414451: BUSINESS INTELLIGENCE

Teaching Scheme:	Examination Scheme:
Lectures: 3 Hours/Week	Theory: 100 Marks

Unit I   Important concepts   (6 Hrs.)
Design and implementation aspect of OLTP, Design and implementation aspect of Warehouse, Comparison of Analytical queries with Transactional Queries, Components of Warehouse Architectures.

Unit II   Dimensional Modelling and DW design   (8 Hrs.)
Start schema and snow flake schema, Grain of dimensional model, transactions, Recurring Snapshots, Accumulating Snapshots, Dimensions (SCD types, conformed dimensions), Facts (additive, semi-additive, non-additive), Hierarchy in dimensions, parent child relationships, Many-Many Dimensional relationship, Multi Valued Dimensions and Dimension Attributes.

Unit III ETL   (6 Hrs.)
Data Quality, Data profiling, Data enrichment, data duplication, ETL Architecture and what is ETL, Extraction concept and Change data capture Transformation concept, lookups, time lag, formats, consistency, Loading concept, Initial and Incremental loading, late arriving facts, What is Staging, Data marts, Cubes, Scheduling and dependency matrix.

Unit IV   Reporting   (6 Hrs.)
Metadata Layer, Presentation Layer, Data Layer, Use of different layers and overall Reporting architecture, Basic Report authoring, Various report elements such as Charts, Tables, prompts Data aggregation: Table based, Materialized views, Query rewrite, OLAP, MOLAP, Dashboards, Ad-hoc reports, interactivity in analysis (drill down, drill up), Security: report level, data level (row, column) ,Scheduling.

Unit V   Analytics   (6 Hrs.)
Analytics concepts and use in Business Intelligence, Exploratory and statistical techniques:- Cluster analysis, Data visualization, Predictive analysis :- Regression, Time series, Data Mining :- Hierarchical clustering, Decision tree Text analytics :- Text mining.

Unit VI   Recent trends   (6 Hrs.)
Big data like HIVE, PIG and DW appliances like Netezza, Teradata, Smart Change data capture using log based techniques, Real time BI, Operational BI, Embedded BI, Agile BI, BI on cloud.

Text Books:

1. Ralph Kimball, Margy Ross, "The complete Guide to dimensional modeling 2nd edition, Publisher: Wiley publication ISBN- 0-471-20024-7

2. Ralph Kimball, Joe Caserta," "The data warehouse ETL toolkit: practical techniques for extracting, cleaning, conforming, and delivering data"", Publisher: Wiley. ISBN: 0-7645-6757-8

Reference Books :

1. Jiawei Han, Micheline Kamber,Jian Pei "Data Mining: concepts and techniques", 2nd Edition Publisher: Elsevier/Morgan Kaufmann

2. Efrem G. Mallach "Decision Support And Data Warehouse Systems", 1st Edition Publisher: Tata McGraw-Hill Education,. ISBN-10: 0072899816.

3. Efraim Turban, Ramesh Sharda, Dursun Delen, David King "Business Intelligence,2/E" ISBN-10: 013610066X Publisher: Prentice Hall.ISBN-13: 9780136100669

Assignments :

The faculty in charge will frame minimum 6 to maximum 8 assignments such that the students get hands on the concepts they study in each unit of elective.