



BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE  
(AUTONOMOUS)

DEPARTMENT OF CSE - ARTIFICIAL INTELLIGENCE & DATA SCIENCE

III Year II Semester

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DATA VISUALIZATION

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.

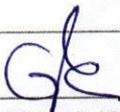
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**TEXTBOOKS:**

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

				
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