Course Name :**DS-312 Data Warehousing and Business Intelligence**
Credit Hours: 2-1
Contact Hours: 2-3
Pre-requisites: Introduction to Data Science

Course Introduction:
Gives an overview about importance & significance of Data Warehousing (DWH) and Business Intelligence (BI). Discusses the main concepts and solutions for DWH and BI. The key concepts underpinning the logical design, physical design and implementation of data warehouses are appraised. Data collection, data extraction, cleansing, transformation and loading methods are considered along with query optimization techniques. Differentiation between OLAP & OLTP. Data Warehousing supports information processing by providing a solid platform of integrated, historical, and consistent data for performing enterprise- wide data analysis.

CLO No	Course Learning Outcomes	Bloom Taxonomy
CLO-1	Demonstrate an appreciation of the role that Data Warehouses and Business Intelligence play in enhancing the decision-making process .	C2 (Understand)
CLO-2	Demonstrate an understanding of the fundamental concepts of the Star and the Snowflake Schema; learn how to design the schema of a DW based on these two models.	C2 (Understand)
CLO-3	Understand the architecture of DW Systems and be able to specify the advantages and potential problem areas.	C3 (Apply)
CLO-4	Use Analytic SQL to aggregate, analyze and report, and model data.	C3 (Apply)

Course Outline:
Introduction to Data Warehouse and Business Intelligence; Necessities and essentials of Business Intelligence; DW Life Cycle and Basic Architecture; DW Architecture in SQL Server; Logical Model; Indexes; Physical Model; Optimizations; OLAP Operations, Queries and Query Optimization; Building the DW; Data visualization and reporting based on Datawarehouse using SSAS and Tableau; Data visualization and reporting based on Cube; Reports and Dashboard management on PowerBI; Dashboard Enrichment; Business Intelligence Tools.

Reference Materials:

1. W. H. Inmon, “Building the Data Warehouse”, Wiley-India Edition.
2. Ralph Kimball, “The Data Warehouse Toolkit – Practical Techniques for Building Dimensional Data Warehouse,” John Wiley & Sons, Inc.
3. Matteo Golfarelli, Stefano Rizzi, “Data Warehouse Design - Modern Principles and Methodologies”, McGraw Hill Publisher.