

III B. Tech I Semester	Data Visualization	L	T	P	C
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Pre-Requisites: Computer Graphics, Image Processing

Course Objective:

- familiarize students with the basic and advanced techniques of information visualization and scientific visualization
- learn key techniques of the visualization process
- a detailed view of visual perception, the visualized data and the actual visualization, interaction and distorting techniques

UNIT-1: Introduction: What Is Visualization?, History of Visualization, Relationship between Visualization and Other Fields. The Visualization Process, Introduction of visual perception, visual representation of data, Gestalt principles, information overloads.

UNIT-2: Creating visual representations, visualization reference model, visual mapping, visual analytics, Design of visualization applications

UNIT-3: Classification of visualization systems, Interaction and visualization techniques misleading, Visualization of one, two and multi-dimensional data, text and text documents.

UNIT-4: Visualization of groups, trees, graphs, clusters, networks, software, Metaphorical visualization

UNIT-5: Visualization of volumetric data, vector fields, processes and simulations, Visualization of maps, geographic information, GIS systems, collaborative visualizations, Evaluating visualizations

Recent trends in various perception techniques, various visualization techniques, data structures used in data visualization.

TEXT BOOK:

1. WARD, GRINSTEIN, KEIM. Interactive Data Visualization: Foundations, Techniques, and Applications. Natick : A K Peters, Ltd.
2. E. Tufte, The Visual Display of Quantitative Information, Graphics Press.

Resources:

1. https://kdd.cs.ksu.edu/Courses/CIS536/Lectures/Slides/Lecture-34-Main_6up.pdf