Faculty of Computer Science & Applications
Master of Computer Application in Data Science
(W.E.F.: 2023-24)
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Name of Faculty	:	Faculty of Computer Science & Applications
Name of Program	:	Master of Computer Application in Data Science
Course Code	:	2MDS03
Course Title	:	Data Visualization & Analytics
Type of Course	:	Professional core
Year of Introduction	:	2023-24

Prerequisite	:	Knowledge of data mining
Course Objective	1	To make it easier to identify patterns, trends and outliers in large data sets.
	2	To create objective data visualizations, consider how segmentation, color, and scale are used to communicate your insights
Course Outcomes	:	The student should be able to
	CO1	Identify various forms of data from the live environment and extract data from platforms like social media and websites using data entry and web scraping using scraping tools.
	CO2	Create Interactive data visualization using Excel and perform preprocessing data – cleaning and removal of outliers from data, dealing with missing values, create visualizations of various types of data
	CO3	Create Interactive data visualization using Tableau.
	CO4	Create data visualizations using Power BI.

Teaching and Examination Scheme

Teaching Scheme (Contact Hours)			Credits	Examination Marks				
				Theory Marks		Practical Marks		Total Marks
L	T	P	C	SEE	CIA	SEE	CIA	
3	0	2	4	70	30	30	20	150

*Legends: **L**-Lecture; **T**–Tutorial/Teacher Guided Theory Practice; **P**– Practical,**C** – Credit, **SEE** – Semester End Examination, **CIA** - Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations /MCQ Tests, etc.))*

Course Content

Unit No.	Topics	Teaching Hours	Weightage	Mapping with CO
1	**Introduction to Data Analysis:** Scope and Significance, Understanding the various levels of data, dealing with categorical variable, quantifications of opinion and attitude of people, Primary data and Secondary data, the Kinds of Data Analytics – Descriptive, Diagnostic, Predictive and Data Minin	07	20%	CO1

2	**Excel - A Business Intelligence platform:** Data cleaning using Excel. Appropriate chart selection for strategy presentation. How to make your data stand out with PivotTables and charts. Building interactive dashboards in Excel.	07	20%	CO2
3	**Tableau - An Interactive Analytics platform:** Tableau Product Suite. How to connect to a data source using Tableau interface. Tableau interface and basic terminologies. Harness the power of your data. Build interactive dashboards.	07	20%	CO3
4	**Power BI - Unleash the power of business analytics:** How to Install Power BI desktop? Preparing data with Power BI. Data visualization using PowerBI	08	20%	CO4
5	**Creating visualizations using power bi:** Building expertise in drawing insights through a data related project.	07	20%	CO4

Suggested Distribution of Theory Marks Using Bloom's Taxonomy						
Level	Remembrance	Understanding	Application	Analyse	Evaluate	Create
Weightage	**20**	**30**	**30**	**20**	**0**	**0**

NOTE: This specification table shall be treated as a general guideline for the students and the teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Suggested List of Experiments/Tutorials

Sr. No.	Name of Experiment/Tutorial	Teaching Hours
1	Visualization of Spreadsheet Models	01
2	Oracle Database Connectivity using Python.	01
3	Visualization of Semi-Structured Data.	01
4	Introduction to Tableau and Aggregation Methods in Tableau.	02
5	Visual Encodings and Basic Dashboards in Tableau.	01
6	Interactive Plots in Python	01
7	Write the syntax and describe the parameters used for the following: Box Plot; Scatter Plot; Histogram; Pie Chart; Facet Plot; Pair Plot; Area Chart; Violin Plot; Bar Char	02
8	Interactivity with text and visual tooltips	01
9	Creating simple calculations in Tableau	01
10	Creating a data story in Tableau	01

Major Equipment/ Instruments and Software Required

Sr. No.	Name of Major Equipment/ Instruments and Software
1	System requirements are listed here under Tableau Desktop and Tableau Prep: https://www.tableau.com/products/techspecs
2	The latest version of Tableau Desktop as well as Tableau Prep should be downloaded and installed from here: https://www.tableau.com/tft/activation

Suggested Learning Websites

Sr. No.	Name of Website
1	https://www.tableau.com/learn/articles/data-visualization
2	https://hevodata.com/learn/data-analytics-and-visualization/

Reference Books

Sr. No.	Name of Reference Books
1	"The Visual Display of Quantitative Information" by Edward R. Tufte.
2	"The Big Book of Dashboards: Visualizing Your Data Using Real-World Business Scenarios" by Steve Wexler, Jeffrey Shaffer, Andy Cotgreave.
3	"Storytelling With Data: A Data Visualization Guide for Business Professionals" by Cole Nussbaumer Knaflic.