Gyanmanjari Innovative University

Course Syllabus
Gyanmanjari Institute of Management Studies
Semester-3 (MBA)

Subject: Introduction to Business Analytics & Data Science – MBABA13509

Type of course: Major (Core)

Prerequisite:
Students must have basic understanding of statistics and proficiency in Excel or similar spreadsheet software.

Rationale:
Introduction to Business Analytics & Data Science equips students with essential data analysis skills and tools to make informed business decisions and drive strategic growth. The data is the most important element of any analysis and its interpretation for effective decision making in an organization. This course covers topics needed to solve problems involving data, which includes data science process which has the steps which are preparation collection and integration, characterization and presentation through visualization, analysis using machine learning and data mining and applications.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks					Total Marks
				Theory Marks		Practical Marks		CA	
CI	T	P	C	ESE	MSE	V	P	ALA	
04	00	00	04	60	30	10	00	50	150

Legends: CI-Classroom Instructions; T – Tutorial; P - Practical; C – Credit; SEE - Semester End Evaluation; MSE- Mid Semester Examination; V – Viva; CCE-Continuous and Comprehensive Evaluation; ALA- Active Learning Activities.

Course Content:

Sr. No	Course Content	Hrs	% Weightage
1	**Understanding Business Analytics** • Introduction: Meaning of Analytics • Evolution of Analytics • Need of Analytics • Categorization of Analytical Models • Data Scientist vs. Data Engineer vs. Business Analyst • Business Analytics in Practice • Types of Data	15	25%
2	**Introduction to Data Science** • Benefits and uses of data science • Facets of data • The data science process • The big data ecosystem **The Data Science Process** • Benefits and uses of data science • Defining research goals and creating a project charter • Retrieving data • Cleansing, Integrating, and transforming data • Exploratory data analysis • Build the models • Presenting findings and building applications	15	25%
3	**Introduction to Machine Learning (ML)** • Applications • The modelling process • Types of Machine Learning (ML) • Machine Learning (ML) tools **Text Mining and Text Analytics** • Text mining in the real world • Text mining techniques • Stemming and lemmatization • Decision tree classifier • Text mining tools	15	25 %

4	**Data Visualization** • Data visualization options • , Cross filter • Interactive dashboards • Dashboard development tools **Contemporary Issues** • Case Studies, Model Development	15	25%

Continuous Assessment:

Sr. No	Active Learning Activities	Marks
1	**Quiz:** Faculty will conduct MCQ test unit wise on GMIU Web Portal (10 MCQ's from each unit)	10
2	**Poster Presentation:** Students will prepare a poster for the topic issues and challenges in implementing business analytics and upload the PDF on GMIU Web Portal.	10
3	**Data Collection Exercise:** Faculty will provide specific instructions to students for data collection and students will collect the data and upload the excel file on GMIU Web Portal.	10
4	**Tool Exploration:** Students will explore various tools like (Tableau or Python's Matplotlib and Seaborn libraries) given by the faculty and prepare a detailed report on the benefits, use, limitations of the software and upload the PDF on GMIU Web Portal.	10
5	**Case Study:** Faculty will provide a topic and ideas related to case study. Students will prepare the solutions on the given case / situation and upload it to the GMIU web portal.	10
Total		50

Suggested Specification table with Marks (Theory): 60

Distribution of Theory Marks (Revised Bloom's Taxonomy)						
Level	Remembrance (R)	Understanding (U)	Application (A)	Analyze (N)	Evaluate (E)	Create (C)
Weightage	30%	30%	20%	10%	10%	0%

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcome:

After learning the course, the students should be able to:	
CO1	Understand the business analytics' evolution, types, roles, and ethical considerations, equipping them to address implementation challenges effectively.
CO2	Evaluate, Manage and visualize data effectively to understanding the complete data science project life cycle from data acquisition to deployment and optimization.
CO3	Analyze the fundamental techniques in data mining and machine learning, enabling them to analyze complex datasets and build intelligent systems for business applications.
CO4	Explore the practical insights into applying business analytics across various sectors and explore future trends in the field.

Instructional Method:

The course delivery method will depend upon the requirement of content and the needs of students. The teacher, in addition to conventional teaching methods by black board, may also use any tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

From the content 10% topics are suggested for flipped mode instruction. Students will use supplementary resources such as online videos, NPTEL/SWAYAM videos, e-courses. The internal evaluation will be done on the basis of Active Learning Assignment.

Practical/Viva examination will be conducted at the end of semester for evaluation of performance of students in the laboratory.

Reference Books:

[1] Provost, F., & Fawcett, T., Data Science for Business: What You Need to Know about Data Mining and Data-Analytic Thinking. O'Reilly Media.
[2] Siegel, E., Predictive Analytics: The Power to Predict Who Will Click, Buy, Lie, or Die. Wiley.
[3] Evans, J. R., Business Analytics: Methods, Models, and Decisions. Pearson.
[4] Shmueli, G., Patel, N. R., & Bruce, P. C., Data Mining for Business Analytics: Concepts, Techniques, and Applications in R. Wiley.
[5] Davy Cielen, Arno D. B. Meysman, Mohamed Ali, Introduction to Data Science, Dreamtech Press (Latest Edition)
[6] Rafael A. Irizarry, Introduction to Data Science, CRC Press