

DATA MANAGEMENT AND REPRESENTATION

IV Semester: CSE (DS)

Course Code	Category	Hours / Week			Credits	Maximum Marks		
ACDC03	Core	L	T	P	C	CIA	SEE	Total
		3	1	0	4	30	70	100
Contact Classes: 45	Tutorial Classes: 15	Practical Classes: Nil				Total Classes: 60		
Prerequisites: No prerequisites required								

I. COURSE OVERVIEW:

The course covers basics of data management and presentation. The main objective of the course is to managing the data, finding missing values and data representing through graphs and tables.

II. COURSE OBJECTIVES:

The students will try to learn:

- I. The fundamental knowledge on data management for data science.
- II. The preparation of various forms of data, datasets, missing data and data presentation.
- III. The document preparation and transfer the results effectively communicate the findings using visualization techniques.
- IV. The methodology of how to interpret and communicate data and results.

III. SYLLABUS:

MODULE – I: Principles of Data Management (09)

Data: Data, Sources of Data, From Concepts to Variables, Forms of Data

Data Management: Codebooks, Documentation, Coding, Data Cleaning and Screening, Naming Conventions, Principles of File Management

MODULE – II: Secondary, Primary and Administrative Data (09)

Secondary Data: Types of Secondary Data, Use of Secondary Data, Sources of Secondary Data, Examples of Searching for Downloading and Importing Data, A Simple Test of the Conceptual Model.

Primary and Administrative Data: Principles for Primary Data, Administrative Data and Linking Datasets.

MODULE – III: Missing Data (09)

Working with Missing Data: Why Are Missing Data a Problem?, Reasons for Missing Data, Types of Missing Data.

Forms and Patterns of Missing Data, Addressing Missing Data in the Analysis Stage

MODULE - IV Data Presentation (09)

Presenting Data, Visual Images, First Principles: Clarity, Precision, and Efficiency, Why Words Are Not Enough, Types of Tables and Graphics, Principles of Data Presentation

MODULE - V : Designing Tables and Graphics for Data Presentations (09)

Tables, Examples of Tables, Graphics, Examples of Graphics.

IV. TEXT BOOKS:

1. Dr. John P. Hoffmann, "Principles of Data Management and Presentation", First Edition.

V. REFERENCE BOOKS:

1. Making sense of Data: A practical Guide to Exploratory Data Analysis and Data Mining, by Glenn J. Myatt.

VI. WEB REFERENCES:

1. <http://www.sctie.iitkgp.ernet.in/>
2. <https://towardsdatascience.com/data-management-strategy-part-3-f1ba544be2dc>
3. <https://towardsdatascience.com/how-to-handle-missing-data-8646b18db0d4>
4. <https://www.oclc.org/research/areas/data-science/data-science-presentations.html>