As Per NEP 2020

University of Mumbai

Syllabus for	
Basket of Open Elective Courses	
Board of Studies in Computer Science	
UG First Year Programme	
Semester	**II**
Title of Paper	**Credits 2/ 4**
I) Advanced Excel	**2**
I)	
From the Academic Year	**2024 – 2025**

Open Elective Courses

Name of the Course: Advanced Excel

Sr. No.	Heading	Particulars
1	**Description the course:**	**Introduction:**
		This course provides comprehensive training in Excel, covering fundamental to advanced techniques. Excel is a powerful tool used extensively in various industries for data analysis, visualization, and automation. Mastering Excel skills is essential for professionals across different fields to effectively manage and analyze data, make informed decisions, and streamline workflows.
		Relevance:
		In today's data-driven world, proficiency in Excel is highly relevant across industries such as finance, marketing, operations, human resources, and data analysis. Excel is widely used for tasks ranging from simple data entry to complex financial modeling and business analytics. Therefore, learning Excel is essential for anyone seeking to excel in their career and stay competitive in the job market.
		Usefulness:
		Excel proficiency enhances productivity and efficiency in handling data-related tasks. It enables users to organize, analyze, and present data effectively, leading to better decision-making and improved business outcomes. Additionally, Excel skills are transferable and applicable in various job roles, making them valuable assets in any professional setting.
		Application:
		Throughout the course, students will apply Excel skills to real-world scenarios, including data analysis, visualization, and automation tasks. They will learn to manipulate data using functions and formulas, create visually compelling charts and graphs, implement data validation and conditional formatting techniques, and automate repetitive tasks using macros.
		Interest:
		Excel offers a wide range of functionalities and capabilities that can be both practical and creatively

		satisfying to explore. Students are likely to find the course engaging as they discover new ways to manipulate and visualize data, solve complex problems, and streamline processes using Excel's features and tools.
		Connection with Other Courses:
		Excel skills complement various other courses and disciplines, including finance, statistics, business administration, and data science. Proficiency in Excel enhances students' abilities to analyze and interpret data, which is essential in fields such as finance, marketing, research, and project management.
		Demand in the Industry:
		Professionals with Excel proficiency are in high demand across industries due to the widespread use of Excel for data analysis, reporting, and decision-making. Employers value candidates who can leverage Excel to extract insights from data, streamline processes, and drive business growth.
		Job Prospects:
		Excel skills are highly sought after by employers, making graduates of this course well-positioned for success in various industries and job markets in data analysis.
2	**Vertical:**	Open Elective
3	**Type:**	Practical
4	**Credits:**	2 credits (1 credit = 30 Hours of Practical work in a semester)
5	**Hours Allotted:**	60 hours
6	**Marks Allotted:**	50 Marks
7	**Course Objectives (CO):** **CO 1.** To teach fundamental Excel functions and data manipulation techniques. **CO 2.** To introduce charting and visualization methods for data analysis. **CO 3.** Cover advanced Excel functions and data analysis techniques. **CO 4.** To explain data validation and conditional formatting for data integrity. **CO 5.** To teach advanced Excel techniques such as PivotTables, PivotCharts, and What-If analysis and data consolidation. **CO 6.** To cover advanced charting and visualization methods. **CO 7.** To introduce macros for task automation and efficiency.	
8	**Course Outcomes (OC):**	

		After successful completion of this course, students would be able to -
		OC 1. Use fundamental Excel functions and data manipulation.
		OC 2. Create and customize charts for effective data visualization.
		OC 3. Use advanced Excel functions and data analysis methods.
		OC 4. Understand and apply data validation and conditional formatting.
		OC 5. Use PivotTables, PivotCharts, and interactive data analysis.
		OC 6. Apply advanced charting and visualization methods.
		OC 7. Use macros for task automation and efficiency.
9		**Modules:**
		Module 1: Foundations of Excel (30 hours)
		Basic Functions and Data Management:
		Introduction to Excel functions: SUM, AVERAGE, COUNT.
		Logical functions: IF, AND, OR for decision-making in formulas.
		Sorting and filtering: Organizing and analyzing data to identify patterns.
		Text Functions: Utilizing functions like CONCATENATE, LEFT, RIGHT, MID for text manipulation.
		Date and Time Functions: Using functions such as TODAY, NOW, DATE, TIME for handling date and time data effectively.
		Charts and Graphs:
		Creating basic charts: Column, bar, and pie charts to visualize data.
		Customizing charts: Formatting elements, axes, titles, and legends for clarity.
		Adding trendlines: Visualizing trends and forecasting future data points.
		Advanced Functions and Analysis:
		Lookup functions: VLOOKUP, HLOOKUP, INDEX, MATCH for advanced data retrieval.
		Conditional summing and counting: SUMIF, SUMIFS, COUNTIF, COUNTIFS for targeted analysis.
		Statistical Functions: Using functions such as MIN, MAX, MEDIAN, and MODE for statistical analysis.
		Data Validation and Conditional Formatting:
		Setting validation rules: Controlling data entry and ensuring accuracy.
		Custom validation criteria: Creating complex validation scenarios for data integrity.
		Applying conditional formatting: Highlighting trends, patterns, and anomalies in data.
		Module 2: Advanced Excel Techniques (30 hours)
		PivotTables and PivotCharts:

Creating PivotTables: Summarizing and analyzing large datasets for insights.

Utilizing filters and slicers: Interactively analyzing data subsets in PivotTables.

Visualizing PivotTable data: Creating PivotCharts for enhanced presentation and analysis.

Advanced Data Analysis Techniques

What-If analysis: Using scenarios and goal seek to simulate different outcomes.

Data consolidation: Combining data from multiple sources for comprehensive analysis.

Exploring data analysis tools: Solver and Analysis ToolPak for advanced analysis.

Advanced Charting and Visualization

Combination charts: Visualizing multiple data series in a single chart for comparison.

Sparklines: Creating mini-charts within cells to display trends at a glance.

Dynamic charting: Building dynamic charts using named ranges and formulas for interactive analysis.

Macros and Automation

Introduction to macros: Understanding macros and their role in automating tasks.

Recording and editing macros: Recording and modifying macros to automate repetitive processes.

Macro security and best practices: Implementing security measures and adhering to best practices for safe macro usage.

10	**Text Books** 1. Advanced Excel Essentials, Jordan Goldmeier, Apress 2. Data Analysis with Excel, Manisha Nigam, BPP publications
11	**Reference Books** 1. Advanced Excel Formulas, Murray Alan, Apress 2. Mastering Advanced Excel, Ritu Arora, BPB publications
12	**Internal Continuous Assessment: 40%**	**Semester End Examination: 60%**
13	The internal evaluation will be determined by the completion of practical tasks and the submission of corresponding write-ups for each session. Each practical exercise holds a maximum value of 10 marks. The total evaluation, out of 100 marks, should be scaled down to a final score of 20 marks.	A **Semester End Practical Examination** of **2 hours duration** for **30 marks** as per the paper pattern given below. **Certified Journal** is **compulsory** for appearing at the time of Practical Exam
	Total: 20 marks	**Total: 30 Marks**

14	**Format of Question Paper:** **Total Marks: 30** **Duration: 2 Hours**	

Question	Practical Question Based On	Marks
Q. 1	Module 1	12
Q. 2	Module 2	12
Q. 3	Viva	06

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