GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. SEMESTER : VIII

COMPUTER SCIENCE & ENGINEERING

Subject Name: **BUSINESS INTELLIGENCE & DATA MINING**

Sr. No.	Course Contents	Total Hrs
1.	**Overview and concepts Data Warehousing and Business Intelligence** Why reporting and Analyzing data, Raw data to valuable information-Lifecycle of Data - What is Business Intelligence - BI and DW in today's perspective - What is data warehousing - The building Blocks: Defining Features - Data warehouses and data marts, Virtual Warehouses - Overview of the components - Metadata in the data warehouse - Need for data warehousing - Basic elements of data warehousing, Architectures, OLAP and OLAP Servers – recent trends in data warehousing, Dynamic Warehousing.	14
2.	**The Architecture of BI** BI and DW architectures and its types - Relation between BI and Data Mining.	06
3.	**Introduction to data mining (DM)** Motivation for Data Mining - Data Mining-Definition and Functionalities – Classification of DM Systems – DM task primitives - Integration of a Data Mining system with a Database or a Data Warehouse - Issues in DM – KDD Process- Various Models and their significance.	12
4.	**Concept Description and Association Rule Mining** What is concept description? - Data Generalization and summarization-based characterization - Attribute relevance - class comparisons Association Rule Mining: Market basket analysis - basic concepts - Finding frequent item sets: Apriori algorithm - generating rules – Improved Apriori algorithms, FP Growth Algorithm – Incremental ARM – Associative Classification – Rule Mining, ARCS.	10
5.	**Classification and Prediction** What is classification and prediction? – Issues regarding Classification and prediction: • Various Classifiers and Classification methods: Decision tree, Bayesian Classification, Rule Based Classifiers, CART, Neural Network, Nearest Neighbour, Case Based Reasoning, Rough Set Approach. The role of Genetic Algorithm and fuzzy logic. • Prediction methods: Linear and non linear regression, Logistic Regression.	14
6.	**Data Mining for Business Intelligence Applications**	04

Text Books:

1. J. Han, M. Kamber, "Data Mining Concepts and Techniques", 3rd Edition, Morgan Kaufmann.

References:

1. Paulraj Ponnian, "Data Warehousing Fundamentals", John Willey.
2. M. Kantardzic, "Data mining: Concepts, models, methods and algorithms, John Wiley & Sons Inc.
3. M. Dunham, "Data Mining: Introductory and Advanced Topics", Pearson Education.
4. Pieter Adriaans, Dolf Zantinge , "Data Mining", Pearson Education Asia