MAKERERE UNIVERSITY BUSINESS SCHOOL
Faculty of Computing and Informatics
Department of Applied Computing and IT

POSTGRADUATE DIPLOMA IN BUSINESS INTELLIGENCE AND DATA ANALYTICS (PBDA)

Course name:	**Big Data Analytics**
Course Code:	**PGDBD 5107**
Course Level:	**1**
Credit Units:	**5**
Credit Hours:	**75**

Course Description

Big data involves storing, processing, analyzing and making sense of huge volumes of data extracted in many formats and from many sources. This course is designed to teach students the fundamentals of Big Data, Big Data analysis tools and how these tools can be used to extract value out of Big Data.

Course Objectives

- Understand fundamental principles of Big Data.
- Understand the key components of the computing environment for Big Data including hardware, software, distributed systems, and analytical tools.
- Understand and discuss the application of data mining methodologies, algorithms, and enabling technologies on Big Data to deliver extraordinary results and value.

Learning Outcomes

Upon successful completion of this course, students should be able to:

- Describe Big Data and its characteristics.
- Demonstrate ability to work with Big Data using the main Big Data tools (Hadoop & Spark)
- Describe how Big Data can be resourcefully used in a corporate environment

- Effectively apply predictive analytics on Big Data
- Design and implement a prototypical Big Data Analytics Solution to address a decision making situation facing an organization of your choice.

Detailed Course Content

No.	Topic	Lesson Details	Hours
1	Introduction to Big Data fundamentals	• What is Big Data? • Characteristics of Big Data, • How is Big Data different from traditional data, • Big Data sources, • Examples of Big Data	10
2	Big Data Ecosystem	• Technologies for capturing, storing and accessing Big Data, • Big Data management both SQL & NoSQL, • Mongo DB, • Fire Base	15
3	Visualization and Analytical tools	• What is Big Data Visualization and Analytics? Visualization tools, Types of Big Data Analytics (Exploratory, Descriptive, predictive, prescriptive,), Examples of Big Data Analytics, Benefits of visualization and analytics, requirements for successful analytics, Hadoop and Spark, • Using Spark with R, • SparkSQL in R	30
4	Applications of Big Data	• Segmentation and prediction, recommender systems and targeted marketing, • sentiment analysis, • operational analytics, • Big Data for social good. • Case studies	12
5	Big Data and Privacy	• Privacy concerns while dealing with Big Data?	8
	Total Hours		**75**

Mode of Delivery

- Lectures
- Group and class discussions
- Tutorials
- Online

Mode of Assessment

- Course work 30%
- End of semester examination 70%

Reading List

1. EMC Education Services (2015). *Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data*, 1st Edition, Wiley
2. Jared Dean, (2014). Big Data, Data Mining, and Machine Learning, Wiley
3. Russell Walker, (2015). *From big data to big profits, Success with Data and Analytics*, Oxford University Press.
4. Stephan Kudyba, (2014). *Big Data, Mining, and Analytics, Components of Strategic Decision Making.* CRC Press.
5. Vignesh Prajapati, (2013). *Big Data Analytics with R and Hadoop*, Packt Publishing