

**DS755PE: EXPLORATORY DATA ANALYSIS (Professional Elective – V)****B.Tech. IV Year I Sem.****L T P C**  
**3 0 0 3****Course Objectives:**

- Analysis of data, exploring various models in exploratory data analysis, question answering and predictive analysis

**Course Outcomes:**

- Apply the Epicycle of Analysis process effectively.
- Articulate and refine data-related questions using the Epicycle approach.
- Conduct Exploratory Data Analysis (EDA).
- Develop the skills necessary to use formal modeling techniques for data inference.

**UNIT – I**

Epicycles of Analysis: Setting the Scene, Epicycle of Analysis, Setting Expectations, Collecting Information, Comparing Expectations to Data, Applying the Epicycle of Analysis process.

**UNIT – II**

Stating and Refining the Question: Types of Questions, Applying the Epicycle to stating and Refining Your Question, Characteristics of good Question, Translating a Question into a Data Problem, Case Study.

**UNIT- III**

Exploratory Data Analysis: Formulate your question, read in your data, Checking Packaging, look at the top and bottom of the data, always be checking, validate with at least one External Source, make a plot, Try the Easy Solution First.

**UNIT – IV**

Using Models to Explore your data: Models as Expectations, Reacting to Data Refining Our Expectations, Examining Linear Relationships, Stopping Criteria.

Inference: Identify the population, Describe the sampling process, Describe the Model for the population, Factors Affecting the Quality of Inference, Case Study.

**UNIT – V**

Formal Modeling: Goals of Formal Modeling, General Frame work, Associational Analysis, Prediction Analysis, and Summary

**TEXT BOOK:**

1. "The Art of Data Science: A Guide for Anyone Who Works with Data" by Roger D. Peng and Elizabeth Matsui.

**REFERENCE BOOKS:**

1. "Exploratory Data Analytics "by John Tukey.
2. "Python for Data Analysis "by Wes McKinney