DATA VISUALIZATION

(Professional Elective – II)

Course Code	20IT4601E	**Year**	III	**Semester**	II
Course Category	PE - 2	**Branch**	IT	**Course Type**	Theory
Credits	3	**L-T-P**	3-0-0	**Prerequisites**	
Continuous Internal Evaluation:	30	**Semester End Evaluation:**	70	**Total Marks:**	100

Course Outcomes		**Blooms Taxonomy Level**
Upon Successful completion of course, the student will be able to		
CO1	Understand the key techniques and theory behind data visualization and various Data visualization tools.	L2
CO2	Use effectively the various visualization structures (like tables, spatial data, tree and network etc.)	L3
CO3	Evaluate information visualization systems and other forms of visual presentation for their effectiveness	L4
CO4	Design and build data visualization systems	L4

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations(3:Substantial,2:Moderate,1:Slight)

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	3												3	3
CO2			3										3	3
CO3		3											3	3
CO4			3										3	3

Syllabus

Unit No	**Contents**	**Mapped CO**
I	**Introducing Visualization and Tableau:** Why Data Visualization? What can data Visualization help with? An introduction to Visualization, Positioning of Tableau, Tableau product line, File types in Tableau. Working with single and multiple data sources: Desktop Architecture, Tableau environment, Connect to a file, connect to a server, meta data grid, Joins, custom SQL, Data blending and data extracts	**CO1**

II	**Simplifying and sorting your data:** Filtering, sorting, groups, Difference between a set and a group Measure Names and Measure Values: Why are measure names and measure values required?	**CO1, CO3**
III	**Table Calculations:** What is a table calculation? Running total of sales, Profitability as percent of total, Moving average, rank, LOD(level of detail), percentile, year over year growth Customizing Data: Number Functions, string functions, logical functions, date functions, aggregate functions, table calculation functions	**CO1, CO2, CO3**
IV	**Statistics:** Why use statistics? What is statistics? Descriptive statistics, inferential statistics, few terms in statistics, Why do we use inferential statistics? Why do we use descriptive statistics? Five magic number summary, spread of data, Box plot, statistical tools in Tableau, trend lines and forecasting Chart Forms: Pie chart, tree maps, Heat Map, Highlight Table, Line Graph, Stacked Bar Chart, Gantt Chart, Scatter Plot, Histogram, Word Cloud	**CO1, CO2, CO4**
V	**Advanced visualization:** waterfall charts, bump charts, Bullet Graph Dashboard and stories: Why use a dashboard? What is a dashboard? Creating a dashboard, dashboard actions, creating a story, what is a story?	**CO1, CO2, CO4**

Learning Resources

Text Books

1. Seema Acharya, Subhashini Chellappan, Pro Tableau- A step-by-step guide, Apress 2017,Ist Edition

References

1. Andy Kirk,Data Visualization: a successful design process, Paperback , 2012

e-Resources& other digital material

[1] Prof. Han-Wei Shen Introduction to Data Visualization, http://web.cse.ohiostate.edu/~shen.94/5544/
[2]University of Illinois at Urbana-Champaign https://www.coursera.org/learn/datavisualization