AC – 20/04/2024
Item No. – 6.6 Sem. II (2b)

As Per NEP 2020

University of Mumbai

Syllabus for Basket of OE	
Board of Studies in Information Technology	
UG First Year Programme	
Semester	**II**
Title of Paper	**Credits 2/ 4**
I. IT_Data Analysis with Excel (Open Elective)[OE]	**2**
From the Academic Year	**2024-2025**

Name of the Course: IT_Data Analysis with Excel

Sr.No.	Heading	Particulars
1	**Description the course : Including but Not limited to:**	Excel Data Analysis can help, with concise and understandable explanations of the vast array of functions for creating, visualizing, and analyzing data. Tool knowledge enables user to create reports which are insightful.
2	**Vertical :**	Open Elective
3	**Type :**	Practical
4	**Credits :**	2 credits
5	**Hours Allotted :**	60 Hours
6	**Marks Allotted:**	50 Marks
7	**Course Objectives(CO):** CO 1. Learn to handle data, clean the data to make meaningful data set without missing value using various excel functions. CO 2. Learn to use excel functions to get statistical and financial results. CO 3. Learn to use intelligent functions in excel like lookups and conditional calculations. CO 4. Learn to visualize data, in to the form of Graphs, Pivots and list with subtotals. Explore various types of graphs and chart styles. CO 5. Equip with skills in managing and preparing data for analysis in Excel. CO 6. Employ advanced data analysis techniques such as what-if analysis and macros. CO 7. Learn how to use Excel's Data Analysis Toolpak to perform complex engineering and statistical analysis on datasets.	
8	**Course Outcomes (OC):** OC 1. Collect data from different sources, and organize it to a meaningful tabular format. OC 2. Apply formulas to the data using excel built in functions. OC 3. Utilize Excel's advanced features for data manipulation and analysis. OC 4. Select graph types and chart styles which will suit the kind of data they analyse. OC 5. Explore the immense possibilities of pivot table and make meaningful reports. OC 6. Utilize Excel's advanced features for data manipulation and analysis. OC 7. Utilize the Toolpak's features to extract valuable insights and find solutions to challenging data-driven issues.	
9	**Modules:-** **Module 1:**	
	1. **Introduction to Excel Basics** a. Entering and editing worksheet data. b. Performing basic worksheet operations. c. Illustration of autofill and formatting data in the cells.	

	d. Use of simple arithmetic operations. e. Working with excel ranges and tables. f. Use of cell references in formulas (relative, absolute, and mixed references) and referencing cells outside the worksheet g. Demonstration of formatting worksheets and applying. conditional formatting. h. Understanding formula basics. 2. **Working with Formulas and Functions** a. Using formulas for common mathematical operations. b. Using text functions to manipulate text. c. Using date and time functions. d. Using formulas for financial analysis **3. Using the Statistical Functions** a. Counting items in a data set. b. Means, Modes, and Medians c. Finding Values, Ranks, and Percentiles d. Standard Deviations and Variances e. Regression Analysis f. Correlation g. t-distributions **4. Advanced Excel Functions for Data Analysis** a. Using formulas for Conditional Analysis i. Use the IF function to evaluate a condition and return values based on the result. ii. Apply the AND and OR functions to evaluate multiple conditions. iii. Perform conditional calculations(SUMIF, COUNTIF, AVERAGEIF) b. Using formulas for Matching and Lookups (VLOOKUP, HLOOKUP, INDEX, MATCH). **5. Data Visualization with Excel** a. Demonstration of creation of a bar chart representing sales data for different months. b. Customize the appearance of a chart, including colors, fonts, titles, legends and axis labels. c. Use of various types of charts in Excel- column charts, histograms, line charts, pie charts and scatter charts. d. Use of sparklines to display trends within a single cell.
	Module 2:
	1. Introduction to PivotTables and Pivot Charts a. Demonstration of creation of PivotTable using a dataset. b. Customizing PivotTables. c. Demonstration of creation of a PivotChart based on an existing PivotTable. d. Analysing Data with PivotTables. **2. Managing and Analysing Data** a. Importing data into Excel from an external source. b. Cleaning Data. c. Data sorting and filtering. d. Using Data Validation.

	3. Advanced Data Analysis Techniques a. Performing Spreadsheet What-If Analysis. b. Analysing Data Using Goal Seeking and Solver. **4. Introducing Data Analysis Toolpak Tools** a. Using the Descriptive Statistics tool. b. Creating a histogram. c. Ranking by percentile. d. Calculating moving averages. e. Using the Exponential Smoothing tool. f. Using Data Analysis t-test tools. g. Using the Regression and Correlation tools. h. Implementing the ANOVA data analysis tools. **5. Excel Macros** a. Recording and editing macros. b. Managing recorded macros.	
10	**Text Books** 1. **Excel 2019 bible, Alexander, M., Kusleika, R., & Walkenbach, J. (2018), John Wiley & Sons.** 2. **Excel data analysis for dummies, Nelson, S. L., & Nelson, E. C. (2014), John Wiley & Sons.** 3. **Data Analysis with Microsoft Excel , Berk, K. N., & Carey, P. (1998), Pacific Grove, CA: Duxbury Press.**	
11	**Reference Books** **1. Excel Data Analysis Modeling and Simulation., Hector, G. (2019), Spinger.** **2. Microsoft Excel data analysis and business modelling, Winston, W. (2016), Microsoft press.**	
12	**Internal Continuous Assessment: 40%**	**Semester End Examination: 60%**
13	**Continuous Evaluation through:** Quizzes, Class Tests, presentation, project, role play, creative writing, assignment etc.(at least 3)	Practical Exam of 30 marks for 2 hours duration
14	**Format of Question Paper: Duration 2 hours. Certified copy of Journal is compulsory to appear for the practical examination** Practical Slip: Q1. From Module 1 13 marks Q2. From Module 2 12marks Q3. Journal and Viva 05 marks	

Sign of Chairperson
Dr. Mrs. R. Srivaramangai
Ad-hoc BoS (IT)

Sign of the
Offg. Associate Dean
Dr. Madhav R. Rajwade
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