MAKERERE UNIVERSITY
MAKERERE UNIVERSITY BUSINESS SCHOOL
FACULTY OF COMPUTING AND INFORMATICS
DEPARTMENT OF INFORMATION SYSTEMS

Course Name: Business Intelligence and Data Warehousing
Course Code: BUC2225
Programme: Bachelor of Business Computing (BBC)
Course Level: Year 2, Semester 2
Credit Units: 5
Academic Year: 2023/2024
Credit Hours: 75
Course Facilitator(s): Dr. Kasule Abdal, Mutebi Bashir, Balunywa Ali

PART 1 – COURSE OVERVIEW

Course Description

This course provides students with a comprehensive introduction to the fundamental concepts and practical applications of Business Intelligence (BI) and Data Warehousing. In an era where data is a critical asset for organizations, students will learn how to transform raw data into actionable insights for informed decision-making in organizations. The course will cover the entire process, from data extraction and warehousing to analysis and visualization.

Course Justification

In today's data-driven world, graduates with the ability to analyse and leverage data for informed decisions are highly sought-after. This course equips students with valuable skills for diverse careers, fosters critical thinking and business acumen, and even provides a foundation for further data-related studies. Investing in data literacy through this course prepares students to excel in a data-driven environment and become informed decision-makers, both as future professionals and responsible citizens.

Course Aim

The aim of the course is to equip students with the skills to effectively leverage data for decision-making in business contexts. Focusing on Business Intelligence and Data Warehousing, the course aims to provide a solid understanding of data principles, ETL processes, and the use of BI tools. By fostering hands-on experience, the goal is to prepare students for roles in data analysis, business intelligence, and related fields, enhancing their ability to contribute to data-driven decision-making processes within organizations.

Course Objectives

On completion of the course, the learners should be able to:

1. Design and implement a functional data warehouse, mastering dimensional modelling and architectural principles.
2. Execute ETL processes using tools, seamlessly integrating and transforming data from various sources.
3. Use BI tools like Power BI to craft interactive and insightful reports and dashboards, effectively communicating data-driven insights.
4. Apply analytics concepts, including data quality and governance, to strategically analyse and interpret data, driving informed decisions across organizations.

Mode of Delivery

The course will be delivered through a blended learning approach.
It will employ tutorial discussions, lectures, demonstrations, individual projects, group projects, reflection and response and online quizzes.

PART 2 – COURSE CONTENT

NO.	TOPICS	TOPIC DETAILS	RESOURCES AND/OR REFEFENCES
1.	Introduction to Business Intelligence and Data Warehousing	1. Define and explain the concepts of Business Intelligence (BI) and Data Warehousing. 2. Discuss the historical evolution and significance of BI in modern organizations. 3. Analyse the role of data in decision-making and its relevance to business success.	Textbook: Business Intelligence: A Managerial Approach, by Ralph Kimball and Marciano Baptista Online resources: MIT Open Courseware BI Courses, TDWI White Papers
2.	Data Modelling and Database Design	1. Describe fundamental concepts of relational databases and normalization. 2. Apply dimensional modelling principles to design a data warehouse structure. 3. Create effective fact and dimension tables for a specific business scenario.	Textbook: The Data Warehouse Toolkit, by Ralph Kimball and Marciano Baptista Online resources: Kimball Group Blog, University of Washington Data Modelling Tutorials
3.	Introduction to ETL Processes and Tools	1. Explain the purpose and stages of an ETL process. 2. Utilize ETL tools to extract, transform, and load data into a data warehouse. 3. Implement data cleansing and transformation techniques to ensure data quality.	Textbook: Mastering Data Integration with Microsoft SQL Server Integration Services, by Kim Cameron Online resources: PowerBI ETL Guide
1.	Data Warehouse Implementation	1. Analyze the data warehouse development life cycle and best practices. 2. Evaluate and compare different data warehouse architectures. 3. Understand the challenges and considerations for successful data warehouse implementation	Textbook: Building a Data Warehouse for Dummies, by Thomas C. Codd Online resources: TDWI Best Practices Guides, Dataversity White Papers
5.	Business Intelligence and Visualization	1. Apply BI tools like Power BI to create dashboards and reports. 2. Design interactive and visually appealing data visualizations that communicate insights effectively. 3. Analyze data from the data warehouse to answer business questions and support decision-making.	Textbook: Powell, B. (2018). *Mastering Microsoft Power BI: Expert Techniques for Effective Data Analytics and Business Intelligence*. Packt Publishing Ltd. Online resources: Tableau Community, Coursera BI and Data Visualization Courses
6.	Data Quality and Governance	1. Assess the importance of data quality in BI and data warehousing. 2. Understand data governance practices and data stewardship roles. 3. Apply data quality frameworks to analyze and improve data accuracy and consistency.	Textbook: Madsen, L. B. (2019). *Disrupting Data Governance: A Call to Action*. Technics Publications. Online Resources: Data Quality & Data Governance
7.	Emerging Trends and Future Directions	1. Discuss the rise of cloud-based BI and data warehousing solutions. 2. Analyze the potential of Big Data in BI applications. 3. Understand the role of Artificial Intelligence (AI) in enhancing data-driven decision-making. 4. Evaluate ethical landscape in BI and data warehousing practices.	Textbook: The Future of Business Intelligence by Marc de Graaf Online resources: Gartner BI and Analytics Trends, MIT Big Data Initiative

Mode of Assessment
Formative/Continuous assessment: self, peer and tutor assessment of participation in tutorial sessions, and seminars. Progressive examination (MCQS, modified essays), Summative (MCQS, modified essays) and Viva-voce. Progressive examination 30% and summative – 70%.

Grading
Grades in this course will be as follows:

- Individual assessments worth - 10%
- Class participation worth - 10%
- Your own participation in group discussions and projects - 10%
- Final Examination - 70%
- Pass mark – 50%

Learning Materials

1. Kimball, R., & Ross, M. (2013). *The data warehouse toolkit: The definitive guide to dimensional modeling (3rd ed.)*. John Wiley & Sons.
2. Powell, B. (2018). *Mastering Microsoft Power BI: Expert Techniques for Effective Data Analytics and Business Intelligence*. Packt Publishing Ltd.
3. Madsen, L. B. (2019). *Disrupting Data Governance: A Call to Action*. Technics Publications.
4. Joshi, P. M., & Mahalle, P. N. (2022). *Data storytelling and visualization with Tableau (1st ed.).* CRC Press.
5. Marr, B. (2016). *Big data: Using big data to find big insights (2nd ed.).* John Wiley & Sons.
6. Sherman, R. (2014). *Business Intelligence Guidebook: From Data Integration to Analytics.* Morgan Kaufmann.
7. Data Warehousing and Business Intelligence: https://www.coursera.org/learn/data-warehousing-business-intelligence
8. Tableau. (n.d.). *Tableau Documentation.* Retrieved from https://help.tableau.com/
9. Microsoft. (n.d.). *Power BI Documentation.* Retrieved from https://docs.microsoft.com/en-us/power-bi/
10. Microsoft. (n.d.). *SQL Server Integration Services (SSIS) Documentation.* Retrieved from https://docs.microsoft.com/en-us/sql/integration-services/sql-server-integration-services