

Course Title:	CS-866,Information Visualization
Credit Hours:	3+0
Pre-requisites:	<ul style="list-style-type: none"> ▪ Data Structures
Course Description:	Information Visualization is the presentation of quantitative information in a meaningful and easy to understand manner. A professional should be able to make expert decisions based on factual information quickly by using information visualization techniques. In this course the contemporary techniques of information visualization and the research problems confronting the research community will be discussed.
Tools and Technologies:	<i>OpenGL and Java IDE</i>
Learning Outcomes:	<p>On successful completion of this course students will be able to:</p> <ol style="list-style-type: none"> 1. Analyze a problem and design an information visualization technique. 2. Design solutions for presenting complex datasets 3. Do research in the field of Information Visualization
Tentative MS Thesis:	<ul style="list-style-type: none"> ▪ Dimensional Reduction Techniques for Simplifying Data ▪ Focus + Context Techniques and the Changing Data ▪ Visualizing Progressive Data ▪ Uncertainty and Visual Display
Text Books:	<ul style="list-style-type: none"> ▪ Robert Spence (2000): Information Visualization (Addison Wesley).
Reference Books:	<ul style="list-style-type: none"> ▪ Robert L. Harris (2000): Information Graphics: A Comprehensive Illustrated Reference. (Oxford University Press). ▪ Colin Ware (2000): Information Visualization: Perception for Design (Morgan Kaufmann) ▪ Edward R. Tufte (2001): The Visual Display of Quantitative Information. (Graphics Press) ▪ Ben Fry (2007): Visualizing Data: Exploring and Explaining Data with the Processing Environment.

	(O'Reilly Media)
Course Contents:	<ul style="list-style-type: none"> ▪ Perception and vision ▪ Datasets and Representation ▪ Displaying data <ul style="list-style-type: none"> ○ Graph Drawing Techniques ○ Multivariate data ○ Hierarchical Data ○ Temporal Data ○ Multi-scale Visualization ▪ Displays and Scalability ▪ Focus + Context and Distortion ▪ Dimensional Reduction ▪ User Interaction and Navigation ▪ Evaluation of Information Visualization Techniques <ul style="list-style-type: none"> ○ User study and verification ○ Perception and Evaluation ▪ Contemporary Information Visualization Algorithms ▪ Applications and Toolkits