Name of the Programme : **MBA (Financial Services)**
Course Code : **MGF-603**
Course Title : **Business Analytics**
Number of Credits : **4**
Effective from AY : **2022-23**

Pre-requisites for the Course:	**NIL**	
Course Objectives:	To familiarize the learners about the domain of business analytics andequip them with skills in descriptive, predictive and prescriptive analytics.	
Content:	**Unit 1** **: Introduction to Business Analytics** Meaning and significance of business analytics, Applications of business analytics, *Types of business analytics:* Descriptive analytics, Predictive analytics, Prescriptive analytics. Building analytics capability, Business analytics process, Role of business analytics in strategy. Deployment of business analytics model, Requirements for effective implementation of business analytics models, Big data analytics, Challenges in data driven decision making, Application software in business analytics. **Unit 2** **Descriptive Analytics** *Introduction to descriptive analytics*: Structured and unstructured data, Descriptive statistics. Data visualization: Univariate visualization, Bivariate visualization, Multivariate visualization. *Graphical exploratory data analysis* (Example: Box-plots, heatmap, Histograms, Scatterplots) *Building business intelligence dashboard*: Mapping, Interactive data charts, Association rules, Sequence rules, Segmentation rules: Cluster analysis (K-means and Hierarchical clustering), Social media analytics **Unit 3** **Predictive Analytics** *Regression models:* Introduction to classical linear regression model, Assumptions of CLRM, Specification and estimation of bivariate and multiple regression models, Statistical inference and hypothesis testing, Properties of least square estimators (BLUE), Model diagnostics, Model misspecification errors, Violation of regression assumptions. *Decision Tree:* Introduction, Chi-Square Automatic Interaction Detection (CHAID) tree development, Classification and Regression Tree (CART), Random Forest, Machine learning applications in decisiontree analysis. *Other techniques*: Discriminant analysis, Artificial Neural Network. **Unit 4** **Prescriptive Analytics** *Introduction to prescriptive analysis*: Linear programming (LP) model building, Sensitivity analysis inLP, Graphical solution to LP, Portfolio optimization techniques.	**15 Hours** **15 Hours** **20 Hours** **10 Hours**
Pedagogy:	Lectures/ case analysis/assignments/class room interaction/lab basedexercises.	
References/	1. Laursen, G. and Thorlund, J. (2010). *Business Analytics forManagers.*	

Readings:	Wiley. 2. Kumar, U. (2017). *Business Analytics: The Science of data-DrivenDecision Making.* Wiley. 3. Rao, P. (2013). *Business Analytics: An Application Focus*. PHILearing, Delhi. 4. Abbott, D. (2014). *Applied Predictive Analytics*, Wiley. 5. Winston, W. (2016). *Microsoft Excel Data Analysis and Business Modeling*, Pearson. 6. Tatsat, H., Puri, S., Lookabaugh, B. (2020). *Machine Learning and Data Science Blueprints for Finance*, O'Reilly Media Inc., Boston, USA. 7. Mitchelle, T. (2017). *Machine Learning*, McGraw Hill. 8. Kang, M. and Choi, E. (2021). *Machine Learning: Concepts, Toolsand Data Visualization*, World Scientific. 9. Gujarati, D. (2004). *Basic Econometrics*, McGraw Hill, New Delhi. Wooldridge (2006). *Introductory Econometrics*, Thomson-South Western, Singapore. *Latest edition*.
Course Outcomes:	Upon completion of the course learners will be able to: **CO1.** Explain the concepts in business analytics, its process and strategic significance. **CO2.** Perform descriptive analytics with data visualization, cluster analysis, and social media analytics. **CO3.** Apply techniques of regression models, decision trees, Discriminant analysis, and Artificial Neural Network in developing predictive models. **CO4.** Determine optimal solutions for given business resource problem with application of linear programming.

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