

## BCA 408: Data Mining and Warehousing

### Teaching Scheme

Lectures: 4 hrs/Week  
Tutorials: 2 hrs/Week

Credits: 6

### Examination Scheme

Class Test - 20Marks  
Teachers Assessment - 10Marks  
Attendance - 20 Marks  
End Semester Exam - 100 marks

**Prerequisite:** - BCA 201 Engineering Mathematics and BCA 302 Database Management Systems

### Course Objectives:

1. To have an idea about data mining and its various applications.
2. To understand multidimensional behavior of data and data warehouse architectures.
3. To apply data pre-processing concepts to clean, integrate and transform different datasets, apply data mining methods to information systems and generate results for decision making systems.
4. To analyze various data mining techniques to solve problems.
5. To demonstrate data mining techniques to solve problems in other disciplines using mathematical approach.
6. To create and design intelligent program using data mining techniques.

### Detailed Syllabus

#### Unit-1

Definition, Data Mining as the Evolution of Information Technology, Knowledge Discovery Process (KDP), Classification of Mining systems, Techniques involved.

#### Unit-2

Needs, Pre-processing data, Data Cleaning, Data integration and transformation, data reduction, discretization, Concept of hierarchy generation.

#### Unit-3

Definition, Differences between Operational Database Systems and Data Warehouses, OLTP vs. OLAP, 3 Tier Architecture of Data Warehouse, Concept of ETL.

#### Unit-4

Data Cube- A Multidimensional Data Model, Stars, Snowflakes, and Fact Constellations: Schemas for Multidimensional Data Models, OLAP operation.

#### Unit-5

Introduction to Association Rule and Association Rule Mining, Classification: Decision Tree Induction and Bayesian Classification algorithm, K-nearest neighbor, Clustering: Cluster Analysis.

#### Unit-6

Mining Complex Data Types, Methodologies of Data Mining, Data Mining Applications, Web Mining.

### Text and Reference Books

1. Data Mining -Concepts and Techniques, Han, Kamber, Harcourt India, 2006.
2. Data Mining Introductory and advanced topics, Margaret H Dunham, Pearson, 2002.
3. Data Mining Techniques, Arjun K. Pujari, University Press, 2001.

**Course Outcomes:**

After completing the course, students will be able to:

7. Understand the functionality of the various data mining and data warehousing component.
8. Appreciate the strengths and limitations of various data mining and data warehousing models.
9. Explain the analyzing techniques of various data.
10. Describe different methodologies used in data mining and data ware housing.
11. Compare different approaches of data ware housing and data mining with various technologies.

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