Department of Computer Science & Engineering (Data Science)

Lesson Plan &Work-done Diary for AY: 2024-25, ODD Semester

Course with Code: DATA VISUALIZATION- 21AD71				Faculty: Dr Anitha D B				Semester & Section: 7A	

Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Class No.	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
colspan MODULE 1								
1.		**Introduction**: Data Visualization, Importance of Data Visualization, Data Wrangling.	Chalk & Talk PPT, Jupiter					
2.		**Introduction:** Tools and Libraries for Visualization.	Chalk & Talk PPT, Jupiter					
3.		**Overview of Statistics:** Measures of Central Tendency, Measures of Dispersion.	Chalk & Talk PPT, Jupiter					
4.		**Overview of Statistics:** Types of Data, Summary Statistics.	Chalk & Talk PPT, Jupiter					
5.		**Numpy:** Numpy Operations - Indexing, Slicing, Splitting, Iterating.	Chalk & Talk PPT, Jupiter					
6.		**Numpy:** - Numpy Operations -Filtering, Sorting, Combining, and Reshaping	Chalk & Talk PPT, Jupiter					
7.		**Pandas:** Advantages of pandas over numpy, Disadvantages of pandas, Pandas operation - Indexing, Slicing.	Chalk & Talk PPT, Jupiter					
8.		**Pandas:** Pandas operation-Iterating, Filtering, Sorting and Reshaping using Pandas.	Chalk & Talk PPT, Jupiter					
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Note: The header row "MODULE 1- Data Visualization and Data Exploration" spans across the Topics columns.

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MODULE 2-Plots									
9		**Comparison Plots:** Line Chart, Bar Chart and Radar Chart; **Relation Plots:** Scatter Plot,Bubble Plot,Correlogram and Heatmap.	Chalk & Talk PPT, Jupiter						
10		**Composition Plots:** Pie Chart, Stacked Bar Chart, Stacked Area Chart, Venn Diagram; **Distribution Plots:** Histogram, Density Plot, Box Plot, Violin Plot.	Chalk & Talk PPT, Jupiter						
11		**Geo Plots:** Dot Map, Choropleth Map, Connection Map; What Makes a Good Visualization	Chalk & Talk PPT, Jupiter						
12		A Deep Dive into **Matplotlib** Introduction, Overview of Plots in Matplotlib.	Chalk & Talk PPT, Jupiter						
13		**Pyplot Basics**: Creating Figures, Closing Figures, Format Strings, Plotting.	Chalk & Talk PPT, Jupiter						
14		Plotting Using pandas DataFrames, Displaying Figures, Saving Figures; **Basic Text and Legend.**	Chalk & Talk PPT, Jupiter						
15		**Functions:** Labels, Titles, Text, Annotations, Legends; Basic Plots:Bar Chart, Pie Chart, Stacked Bar Chart, Stacked Area Chart, Histogram, Box Plot, Scatter Plot, Bubble Plot.	Chalk & Talk PPT, Jupiter						
16		**Layouts:** Subplots, Tight Layout, Radar Charts, GridSpec; Images: Basic Image Operations, Writing Mathematical Expressions.	Chalk & Talk PPT, Jupiter						
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MODULE 3 - Simplifying Visualizations using Seaborn								
17		Introduction, Advantages of Seaborn	Chalk & Talk PPT, Jupiter					
18		Controlling Figure Aesthetics: Seaborn Figure Styles, Removing Axes Spines, Contexts.	Chalk & Talk PPT, Jupiter					
19		Color Palettes: Categorical Color Palettes, Sequential Color Palettes, Color Palettes: Diverging Color Palettes.	Chalk & Talk PPT, Jupiter					
20		Color Palettes: Diverging Color Palettes.	Chalk & Talk PPT, Jupiter					
21		Interesting Plots in Seaborn: Bar Plots, Kernel Density Estimation	Chalk & Talk PPT, Jupiter					
22		Interesting Plots in Seaborn: Plotting Bivariate Distributions,	Chalk & Talk PPT, Jupiter					
23		Visualizing Pairwise Relationships	Chalk & Talk PPT, Jupiter					
24		Violin Plots	Chalk & Talk PPT, Jupiter					
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MODULE 4 - Plotting Geospatial Data									
25		Introduction, Geoplotlib, The Design Principles of Geoplotlib.	Chalk & Talk PPT, Jupiter						
26		Geospatial Visualizations, Tile Providers, Custom Layers, Introduction to Folium	Chalk & Talk PPT, Jupiter						
27		Visualizing Data: Building a Google map from geocoded data.	Chalk & Talk PPT, Jupiter						
28		Visualizing networks and interconnection and Visualizing mail data.	Chalk & Talk PPT, Jupiter						
29		Making Things Interactive with Bokeh Introduction.	Chalk & Talk PPT, Jupiter						
30		Bokeh, Concepts of Bokeh.	Chalk & Talk PPT, Jupiter						
31		Interfaces in Bokeh, Output, Bokeh Server.	Chalk & Talk PPT, Jupiter						
32		Presentation, Integrating, Adding Widgets.	Chalk & Talk PPT, Jupiter						
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MODULE 5 - Networked Programs									
33		HyperText Transfer Protocol – HTTP,	Chalk & Talk PPT, Jupiter						
34		The World's Simplest Web Browser, Retrieving an image over HTTP, Retrieving web pages with urllib,	Chalk & Talk PPT, Jupiter						
35		Parsing HTML and scraping the web, Parsing HTML using regular expressions,	Chalk & Talk PPT, Jupiter						
36		Parsing HTML using BeautifulSoup, Reading binary files using urllib	Chalk & Talk PPT, Jupiter						
37		Using Web Services eXtensibleMarkup Language – XML,	Chalk & Talk PPT, Jupiter						
38		Parsing XML,	Chalk & Talk PPT, Jupiter						
39		Looping through nodes,	Chalk & Talk PPT, Jupiter						
40		JavaScript Object Notation – JSON, Parsing JSON	Chalk & Talk PPT, Jupiter						

	Activity	Planned	Actual	Remarks
1	Theory Classes + Practical Classes	40L+0		
2	Assignments/ Quizzes/ Self-study/Programs			
3	Tutorials/ Extra classes			
4	Internal Assessments	3		
5	ICT based Teaching(% of usage in Curriculum)	90%		

Planning	Execution
Faculty Signature:	**Faculty Signature:**
HoD Signature:	**HoD Signature:**