School of Computer Science and Applications

Value-Added Certificate Course Proposal

Course Title: Microsoft Excel – From Basic to Advanced Applications

Duration: Minimum 30 Sessions × 60 Minutes each

Mode of Delivery: Theory and Hands-on Practical

Maximum Intake: 30 Students

Course Coordinator:

Name	**Mrs Vaishali Patil**	**Name**	**Dr. Mrudula Patkar**
Designation	**Asst. Professor**	**Designation**	**Asst. Professor**
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1. Course Overview:

This course, **"Microsoft Excel – From Basic to Advanced Applications"** is designed to equip learners with essential data management and analytical skills required in today's job market. Excel proficiency is one of the most in-demand technical skills across industries such as business, finance, education, and data analysis. The course builds from fundamental concepts like data entry, formatting, and formulas to advanced tools such as Lookup references, PivotTables, Power Query. It enhances both analytical thinking and problem-solving abilities while improving efficiency and accuracy in handling data. By completing this course, learners will gain valuable employability skills, technical expertise, and the confidence to manage and analyze real-world data effectively.

2. Objectives:

- To build strong foundational and advanced Excel skills for data management and analysis.
- To enhance data visualization, reporting, and decision-making skills.
- To prepare students for professional applications of Excel in research, business, and management.

3. Course Outcomes (COs):

- Learners will identify and explain the core features and functions of Microsoft Excel to demonstrate a clear understanding of spreadsheet operations.
- Learners will apply formulas, functions, and data management techniques to organize and process information effectively.
- Learners will analyze and interpret datasets to evaluate data patterns and trends for informed decision-making.
- Learners will design and create interactive dashboards and automated workflows using advanced Excel tools.

4. Course Modules / Structure:

Module 1: Introduction to Excel Environment

1.1	Overview of Excel interface and navigation
1.2	Workbook, worksheet, cells, and ranges
1.3	Data entry and editing techniques
1.4	Customizing ribbons, toolbars, and settings
Module 2: Basic Excel Operations	
2.1	Formatting cells (number, date, text, conditional formatting)
2.2	Adjusting column widths and row heights
2.3	Copying, moving, and deleting data
2.4	Basic printing and page setup options
Module 3: Working with Formulas and Functions	
3.1	Formula basics and cell referencing (relative, absolute, mixed)
3.2	Common functions: SUM, AVERAGE, MIN, MAX, COUNT
3.3	Text functions: LEFT, RIGHT, MID, CONCATENATE, TEXTJOIN
3.4	Logical functions: IF, AND, OR, NOT
Module 4: Data Handling and Management	
4.1	Sorting and filtering data
4.2	Data validation (drop-down lists, custom rules)
4.3	Removing duplicates
4.4	Find and Replace, Go To Special
Module 5: Advanced Functions for Analysis	
5.1	Lookup functions: VLOOKUP, HLOOKUP, XLOOKUP, INDEX & MATCH
5.2	Date & time functions: TODAY, NOW, DATEDIF, NETWORKDAYS
5.3	Financial functions: PMT, FV, NPV, IRR
5.4	Statistical functions: AVERAGEIF(S), COUNTIF(S), SUMIF(S)
Module 6: Data Visualization – Charts and Graphs	
6.1	Creating and customizing charts (bar, line, pie, scatter, combo)
6.2	Using sparklines and conditional formatting for visual analysis
6.3	Best practices in chart design for presentations and reports
Module 7: Working with Tables and Structured Data	
7.1	Creating and formatting Excel Tables
7.2	Structured references
7.3	Table formulas and slicers

Module 8: Pivot Tables and Pivot Charts	
8.1	Creating and customizing PivotTables
8.2	Grouping and summarizing data
8.3	Using calculated fields and items
8.4	Designing PivotCharts for interactive reporting
Module 9: Data Cleaning and Preparation	
9.1	Handling missing or inconsistent data
9.2	Text-to-columns and Flash Fill
9.3	TRIM, CLEAN, SUBSTITUTE functions
9.4	Combining datasets for analysis
Module 10: Excel for Data Analysis (Applied Skills)	
10.1	Descriptive statistics using Excel
10.2	Correlation and regression analysis
10.3	What-If analysis: Goal Seek, Scenario Manager, Data Tables
10.4	Using Solver for optimization problems
Module 11: Advanced Excel Tools	
11.1	Named ranges and dynamic ranges
11.3	Hyperlinks and comments
11.4	Consolidating data from multiple sheets
Module 12: Dashboard Design and Reporting	
12.1	Dashboard principles and layout design
12.2	Using form controls (drop-downs, checkboxes)
12.3	Integrating charts, PivotTables
12.4	Automating dashboards with formulas and interactivity
Module 13: Excel Integration with Other Applications	
13.1	Importing/exporting data (CSV, Access, Google Sheets)
13.2	Linking Excel with Word and PowerPoint
13.3	Introduction to Power Query for data transformation
Module 14: Introduction to Macros and VBA	
14.1	Recording and editing macros
14.2	Understanding VBA editor and basic syntax

14.3	Writing simple VBA scripts for automation
Module 15: Case Studies and Practical Applications	
15.1	Excel for social work data management and surveys
15.2	Excel for business analytics and financial modeling
15.3	Group project: Develop an interactive dashboard/report

5. Pedagogy / Teaching Methods:

3. **Lectures**
4. **Lab sessions**
5. **Case studies**

6. Assessment & Evaluation Scheme:

Component	Description	Weightage
Attendance & Participation	Regular attendance and engagement during hands-on sessions.	**10%**
Assignments / Practical Work	Periodic practical exercises and assignments based on Excel functions, data analysis, and visualization tasks.	**40%**
Final Assessment / Project	Mini project demonstrating application of Excel skills	**50%**

7. Resources Required:

Software / Tools: Microsoft Excel 2019 or later

Reading Materials / Reference Books:

- Microsoft Excel Formulas and Functions (Office 2021 and Microsoft 365) by Paul McFedries
- Excel As Data Analysis Tool- From Data to Decision by Vaishali Patil

8. Expected Outcomes / Employability Skills Developed:

1. **Certificate**
2. **Learners will develop technical and analytical skills that enhance employability in roles requiring data handling, reporting, and basic automation.**

9. Course Schedule & Timeline:

6. Course Start Date: 01st Dec 2025
7. Course End Date:
8. Timetable Slot (if fixed):

10. Approval Details:

9. Proposed by: Mrs Vaishali Patil,Dr. Mrudula Patkar
10. Approved by Dean:
11. Date of Submission to IQAC: