Branch: BCA	Semester-VI
Subject Code:6102	Lecture: 04 Credit: 04
Course Opted	Core Course – 19
Subject Title	DATA WAREHOUSING AND DATA MINING

Course Objectives:
- Be familiar with mathematical foundations of data mining tools.
- Understand and implement classical models and algorithms in data warehouses and
- data mining
- Characterize the kinds of patterns that can be discovered by association rule
- mining, classification and clustering.
- Master data mining techniques in various applications like social, scientific and environmental context.
- Develop skill in selecting the appropriate data mining algorithm for solving practical problems.

Course Outcomes:
- Understand the functionality of the various data mining and data warehousing component
- Appreciate the strengths and limitations of various data mining and data warehousing models
- Explain the analyzing techniques of various data
- Describe different methodologies used in data mining and data ware housing.
- Compare different approaches of data ware
- housing and data mining with various technologies.

Modules	Sr. No.	Topic and Details	No. of Lectures Assigned	Marks Weightage %
UNIT -I	1	**Overview and Concepts**: Need for data warehousing, Basic elements of data warehousing, Trends in data warehousing.	4	8
	2	Data Marts, Data Staging, Meta Data, Data Warehousing & ERP, Data Warehousing & KM, Data Warehousing & CRM.	4	8
	3	**Planning & Project Management:** Life-cycle approach, Collecting the requirements, The Development phases, Dimensional analysis, Dimensional modelling, Star Schema, Snow Flake Schema. Data Design and Data Representation: Principles of dimensional modelling.	6	12
UNIT -II	4	**OLAP:** OLAP Architecture, Relational OLAP, Multidimensional OLAP, Relational Vs Multidimensional OLAP, Web based OLAP.	4	8
	5	**Major features & functions:** Drill down and Roll-up, Slice and Dice or Rotation.	4	8
	6	**Recent Trends in Data Analysis:** Introduction to Data lake and Hybrid Databases	4	8

UNIT		Topic		
		Introduction to Big Data: Definition of Big Data, Challenges with Big Data.		
UNIT -III	7	**Data Mining Primitives, Languages, and System Architectures:** Data mining primitives, Query language, Designing GUI based on a data mining query language, Architectures of data mining systems.	6	12
	8	**Data mining Algorithms**: Classification, clustering, association rules. **Knowledge discovery**: KDD process. Decision trees, Neural Networks, Genetic Algorithms.	6	12
	9	**Information Privacy and Data Mining**: Basic principles to protect information piracy, Primary aims of data mining, pitfalls of data mining.	4	8
UNIT -IV	10	**Categories of Web Mining**: Web Content Mining, Web Structure Mining, Web Usage Mining, Applications of Web Mining, and Agent based and Data base approaches, Web mining Software.	4	8
	11	**Search Engines**: Characteristics, Functionality, Architecture, Ranking of web pages, the search engine industry, the enterprise search.	2	4
	12	**Data mining applications**: Benefits of data mining, Applications in Retail industry, Applications in Telecommunications Industry, Applications in Banking and Finance.	2	4
		TOTAL	50	100

Text Books:

1. Data Warehousing Fundamentals – Paulraj Ponnaiah, Wiley student Edition
2. Han, Kamber, "Data Mining Concepts and Techniques", Morgan Kaufmann.

Reference Books:

1. Alex Berson, S.J. Smith, "Data Warehousing, Data Mining and OLAP", Tata McGraw Hill
2. Margaret Dunham, "Data Mining: Concepts and Techniques", Morgan Kaufmann Pub.
3. Ralph Kimball, "The Data Warehouse Lifecycle toolkit', John Wiley.
4. Jiawei Han, Micheline Kamber, "Data Mining: Concepts and Techniques", 2nd edition, Morgan Kaufmann, ISBN 1558609016, 2006.
5. A B M Shaukat Ali, Saleh A Wasimi, "Data Mining: Methods and Techniques", Cengage Learning Pub.