



**BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE**  
**(AUTONOMOUS)**  
**DEPARTMENT OF ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

III Year II Semester

| L | T | P | C |
|---|---|---|---|
| 3 | 0 | 0 | 3 |

**DATA VISUALIZATION**

**23AM6T02**

**PRE-REQUISITES:** Computer Graphics, Image Processing

**COURSE OBJECTIVES:**

- 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.

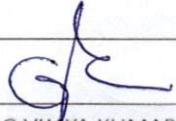
**UNIT-II:** Creating visual representations, visualization reference model, visual mapping, visual analytics, Design of visualization applications

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

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

**UNIT-V:** 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.

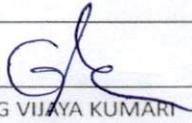
|  |  |   |  |   |
|--|--|---|--|---|
| Dr. O. SRINIVAS<br>RAO.<br>Professor,<br>Department of<br>CSE, UCEK<br>JNTUK, Kakinada | Dr. JIMSON<br>MATHEW<br>Professor<br>Dept of<br>Computer Science<br>and Engg.<br>Indian Institute of<br>Technology Patna | Prof.<br>CHAPRAM SUDHAKAR<br>Professor, Department of<br>CSE,<br>National Institute of<br>Technology,<br>Warangal - 506 004<br>Telangana, INDIA | Mr. RAJESH BOBBURI<br>COO & Director,<br>HighQ Labs Pvt Ltd,<br>Rajahmahendravaram | <br>Mrs. G VIJAYA KUMARI<br>Assoc Professor & HoD<br>Department of CSE-AI & DS,<br>AIML<br>B.V.C.I.T.S.,<br>Batlapalem |
|--|--|---|--|---|

**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)

|  |  |   |   |  |
|--|--|---|---|--|
|  |  |   |   |                               |
| Dr. O. SRINIVAS<br>RAO,<br>Professor,<br>Department of<br>CSE, UCEK<br>JNTUK, Kakinada | Dr. JIMSON<br>MATHEW<br>Professor<br>Dept of<br>Computer Science<br>and Engg.<br>Indian Institute of<br>Technology Patna | Prof.<br>CHAPRAM SUDHAKAR<br>Professor, Department of<br>CSE,<br>National Institute of<br>Technology.<br>Warangal - 506 004<br>Telangana, INDIA | Mr. RAJESH BOBBURI<br>COO & Director,<br>HighQ Labs Pvt Ltd,<br>Rajamahendravaram | Mrs. G VIJAYA KUMARI<br>Assoc Professor & HoD<br>Department of CSE-AI & DS,<br>AIML<br>B.V.C.I.T.S.,<br>Batlapalem |