

SEMESTER - IV
DATA ANALYSIS AND VISUALIZATION

1. Course Description

Programme: B.Sc./B.Com./BMS

Max. Hours: 30

Course Code: U24/CSC/SEC/401

Hours per week: 2

Course Type: SKILL ENHANCEMENT COURSE

Max. Marks: 50

No. of credits: 2

2. Course Objectives

- To learn the skills for working with formulas, functions, named ranges, referencing cells, and auditing for effective data analysis and manipulation.
- To learn the skills required for case analysis of different scenarios using the tools for analysis and visualisation.

3. Course Outcomes

This SEC paper will help students to enhance their overall skills and to

CO1: *Apply* formulas, functions, and named ranges for effective data manipulation to Demonstrate Excel Data Analysis Proficiency. (Cognitive level – 3)

CO2: *Demonstrate* ability to employ analytical tools and visualization techniques to extract insights and present findings effectively. (Cognitive level – 3)

4. Course Content

MODULE I: DATA REPRESENTATION

(15 Hrs)

Review of Excel-Worksheet Basics, Protecting Workbook, Importing and Exporting data, Sharing in Excel; Formula sand functions – understanding formulas; operators in formula; named ranges; calculations; functions in formulas; relative and absolute addressing; referencing cells outside the worksheet and workbook; functions- logical, summarizing, text, lookup, reference, data and time, math functions; error handling, formula auditing.

MODULE II: DATA VISUALIZATION

(15 Hrs)

Charts–waterfall, histogram, pareto, box and whisker, Tree map, sunburst, sparkline,3D map charts and their uses; Advanced charts -Milestone chart, SmartArt graphics, Organization chart.

Pivot tables–verify data source, format data, recommended pivot tables, adding slicers, timelines, calculated fields and group fields in pivot.

5. References

1. Manisha Nigam, “Data Analysis with Excel”, BPP publications, 2018

6. Syllabus Focus**a) Relevance to Local, Regional, National and Global Development Needs**

Local/Regional/National/Global Development Needs	Relevance
Global Development	Data Analysis is a systematic method to look for trends, groupings, or other relationships between different types of data. Data visualization is to make it easier to identify patterns, trends and outliers in large data sets.

b) Components on Skill Development/Entrepreneurship Development/Employability

SD/ED/EMP	Syllabus Content	Description of Activity
SD and EMP	Modules 1 and 2	Proficiency in Excel for worksheet management, data importing/ exporting, sharing, formula understanding, error handling and auditing for effective data analysis and manipulation. Proficiency in creating and utilizing various types of charts and understanding their purposes for data visualization.

8. Course Assessment Plan**a) Weightage of Marks in Formative and Summative Assessments**

Formative Assessment - FA (40%)	Summative Assessment - SA (60%)
CIA-20 marks Mini project/Written Assignment / Problem solving/Case studies	End Semester Exam – 30 Marks

b) Question Paper Pattern

EXTERNAL- MODEL QUESTION PAPER
PRACTICAL

Course code: U24/CSC/SEC/401
Credits:2

Max. Marks: 30
Max Time: 1 Hr

I. Answer the following.

1. Refer the excel worksheet shared and perform the below tasks: **(15M)**
- Apply conditional Formatting for Total column and find how many students Mark1 is greater than 42.
 - Calculate total and Percentage.
 - Use VLOOKUP function to find the name of the student with Roll No 12823.
 - Use IF CONDITION for Pass/fail. If Percentage greater than 72 "Pass" else "Fail".
 - Add a new column as Full name and fill the data using CONCATENATE function.

2. Draw a sparkline chart for the following chart **(15M)**

Month	Jan	feb	Mar	Apr	may	jun
Revenue 2020	7850	8900	-8700	740	-7463	7841
Revenue 2021	7900	5008	4700	-4500	4850	7958
Revenue 2022	8000	6700	-4000	7200	5300	8900

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