COURSE CONTENT

DATA VISUALIZATION - R PROGRAMMING/ POWER BI								
IV Semester: CSD / CSE / CSM								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
2540585	Core	L	T	P	C	CIA	SEE	Total
		0	0	2	1	40	60	100
Contact Classes: 30	Tutorial Classes: Nil	Practical Classes:30				Total Classes: 30		
Prerequisites: Basic data understanding, Excel familiarity,								

Course Objectives:

- Effective use of Business Intelligence (BI) technology (Tableau) to apply data visualization
- To discern patterns and relationships in the data.
- To build Dashboard applications.
- To communicate the results clearly and concisely.
- To be able to work with different formats of data sets.

Course Outcomes: After Completion of the Course, Students should be able to:

- Understand different types of data and create effective visual representations to convey insights clearly.
- Connect, manipulate, and structure datasets in Tableau to build basic and advanced visualizations.
- Apply calculations, aggregations, and custom fields to enhance data analysis and visualization.
- Design interactive dashboards and storytelling visualizations with formatting, filtering, and tooltips.
- Publish, share, and export Tableau visualizations while creating custom charts for complex data analysis.

Lab Problems:

1. Understanding Data, What is data, where to find data, Foundations for building Data Visualizations, Creating Your First visualization?
2. Getting started with Tableau Software using Data file formats, connecting your Data to Tableau, creating basic charts(line, bar charts, Tree maps),Using the Show me panel.
3. Tableau Calculations, Overview of SUM, AVR, and Aggregate features, Creating custom calculations and fields.
4. Applying new data calculations to your visualizations, Formatting Visualizations, Formatting Tools and Menus, Formatting specific parts of the view.
5. Editing and Formatting Axes, Manipulating Data in Tableau data, Pivoting Tableau data.
6. Structuring your data, Sorting and filtering Tableau data, Pivoting Tableau data.
7. Advanced Visualization Tools: Using Filters, Using the Detail panel, using the Size panels, customizing filters, Using and Customizing tooltips, Formatting your data with colors.

8. Creating Dashboards & Storytelling, creating your first dashboard and Story, Design for different displays, adding interactivity to your Dashboard, Distributing & Publishing your Visualization.
9. Tableau file types, publishing to Tableau Online, Sharing your visualizations, printing, and Exporting.
10. Creating custom charts, cyclical data and circular area charts, Dual Axis charts.

REFERENCES:

1. Microsoft Power BI cookbook, Brett Powell, 2nd edition.
2. R Programming for Data Science by Roger D. Peng (References)
3. The Art of R Programming by Norman Matloff Cengage Learning India.

ELECTRONIC RESOURCES:

1. https://public.tableau.com/app
2. https://www.tableau.com/learn/training
3. https://help.tableau.com/current/pro/desktop/en-us/connecting.htm
4. https://help.tableau.com/current/pro/desktop/en-us/calculations_calculatedfields.htm
5. https://help.tableau.com/404-en-us.html

MATERIALS ONLINE:

1. Open-ended experiments
2. Lab Manual