

Business Intelligence and Data Analytics

B. Sc. (Information Technology)		Semester – VI	
Course Name: Business Intelligence and Data Analytics		Course Code: USIT603	
Periods per week (1 Period is 50 minutes)		5	
Credits		2	
		Hour s	Marks
Evaluation System	Theory Examination	2½	75
	Internal	--	25

Course Objective:

- To understand the importance of business intelligence in facilitating effective and timely decision-making processes within organizations.
- Explore different classes of mathematical models and their applications in various decision-making scenarios.
- Understand the concept of classification problems and their applications in various domains.
- Study relational marketing models and their application in building and maintaining customer relationships.
- Study different types of organizational culture, including hierarchical, clan, adhocracy and market cultures.

Unit	Details	Lectures
I	Business intelligence: Effective and timely decisions, Data, information and knowledge, The role of mathematical models, Business intelligence architectures, Ethics and business intelligence Decision support systems: Definition of system, Representation of the decision-making process, Evolution of information systems, Definition of decision support system, Development of a decision support system	12
II	Mathematical models for decision making: Structure of mathematical models, Development of a model, Classes of models Data mining: Definition of data mining, Representation of input data, Data mining process, Analysis methodologies Data preparation: Data validation, Data transformation, Data reduction	12
III	Classification: Classification problems, Evaluation of classification models, Bayesian methods, Logistic regression, Neural networks, Support vector machines Clustering: Clustering methods, Partition methods, Hierarchical methods, Evaluation of clustering models	12
IV	Management Information System (MIS): Classification and Quality of Information, Marketing models: Relational marketing, Sales force management, Logistic and production models: Supply chain optimization, Optimization models for logistics planning, Revenue management systems.	12

	Data envelopment analysis, The CCR model, Identification of good operating practices	
V	Knowledge Management Metrics, Organizational Culture-Types and analysis, Organizational maturity model, Artificial Intelligence and Expert Systems: Concepts and Definitions of Artificial Intelligence, Artificial Intelligence Versus Natural Intelligence, Machine Learning- Data Distribution, Machine Learning Process, Tools, TensorFlow	12

Books and References:					
Sr. No.	Title	Author/s	Publisher	Edition	Year
1.	Business Intelligence: Data Mining and Optimization for Decision Making	Carlo Vercellis	Wiley	First	2009
2.	Fundamental of Business Intelligence	Grossmann W, Rinderle-Ma	Springer F	First	2015
3.	Decision support and Business Intelligence Systems	Efraim Turban, Ramesh Sharda, Dursun Delen	Pearson	Ninth	2011
4.	Machine learning	Saikat Dutt Subramanian Chandramouli	Pearson		

Course Outcome:

After completing the course, the learner will be able to:

- CO1: Learners can explore the concepts of Strategic Decision Support and Harnessing Data for Informed Business Decisions
- CO2: Application used for Data-Driven Mathematical Models and Data Mining for Informed Decision Making
- CO3: Managing data through Advanced Data Analysis Techniques: Classification, Clustering, and Model Evaluation
- CO4: Analyzing Strategic Information Management: Enhancing Decision-Making Across Marketing, Logistics, and Production
- CO5: Fact findings using Strategic Organizational Intelligence: Bridging Gaps, Cultivating Knowledge, and Embracing Artificial Intelligence