

Course code	Course Title	L	T	P	C
BMGT107L	Business Analytics	3	0	0	3
Pre-requisite	NIL	Syllabus version			
		1.0			
<b>Course Objectives</b>					
1. To summarize, analyze, and report the data for effective business decision-making. 2. To comprehend the advanced analytical tools available for various business problems. 3. To evaluate various analytical tools and choose the appropriate tool(s) for the given problem and data.					
<b>Course Outcomes</b>					
<b>At the end of the course, the students will be able to</b>					
1. Compare various BA tools and evaluate various data types and scales. 2. Examine the characteristics of data to summarize it effectively. 3. Apply various supervised and unsupervised learning algorithms to business problems. 4. Use different techniques of BA to any one of the management domains. 5. Create and interpret the data analysis report to make business decisions.					
<b>Module:1</b>	<b>Overview to Business Analytics (BA)</b>	<b>5 hours</b>			
Need for business analytics, BA Vs data science, BA Vs big data, terminologies - business intelligence, machine learning algorithms - supervised and unsupervised learning, and data mining, pillars of BA, roadmap for analytics, data types and scales, data cleansing and data preparation.					
<b>Module:2</b>	<b>Descriptive Analytics</b>	<b>9 hours</b>			
Descriptive analytics - measures of central tendency and dispersion, data visualization and exploration - histogram, bar chart, scatter plot, pie chart, box plot, and tree plot, probability, probability distributions, hypotheses testing, significance value ( $p$ -value) and relationship among variables.					
<b>Module:3</b>	<b>Regression Techniques</b>	<b>6 hours</b>			
Simple linear regression and multiple linear regression (MLR), - theory, assumptions, goodness of fit, and model comparison. Applications of simple linear regression, MLR, using business problem and data.					
<b>Module:4</b>	<b>Classification Techniques</b>	<b>8 hours</b>			
Binary logistic regression, decision tree, KNN, Naïve Bayes, LDA - theory and evaluations of classifiers (ROC and confusion matrix). Applications of binary logistic regression decision tree, KNN, Naïve Bayes, and LDA using business problem and data.					
<b>Module:5</b>	<b>Clustering and Dimensionality Reduction</b>	<b>6 hours</b>			
Basics and uses of cluster analysis (K-means and Hierarchical clustering), and dimensionality reduction (FA and PCA). Interpretations to the outputs of K-means clustering, Hierarchical clustering, FA, and PCA.					
<b>Module:6</b>	<b>Applications of BA</b>	<b>6 hours</b>			
Domain Applications of BA: HR analytics / marketing and retail analytics / web and social media analytics / financial analytics.					
<b>Module:7</b>	<b>Report Writing</b>	<b>3 hours</b>			
Report writing - summary, problem identification, objectives, data visualization and exploration, methodology, interpretations, findings, and conclusions.					
<b>Module:8</b>	<b>Contemporary Topics</b>	<b>2 hours</b>			
		<b>Total Lecture Hours:</b>	<b>45 hours</b>		
<b>Text Book(s)</b>					

1.	Dinesh Kumar U, <i>Business Analytics: The Science of Data-Driven Decision Making</i> , 2017, 1 <sup>st</sup> Edition, Wiley, India.		
2.	Jeffrey D. Camm, James J. Cochran, Michael J. Fry, Jeffrey W. Ohlmann, and David R. Anderson, <i>Essentials of Business Analytics</i> , 2017, 2 <sup>nd</sup> Edition, Cengage Learning Inc., USA.		
<b>Reference Books</b>			
1.	Evans, J. R., <i>Business Analytics: Methods, Models and Decisions</i> , 2021, 3 <sup>rd</sup> Edition, Pearson Education, USA.		
2.	Albright, S. C., and Winston, W. L., <i>Business Analytics: Data Analysis and Decision Making</i> , 2020, 7 <sup>th</sup> Edition, Cengage Learning India Pvt. Ltd, India.		
3.	Shmueli, G., Bruce, P. C., Yahav, I., Patel, N. R., and Lichtendahl, K. C., <i>Data Mining for Business Analytics: Concepts, Techniques, and Applications in R</i> , 2017, 1 <sup>st</sup> Edition, Wiley, USA.		
Mode of Evaluation: CAT, Written Assignment, Quiz, Project, Seminar, Group Discussion, Case Study, and FAT			
Recommended by Board of Studies		27-05-2022	
Approved by Academic Council		No. 66	Date 16-06-2022