Course Title: Introduction to Data Mining and Data Warehousing
Course Code: CC-308
Course Credit: 3
Session Per Week: 4
Total Teaching Hours: 40 Hours

AIM

Learn data mining concepts understand association rules mining and to develop the abilities of critical analysis to data mining systems and applications.

LEARNING OUTCOMES

Understand data mining principles and techniques: Introduce DM as a cutting edge business intelligence method and acquaint the students with the DM techniques for building competitive advantage through proactive analysis, predictive modelling, and identifying new trends and behaviours.
Ability to perform the preprocessing of data and apply mining techniques on it.

DETAIL SYLLABUS

Unit-1   **10 Hours**
- What is Data Mining?
- What kind of Data can be Mined?
- What Kind of patterns can be mined?
- Which technologies can be used?
- Major Issues in Data Mining

Unit-2   **10 Hours**
Data Warehouse : Basic Concepts
- What is Data Warehouse
- Difference between operational database system and data warehouses
- Multitier Architecture
Data Warehouse Modeling: Data cube and OLAP
- Data Cube: Multidimensional Data Model
- Typical OLAP Operations
Data Warehouse Design and Usage
- A business Analysis Framework for Data Warehouse Design
- Data warehouse Design Process
- Data Warehouse USAGE FOR Information Processing
- From OLAP to Multidimensional data Mining

Unit-3   **10 Hours**
- Data Processing and Over View

- ➢ Data Cleaning
- ➢ Overview of Data Reduction Strategies
  - • Histogram
  - • Sampling
  - • Data Cube Aggregation

Association Rule Mining
- • Basic Concepts: Association

Apriori Algorithm

Unit-4   **10 Hours**
- • What is Classification
- • General Approach to classification
- • Decision Tree Induction
- • What is cluster Analysis
- • Overview of basic clustering methods
- • K Means Centroid based technique
- • Data Mining Applications

TEXT BOOKS:
Data Mining, Concept and techniques (3rd Edition) by jiawei Han and Micheline Kamber.

REFERENCE BOOKS:
- • Data Mining by Reema Thareja.
- • M. Dunham, "Data Mining: Introductory and Advanced Topics", Pearson Education.
- • Data Warehousing by Reema Thareja, 2014, Oxford Publication.
- • M. Dunham, "Data Mining: Introductory and Advanced Topics", Pearson Education, 2006.
- • Pang-Ning Tan, Michael Steinbach and Vipin Kumar, "Introduction to Data Mining", Person Education, 2007.
- • Data Mining: Practical Machine Learning Tools and Techniques by Ian H. Witten, Eibe Frank, Mark A. Hall, Elsevier 2014.
- • Data Mining and Data Warehousing: Principles and Practical Techniques by Parteek Bhatia, Cambridge Publication, 2019.

WEB RESOURCES:
https://www.tutorialspoint.com/data_mining/index.htm
https://www.tutorialspoint.com/dwh/index.htm
https://www.geeksforgeeks.org/data-mining/
https://docs.oracle.com/cd/B28359_01/datamine.111/b28129/process.htm#DMCON002
https://www.educba.com/data-mining-concepts-and-techniques/