Course Type	Course Code	Name of Course	L	T	P	Credit
DC	EMSC512	Data Visualization and Analysis	2	0	0	2

Course Objective
This course equips students with essential data visualization and analysis skills, covering principles, tools (Excel, Power BI), and techniques for effective storytelling. It focuses on data cleaning, trend analysis, interactive dashboards, and decision-making applications across domains. Students will learn to present insights clearly, enhancing their data-driven decision-making capabilities.
Learning Outcomes
By the end of this course, participants will be able to create effective visualizations, analyze data patterns, build interactive dashboards, and communicate insights clearly. They will gain proficiency in tools like excel and Power BI, enabling data-driven decision-making across various domains while mastering best practices in data storytelling and presentation.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	**Introduction to Excel** Students will be introduced to the excel function to manage data in the sheet. They will learn extensively about data retrieving and cleaning of the data using excel tools. Excel function like lookup and reference function, Text function, information function and logical function.	3	Student will be able to use excel for managing the database and cleaning of the data.
2	**Fundamentals of Data Visualization** Students will be introduced to different type of charts (like bar scatter, and pie chart) and their appropriate use. Students will get to know about the importance of data visualization in decision-making. Fundamentals of visual perception and storytelling.	5	Student will be able to select the proper chart for the data visualization.
3	**Power BIand Excel for Data Visualization and Analysis** Data Cleaning & Preprocessing for Visualization, Working with Large Datasets and Real-time Data, Advanced Charts (Heatmaps, Boxplots, Tree Maps, Network Graphs), Designing Effective Dashboards	7	Student will be able to use Power BI to make advance chart, Handle real time data.
4	**Identifying Patterns and Trends** In this module, Students will be introduced to data analysis. Student will explore how to use visualizations in Microsoft Power BI to perform an analysis of data and storytelling with the data. Forecasting.	7	Student will be able to use data visualization for decision making. Removing the clutter from the data.
5	**Interactive and Dynamic Visualizations** Creating Interactive Dashboards in Power BI, Incorporating Filters, Parameters, and Animations, Case Studies in Business Intelligence & Analytic	6	Student will be able to handle the real time data and its analysis.
	TOTAL	**28**	

Textbooks:

1. Mastering Microsoft Power BI: Expert techniques for effective data analytics and business intelligence, Brett Powell (2018), Packt
2. Analyzing Data with Power BI and Power Pivot for Excel, Alberto Ferrari, Marco Russo (2017), Microsoft Press

References:

1. Data Visualization with Microsoft Power BI,(2024), O'Reilly Media