Marwadi University

Syllabus for Diploma Engineering

Information and Communication Technology

Semester – V

Subject Name: Data Analytics and Visualization

Subject Code: 09CT0508

Diploma Branches in which this subject is offered: Information and Communication Technology

Objective: After successful completion of this subject, students can get familiar and able to implement various data visualization strategies using Tableau. Students can able to create and plot various visuals like various plots, maps, Trends, forecasting and dashboards and sever based online visuals.

Credits Earned: 04 Credits

Course Outcomes:

- To differentiate data analytics and data visualizations functions, uses and strategies
- To get familiar with Visualization software like, Tableau.
- To apply and create various graphical models like plots, maps and dashboards
- Understand Server and offline data manipulating and creation techniques
- To remember foundations of Data Visualizations in every type of datasets.

Pre-requisite of course: Basic Programming

Teaching and Examination Scheme

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
Theory	Tutorial	Practical		ESE	IA	CSE	Viva	Term work	
3	0	2	4	50	30	20	25	25	150

Contents:

Unit	Topics	Contact hours
1	**Introduction to Data Analytics and Visualization** Data, Qualitative Data, Quantitative Data, Data Strategies, Data Analytics, Advantages, Disadvantages, Data Visualizations, Foundations of Data Visualization	2
2	**Getting Started with interface** Introduction, Features, Advantage, Disadvantage, Installation, User Interface and workspace, Repository, Connecting to Data,	4

	Dimensions and Measures, Data types and default properties, building basic views, saving and sharing workspace	
3	**Creating Basic Visualizations plots** Date functionality - Date aggregations, date parts, tabular charts, Bar chart, stacked bars, crosstab report, Scatter Plot, Pie chart, line chart, Gantt Bar Chart, Individual axes, blended axes, dual axes, editing axis, Labelling and Annotations, Titles and Captions	**9**
4	**Creating Data maps** Concept of mapping data, Geographic map, tree map, Heat map, Spider maps, Distributing and publishing your data visualization	**7**
5	**Manipulating Data** Cleaning data, filtering data, structuring data, sorting data, pivoting data, using size and detail panel, customizing filters, Sorting, formatting data with colors	**6**
6	**Trends and Forecasting** Creating trend lines, model types, creating forecast	**3**
7	**Creating Dashboard and Stories** Multiple tables join, Data Blending, using storytelling, Display designs for dashboard, adding interactivity to dashboard, creating multiple visualizations into dashboard	**5**
8	**Distributing and publishing your visualization** Various file types, making worksheet interactive using URL, Highlight, publishing online, sharing your visualization, printing and exporting	**3**
9	**Server Configuration** Single server installation, resolutions, Data Server, Data Security, Content administration, User rights, permissions precedence	**2**
TOTAL HOURS		**41**

Reference Books:

1. Visual analytics with tableau by Alexander Loth
2. Learning Tableau 2019: Tools for Business Intelligence, Data Prep, and Visual Analytics, 3rd Edition Book by Joshua N. Milligan
3. Manual of Tableau Server, Tableau Public and Tableau Desktop
4. Practical Tableau: 100 Tips, Tutorials, and Strategies from a Tableau Zen Master by Ryan Sleeper

MOOC Courses:

1. Data Visualization with Tableau by Coursera
2. Creating Dashboards and Storytelling with Tableau by coursera
3. Training Videos by Tableau software - https://www.tableau.com/learn/training/20201
4. Tableau Specialist Certification Prep by Udemy