BIT 3205: Business Intelligence and Data Warehousing

Course Name:	Business Intelligence and Data Warehousing
Course Code:	**BIT 3205**
Course Level:	Year 3 Semester 2
Contact Hours	**60 Hours**
Credit Units:	4 CUs

Course Description:
This course introduces the student on how companies can build data Warehouses and utilize business intelligence for decision-making hence saving money and increasing profit. Several, initiatives ranging from supply chain integration to compliance with organizational/government-mandated reporting requirements depend on well-designed data warehouse architecture. Therefore, the course introduces students to the main components of a data warehouse for business intelligence applications. This will include how a data warehouse fits into the overall strategy of a complex enterprise, how to develop data models, data mats useful for business intelligence, and how to combine data from disparate sources into a single database that comprises the core of your data warehouse. The course will also explore how to define and specify useful management reports from warehouse data.

Course Objectives: The aims of this course unit is to:

1. Introduce students to the importance of making meaningful use of large volumes of data for decision making.
2. Explain to students the methods and technologies for successful development of data warehouses.
3. Equip Skills of maintaining existing data warehouses.
4. Show how to manipulate data warehouses to generate information for business decision making.

Course Learning outcomes:
By the end of this course, students should be able to:

1. Describe the decision support purpose and goal of a data warehouse.
2. Implementation an organizational issue associated with a data warehouse.
3. Use various technologies required to implement a data warehouse.
4. Explain the role of metadata in a data warehouse design and the strategies to define and maintain metadata.
5. Develop dimensional models from which key data for critical decision-making can be extracted.

Course Outline

1. Introduction to data warehousing concepts. 8 Hours
2. Data Warehousing architecture: Data warehouse architecture, Enterprise architecture, Datamart, Virtual data warehouse, Metadata, Modeling, Multi- dimensional modeling of data, Dimensional modeling, and hierarchy 10 Hours
3. Warehouse schema: Normalization, Star schema, snowflake schema

6 Hours

4. OLAP operations: Slicing and dicing, Drill up and drill down, Drill within and drillacross. 8 Hours
5. OLAP engine: Specialized SQL server, ROLAP, MOLAP, HOLAP. 10 Hours
6. Data transformation services. 8 Hours
7. Datawarehouse implementation. 8 Hours

Mode of delivery: Lectures, case studies, quizzes, groupwork, individual studies
Course Assessment: Tests, Take home assignments (40%), Examination (60%)

Suggested Reading Materials

Paulraj, P. (2001). *Data warehousing fundamentals,* ISBN: 978-0-471-41254.
Imhoff (2003). *Mastering Data Warehouse Design: Relational and Dimensional Techniques*, Wiley.
Kimball (2002). *The Data Warehouse Toolkit: The Complete Guide to Dimensional*
Kimball, R., and Caserta, J. John (2004). *The Data Warehouse ETL Toolkit: PracticalTechniques for Extracting, Cleaning, Conforming, and Delivering Data*, Wiley & Sons.