential Readings 1 - 4	
	4	Essential Readings 1 - 4	
3	1	Essential Readings 1 - 4	--
	2	Essential Readings 1 - 4	--
	3	Essential Readings 1 - 4	--
	4	Essential Readings 1 - 4	
4	1	Essential Readings 1 – 4	
	2	Essential Readings 1 – 4	
	3	Essential Readings 1 – 4	
	4	Essential Readings 1 – 4	

Assessment Rubrics:

Evaluation Type		MARKS
End Semester Evaluation-Theory		15
End Semester Evaluation – Practical		30
End Semester Evaluation – Total		**45**
Continuous Evaluation – Theory		10
a)	Test Paper- 1	5
b)	Test Paper-2	-
c)	Assignment	5
d)	Seminar	-
e)	Book/ Article Review	-
f)	Viva-Voce	-
Continuous Evaluation -Practical		20
Continuous Internal Evaluation – Total		**30**
Grand Total		**75**