DATA VISUALIZATION LAB

Course Code	23CS6551	Year	III	Semester	I
Course Category	HONORS	Branch	CSE	Course Type	Practical
Credits	1.5	L – T – P	0-0-3	Prerequisites	Statistics, Database Management Systems
Continuous Evaluation:	30	Semester End Evaluation:	70	Total Marks:	100

Course Outcomes		
Upon successful completion of the course, the student will be able to:		
CO1	Apply data visualization technologies to develop different data visualization formats.	L2
CO2	Implement various applications as an individual or team member	L3
CO3	Develop an effective report based on various programs implemented	L3
CO4	Apply technical knowledge for a given problem and express with an effective oral communication	L3
CO5	Analyze outputs of web based application	L4

Exp. No.	SYLLABUS CONTENTS	Mapped CO
1	Explore Microsoft Power BI desktop: i) Ribbon ii) canvas iii) pages tab iv) visualization pane v) Fields pane vi) Filters pane vii) Report view viii) Table view ix) Model view.	**CO1, CO2, CO3, CO4, CO5**
2	Explore Microsoft Power BI desktop: 1. Connecting to data sources and Importing data from it. 2. Cleaning the data in the Power Query editor. 3. Creating a visual. 4. Creating a dashboard. 5. Publishing dashboard.	**CO1, CO2, CO3, CO4, CO5**

3	Create business report in power bi desktop using Sales Performance Analysis for the following information: 1. Import data from various sources. 2. Use Power Query for data cleaning and transformation. Create relationships between tables. 3. Filter and slice your data and use drill-down capabilities for deeper analysis. 4. Build calculated columns and measures using DAX. 5. Create different types of charts, tables and Use slicers and filters effectively. 6. Design interactive dashboards.	**CO1, CO2, CO3, CO4, CO5**
4	Create the visualization using Power BI for the Sales Performance Analysis.: Create summary Dashboard for the given information: a) Total sales by Date, State, Product Name, Quantity, Discount and Profit. b) Create Power Bi report for Seasonal Sales.	
5	Create Dashboards using Power BI for the E-Learning Analysis with the following information: 1. Create Academic Business Report - Summary a) Total learners. b) Number of courses offered. c) Course completion status (in %). d) Course Distribution across learners. 2. Create Academic Business Report – Geographical. **3.** Create Academic Business Report - Learners Attributes. **a)** Create one on Age distribution & other on Qualification.	**CO1, CO2, CO3, CO4, CO5**
6	Create Dashboard using Power BI for the Health Care Data Analysis with the following information: 1. Create a new table visual to show number of people tested on each date. 2. Analyze people who aged 70 above having mortality rate greater than 0.5 against each continent. 3. Create a bar chart to show case gdp per capita against each location during the period dec 2019 to feb 2020. 4. Find out the number of new cases out of total cases in each location using a matrix visual.	**CO1, CO2, CO3, CO4, CO5**
7	1. Create Dashboard using Power BI for the Spots Data Analysis with the following information: a. Prepare a rank ordered list of top 10 countries with most players. Which countries are producing the most numbers of footballers that plays at this level? 2. Plot the distribution of overall rating vs. age of players. Interpret what is the age after which a player stops improving?	**CO1, CO2, CO3, CO4, CO5**

	3. Which type of offensive players tends to get paid the most: the striker, the right-winger, or the left-winger?	
8	Create Dashboards and Reports using Power BI for the E-Commerce Data Analysis with the following information: b. Create charts and Use slicers and filters effectively. c. Use drill-down Capabilities and create relationships. d. Create effective dashboards and reports for the given data set and analyze the data to identify meaningful insights and make data driven decisions.	**CO1, CO2, CO3, CO4, CO5**

Learning Resources
Text Books
1. The definitive guide to Dax: Business intelligence with Microsoft Power BI, SQL Server Analysis Services and Excel, Alberto Ferrari and Macro Russo, Second Edition, 2020, Pearson Education. 2. Mastering Microsoft Power BI: Expert techniques to create interactive insights for effective data analytics and business intelligence, Greg Deckler and Brett Powell, Second Edition, 2022, Packt Publishing.
Reference Books
1. Microsoft Power BI Dashboards Step by Step, Errin O'Connor, First Edition, 2020, Person Education. 2. Learning Microsoft Power BI - Jeremey Arnold, First Edition, 2022, O'Reilly.
E-Resources & other digital material
1. https://youtube.com/playlist?list=PLwIcJx1aSL1SeTJgPbFgf1V-5CfsV4l1l&si=jCijUQKRTPlv4JFu 2. https://www.sqlbi.com/p/introducing-dax-video-course/