

Course Code	Course Title	L	T	P	C
OLMCA611	Data Mining Techniques	3	1	0	4
Pre-requisite	NIL	Syllabus version			
		1.0			
Course Objectives:					
1. To understand the fundamental data mining methodologies and with the ability to formulate and solve problems. 2. To classify data mining systems and understand methods for data gathering and data pre -processing. 3. To learn data mining techniques, for solving real world problem.					
Course Outcomes:					
1. Understand the basics of data techniques and their applications real world scenarios. 2. Apply the data pre-processing techniques in solving a real-world problem. 3. Apply frequent pattern analysis in business analytics 4. Design appropriate classification techniques and association rule generation. 5. Deploy of advanced classification techniques in real world applications. 6. Comprehend clustering techniques and discover the knowledge imbibed in the high dimensional system.					
Module:1	Data Mining Concepts				
Introduction to Data Mining - Data Mining: An Essential Step in Knowledge Discovery - Diversity of Data types for Data Mining - Mining Various Kinds of Knowledge - Data Mining: Confluence of Multiple Disciplines - Data Mining and Applications.					
Module:2	Data, Measurements and Data Pre-processing				
Data Types, Statistics of data - Similarity and Distance Measures - Data Quality, Data Cleaning, and Data Integration - Data Transformation - Dimensionality Reduction.					
Module:3	Frequent Pattern Mining				
Basic Concepts – Market Basket Analysis - Efficient and Scalable Frequent Item Set Mining Methods – The Apriori Algorithm – Frequent Pattern Growth Algorithm- Various Kinds of Association Rules- Association Mining to Correlation Analysis.					
Module:4	Classification				
Basic Concepts -Decision Tree Induction - Bayesian Classification - KNN Classifier - Rule-Based Classifier - Model Evaluation and Selection.					
Module:5	Cluster Analysis				
Basic Concepts – Types of Data in Cluster Analysis - Major Clustering Methods- The K-Means Method.					
Module:6	Clustering				
Similarity and Distance Measures - Hierarchical Algorithms - Partitioning Algorithms - Clustering with Categorical Attributes.					
Module:7	Deep Learning				
Basic Concepts – Improve Training of Deep Learning Models - Convolutional Neural Networks - Recurrent Neural Networks.					
	Total Lecture hours:				120 hours
Text Book(s)					

1.	Hanghang Tong, Jian Pei, Jiawei Han. Data Mining: Concepts and Techniques, 2022, 4 th edition, Morgan Kaufmann.		
Reference Books			
1.	Pang-Ning Tan, Michael Steinbach, Anuj Karpatne and Vipin Kumar. Introduction to Data Mining, 2021, 2 nd edition, Pearson Education.		
2.	Charu C. Aggarwal, Data Mining: The Textbook, 2015, 2015th edition, Springer.		
Mode of Evaluation: Quiz / Assignment / Mid-Term, FAT			
Recommended by Board of Studies		01-11-2023	
Approved by Academic Council		No. 72	Date: 13-12-2023