Programme	B. Sc. Computer Science				
Course Title	Data analysis using Spreadsheet				
Type of Course	**Minor**				
Semester	I				
Academic Level	100-199				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours
	4	3	-	2	75
Pre-requisites	1. Basic mathematics knowledge 2. Basic computer knowledge				
Course Summary	This syllabus aims to cover a broad spectrum of Excel skills, catering to participants with varying levels of expertise.				

Course Outcomes (CO):

CO	CO Statement	Cognitive Level*	Knowledge Category#	Evaluation Tools used
CO1	Express proficiency in managing spreadsheets, including creating, formatting, and manipulating data within Excel workbooks	U	C	Instructor-created exams / Quiz / Lab exercises
CO2	Understand and explain the importance of sorting, filtering, and cell referencing in Excel for effective data management	U	C	Instructor-created exams / Quiz
CO3	Understand the usage of basic functions and formulas in Excel	U	C	Instructor-created exams / Quiz / Problem-solving tests

CO4	Implement the usage of tables and charts to draw meaningful conclusions to support decision-making	Ap	P	Practical Assignments / Lab exercises / Case studies

CO5	Create Excel solutions for real-world problems including designing dashboards for data analysis	C	P	Mini Project / Case Study / Practical Demonstration

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

- Factual Knowledge(F) Conceptual Knowledge (C) Procedural Knowledge (P) Metacognitive Knowledge (M)

Detailed Syllabus:

Module	Unit	Content	Hrs	Marks
I	**Introduction to Spreadsheets**		**12**	**18**
	1	Overview - Overview of spreadsheet software (Microsoft Excel, Google Sheets) and their application	2	
	2	Excel Interface and Navigation-Ribbon,Row ,Column, Cell Worksheet,Workbook,Cell Address,Data range,Formula, Chart)	2	
	3	Basic navigation techniques within the workbook	2	
	4	Creating and Saving Workbooks - Creating a new workbook and saving it , Different file formats and when to use them	2	
	5	Inserting or deleting rows or columns	2	
	6	Basic Cell Formatting - Formatting text, numbers, and dates,	2	
II	Data Management		**11**	**18**

	7	Find and select -Find,Replace,Go To,Go To Special	2	

	8	Cell Referencing-Relative, Absolute and Mixed	1	
	9	Sorting data-Quick Sorting,Sorting by Multiple Criteria	2	
	10	Filtering data-Quick Filtering, Filtering by Multiple Criteria , Performing Calculations on Filtered Data	2	
	11	AutoFill and Flash Fill	1	
	12	Remove Duplicates	1	
	13	Get External Data - From web,from text and from other sources	2	
III	Excel Functions and formulas		**10**	**18**
	14	Mathematical and Statistical functions(-SUM, AVERAGE, MAX, MIN, ROUND, ABS, SQRT, MOD.,COUNT, COUNTIF, SUMIF, AVERAGEIF, MEDIAN, STDEV, VAR)	2	
	15	Logical Functions(IF, AND, OR, NOT, XOR, IFERROR, IFNA, SWITCH.)	2	
	16	Text Functions (CONCATENATE, LEFT, RIGHT, MID, LEN, SUBSTITUTE, FIND, SEARCH.)	2	
	17	Date & Time Functions-(TODAY, DATE, DAY, MONTH, YEAR, HOUR, MINUTE, SECOND.)	2	
	18	Using formula :Witing a formula ,Cell reference	2	
1V	Data Analysis and Manipulation		**12**	**16**
	19	Introduction to Tables and Data Organization - Creating and formatting tables for effective data management, Sorting and filtering data within tables	3	
	20	Data Analysis Techniques - Advanced functions (VLOOKUP, HLOOKUP, INDEX, MATCH)	3	
	21	PivotTables and PivotCharts - Understanding PivotTables for data analysis, Creating PivotCharts for visual representation	3	
	22	Data Visualization: Creating and customizing various chart types, Effective use of charts for data presentations	3	

V	**Project and Practical Applications**		**30**	
	1	Practical session on real-world applications (Eg: Use advanced functions relevant to field of study, Tabulation of Lab experiments data for better analysis and visualisation)	15	
	2	Course Project: Creating a comprehensive project using Excel features.	15	

References

1. "Microsoft Excel 2019 Step by Step" by Curtis Frye
2. "Excel 2019 Bible" by Michael Alexander and Richard Kusleika
3. "Microsoft Excel 2019 Data Analysis and Business Modeling" by Wayne Winston

Mapping of COs with PSOs and POs :

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	-	-	-	-	-	-	1	1	3	3	1	1	1
CO2	-	-	-	-	-	-	2	1	3	3	3	1	1
CO3	-	-	-	-	-	-	1	1	3	3	3	1	1
CO4	-	-	-	-	-	-	1	1	3	3	3	1	1
CO5	-	-	-	-	-	-	1	2	3	3	3	1	2

Correlation Levels:

Level	Correlation
-	Nil
1	Slightly / Low

2	Moderate / Medium

3	Substantial / High

Assessment Rubrics:

- Quiz / Assignment/ Quiz/ Discussion / Seminar
- Midterm Exam
- Programming Assignments (20%)
- Final Exam (70%)

Mapping of COs to Assessment Rubrics :

	Internal Exam	Assignment	Project Evaluation	End Semester Examinations
CO1	✓	✓		✓
CO2	✓	✓		✓
CO3	✓	✓		✓
CO4		✓		✓
CO5		✓	✓	