

## CS441 BUSINESS INTELLIGENCE (Elective-VI)

### **Course Description and Objective:**

The study of Web technologies course is fundamental to Computer Science and Engineering. This course enables students to understand web page site planning, management and maintenance. The main objective behind introduction of this course is also to develop web sites which are secure and dynamic in nature and writing scripts which get executed on server as well.

### **Course outcomes:**

On successful completion of this course students should be able to obtain:

- Understand the principles of business intelligence
- Understand the data warehousing principles
- Understand reporting and visualisation techniques
- Understand data mining techniques

### **UNIT I - Introduction to Business Intelligence**

Introduction to digital data and its types – structured, semistructured and unstructured, Introduction to OLTP and OLAP (MOLAP, ROLAP, HOLAP), BI Definitions & Concepts, BI Framework, Data Warehousing concepts and its role in BI, BI Infrastructure Components – BI Process, BI Technology, BI Roles & Responsibilities, Business Applications of BI, BI best practices

### **UNIT II - Basics of Data Integration**

Concepts of data integration, needs and advantages of using data integration, introduction to common data integration approaches, Meta data - types and sources.

### **UNIT III - Extraction and Transformation Loading**

Introduction to data quality, data profiling concepts and applications, introduction to ETL using Pentaho data Integration (formerly Kettle).

**UNIT IV - Multi-Dimensional Data Modeling**

Introduction to data and dimension modeling, multidimensional data model, ER Modeling vs multi dimensional modeling, concepts of dimensions, facts, cubes, attribute, hierarchies, star and snowflake schema, introduction to business metrics and KPIs, creating cubes using Microsoft Excel.

**UNIT V - Basics of Enterprise Reporting**

A typical enterprise, Malcolm Baldrige - quality performance framework, balanced scorecard, enterprise dashboard, balanced scorecard vs. enterprise dashboard, enterprisereporting using MS Access / MS Excel, best practices in the design of enterprise dashboards

**TEXT BOOKS :**

1. Mike Biere, "Business Intelligence for the Enterprise", 1st ed., IBM Press, 2009.

**REFERENCE BOOKS :**

1. Larissa Terpeluk Moss, Shaku Atre, "Business intelligence roadmap", 2nd ed., Addison-Wesley Longman Publishing Co., Inc. Boston, 2003.
2. Swain Scheps, "Business Intelligence For Dummies", 2nd ed., Wiley Publishing inc, 2004.
3. Chuck Ballard, Daniel M. Farrell, Amith Gupta, Carlos Mazuela, Stanislav Vohnik, "Dimensional Modelling in a Business Intelligence Environment", 2nd ed., OREILLY Publications, 2006.