Course Title: Introduction to SPSS	**L**	**T**	**P**	**S**	**Skill Enhancement Course**
Course Code: DOMS150SE	**1**	**x**	**4**	**x**	**Max Marks**: 100
Credits: 3					

Course Objective: This course provides a comprehensive introduction to SPSS (Statistical Package for the Social Sciences), focusing on the fundamental aspects of data management and data analysis.

Course Outcome: By the end of this course:

1. Students will be proficient in defining, modifying, and managing variables in SPSS using variable view, ensuring accurate and efficient data analysis.
2. Students will learn how to navigate SPSS, manage data files, and perform basic statistical data analysis.

Unit I: Introduction to SPSS, Data View, and Variable View: Rules for naming variables, defining variable types and measurement scales, assigning variable labels, coding categorical variables, and handling missing data. Recoding and transforming variables. Working with data files, including data entry, modifying datasets, and importing Excel and CSV files into the SPSS environment.

Unit II: Role of descriptive statistics in data analysis, best practices in descriptive data analysis using SPSS, conducting descriptive statistics using Frequencies, Descriptives, and Crosstabs options in SPSS, interpreting descriptive statistics results in SPSS output.

Unit III: Graphics and Plots in SPSS: Creating histograms, boxplots, and bar charts in SPSS; using pie charts for categorical data representation; customizing and interpreting graphical outputs. Performing correlation and linear regression analysis in SPSS.

Text Books / References:

1. Field, A. (2017). Discovering statistics using IBM SPSS statistics (5th ed.). SAGE Publications.
2. Jasrai, L. (2020). Data analysis using SPSS. SAGE Publications.
3. Meyers, L. S., Gamst, G. C., & Guarino, A. J. (2013). *Performing data analysis using IBM SPSS*. Wiley.
4. Bryman, A., & Cramer, D. (2011*).* Quantitative data analysis with IBM SPSS *17, 18 & 19: A guide for social scientists*. Routledge.
5. Antonius, R. (2012***).*** Interpreting quantitative data with IBM SPSS Statistics (2nd ed.). SAGE Publications.

Course Title: Data Analytics using Excel	**L**	**T**	**P**	**S**	**Skill Enhancement Course**
Course Code: DOMS200SE	**1**	**x**	**4**	**x**	**Max Marks**: 100
Credits: 3					

Course Objectives: To introduce students to fundamental and advanced features of Excel for data analysis; to develop skills in applying Excel functions for statistical, financial, and business analytics; and to enable students to automate repetitive data analysis tasks using Excel tools and VBA.

Course Outcomes: By the end of this course, students will be able to:

1. Apply Excel functions for descriptive and inferential statistical analysis.
2. Create and interpret data visualizations using Excel charts and PivotTables.
3. Automate Excel-based data analysis processes using VBA and macros.

Unit I: Excel environment and fundamental tools for data analytics; cell naming, range referencing, and working with multiple sheets. Manual implementation of mathematical functions in excel; descriptive statistics functions in Excel; essential data handling operations such as sorting, filtering, text-to-columns, removing duplicates, data validation, and consolidation; common excel functions including *if, sumif, countif, sumifs, countifs, vlookup, hlookup, match, index,* and text functions; visualization techniques.

Unit II: Summarize and analyze data using pivot tables and pivot charts for reporting and dashboards; techniques for data exploration and cleaning, such as conditional formatting and outlier detection; *analysis tool pack* in excel for data analysis; optimization using *solver* for business decision-making.

Unit III: Introduction to VBA and excel macro recorder, basic syntax and programming concepts; VBA variables, rules for creating variables, and data types; declaring and using variables and constants; working with the *developer tab*, writing basic mathematical functions, and using *message boxes* and *dialog boxes* for output; automating excel tasks using VBA; developing VBA scripts for basic data analysis.

Text Books / References:

1) Winston, W. L. (2021). Microsoft Excel 2021 data analysis and business modeling. Microsoft Press.
2) Alexander, M. (2022). Excel power pivot & power query for dummies (2nd ed.). Wiley.
3) Knight, G. (2006). Analyzing business data with Excel. Wiley.
4) Alexander, M., & Walkenbach, J. (2019). *Excel VBA programming for dummies* (6th ed.). Wiley.