

MAKERERE UNIVERSITY BUSINESS SCHOOL

Faculty of Computing and Informatics

Department of Applied Computing and IT

Course Name: Data Mining and Business Intelligence
Course Code: PGDBD 5103
Course Level: 1
Credit Units: 5
Credit Hours: 75

Course Description:

This course is designed to introduce students to data mining and business intelligence concepts and provide students with an understanding of data mining along with associated techniques and their benefits to organizations of all sizes. This course discusses Business Intelligence and Data Mining as complex systems composed of many sub-systems that must be aligned to work together to produce the desired business value and support decision making.

Course Objectives:

- Introduce data mining and business intelligence concepts, terminology and techniques.
- Discuss the role of data mining and business intelligence in decision making.
- Describe the characteristics, components and challenges of business intelligence and data mining.
- Identify how various business intelligence systems can contribute to organizational success
- Describe data mining and business intelligence tools, platforms and technologies.

Learning Outcomes:

By the end of the course, students should be able to:

- Explain Data Mining and Business Intelligence concepts and terminology.
- Describe the purpose and capabilities of successful Data Mining and BI and how value is actually generated within organizations.
- Understand the role of Data Mining and BI in decision making.
- Understand the importance of gathering a good set of requirements, requirement gathering techniques and the special challenges data mining and business intelligence efforts pose.
- Conduct a data mining and business intelligence operations assessment.

Detailed Course Content

No.	Topic	Lesson Details	Hours
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1	Business Intelligence (BI) overview and basics	<ul style="list-style-type: none"> • Introducing Business Intelligence, • Origins of Business Intelligence (BI) • Main characteristics of BI, • Structure and components of BI, • The Business Value of BI, • The Challenges of BI, • Making the Business Case for BI, • Barriers to BI, • BI in the Marketplace, • Business Intelligence now and in the future, 	9
2	Gathering BI Requirements	<ul style="list-style-type: none"> • Requirements Definition, • Requirements Gathering Techniques and challenges, • Requirements Classifications, • Documenting requirements, • Business Intelligence Capabilities 	6
3	Managing BI	<ul style="list-style-type: none"> • BI project activities, • BI management roles, • BI User Segmentation, • BI sustenance management, 	6
4	BI tools and platforms	<ul style="list-style-type: none"> • Tools and platforms for: Analysis (OLAP, OLTP); • Information delivery; (reports, dashboards, scorecards,); • Development and integration (Microsoft SQL Server, Sybase, Oracle), • ETL. 	15
5	Data Warehousing	<ul style="list-style-type: none"> • Definition, • Characteristics of a Data Warehouse, • Data Marts, • Data Warehouse architecture, • Data Warehousing tools and techniques, • Data Warehouse models, • Modelling the Data Warehouse (logical and physical design of DW) 	9
6	Data mining (DM)	<ul style="list-style-type: none"> • Introduction to data mining (DM), 	15

		<ul style="list-style-type: none"> • The data mining process, Data mining models, • Data Pre-processing, • Concept Description & Association • Rule Mining, Classification and Prediction, • Data Mining for Business Intelligence Applications. 	
7	Data mining and Business Intelligence Operations assessment	<ul style="list-style-type: none"> • What to Assess?, • Why Conduct a Data mining and BI Operations Assessment? • Key Performance Indicators, • Measurement Rulers, • The Assessment Process, • Business Intelligence Capability Maturity Model for Assessment (BI-CMM/A), Case study 	9
8	Issues in Business intelligence and data mining	<ul style="list-style-type: none"> • Security and social issues, user interfaces, approaches and methodologies, performance, data sources, 	6
	Total Hours		75

Mode of Delivery:

- Lecturers
- Group and class discussions,
- Practical sessions
- Case studies, and online

Mode of Assessment

- Course work 40%
- Examination 60%

Reading List

1. David Taniar & Wenny Rahayu. (2021). Data Warehousing and Analytics: Fueling the Data Engine (Data-Centric Systems and Applications). 1st Ed. 2021 Edition, Springer
2. Efraim Turban, Ramesh Sharda, and DursunDelen. (2011). *Decision Support and Business Intelligence Systems*: International Edition, 9th Edition, Pearson Publishing, 2011.
3. Paulraj Ponniah. (2001). Data Warehousing Fundamentals. ISBN: 978-0-471-41254.
4. Ralph Kimball, Margy Ross, Warren Thorn Thwaite, Joy Mundy, Bob Becker. The Data Warehouse Lifecycle Toolkit: Practical Techniques for Building Data Warehouse and Business Intelligence Systems. Wiley. ISBN: 9780470149775
5. Ramesh Sharda, Dursun Delen, and Efraim Turban (2015). Business Intelligence and Analytics – Systems for Decision Support, 10th Edition, Pearson.

6. Sharda and Ramesh, (2014). *Business Intelligence: A managerial perspective on analytics*, Pearson, (ISBN 9780133051056)
7. Thomas C. Hammergren (2009). *Data Warehousing for Dummies*. 2nd Edition, For Dummies.