

## **MCA 406B: Data Mining Techniques**

DSS-Uses, definition, Operational Database. Introduction to DATA Warehousing. Data-Mart, Concept of Data-Warehousing, Multi Dimensional Database Structures. Client/Server Computing Model & Data Warehousing. Parallel Processor & Cluster Systems. Distributed DBMS implementations. DATA Warehousing. Data Warehousing Components, Building a Data Warehouse, Warehouse Database, Mapping the Data Warehouse to a Multiprocessor Architecture, DBMS Schemas for Decision Support, Data Extraction, Cleanup & Transformation Tools, Metadata Business Analysis: Reporting & Query Tools & Applications. On Line Analytical Processing (OLAP).Patterns & Models. Statistics, Artificial Intelligence. Knowledge Discovery, Data Mining, Introduction to Data-Mining, Techniques of Data Mining, Decision Tree, Neural Networks, Nearest Neighbor & Clustering. Genetic Algorithm, Rule Introduction, Selecting& using the right Techniques. Multimedia Data-Mining, Multimedia Databases, Mining Multimedia Data, Data-Mining and the world Wide Web, Web Data Mining, mining, Mining and Meta-Data, Data Visualization & overall Perspective, Data Visualization, Application of Data-Mining Introduction to Data Mining and knowledge discovery in databases (KDD); Data mining primitives, concepts, tasks and functionalities - concept learning, classification and prediction, association rule mining, clustering and anomaly detection; Data preparation - cleaning, transformation, reduction, discretization; Techniques, approaches and evaluation: Credibility, evaluation and comparison of data mining models; Association rule mining techniques - Apriori, Partition-based, FP-tree, Pincer-search; Supervised (inductive) learning - Decision table, rule ,tree; Model tree, Baye"s theorem, k-nearest neighbour, Regression, SVM; Unsupervised learning– Clustering Techniques - Partition, k-d tree, Hierarchical, Density, Grid, Advanced Databases: Text, Sequence, Image, etc.

### **References:**

1. J. Han, M. Kamber, Data Mining: Concepts and Techniques, Morgan Kaufmann, 2007
2. I.H. Witten, E. Frank, Data mining: Practical Tools and Techniques with Java Implementations, Morgan Kaufmann 1999
3. P-N. Tan, V. Kumar and M. Steinbach: Introduction to Data Mining, Pearson, 2007
4. D. Hand, H. Mannila, P. Smyth, Principles of Data Mining, Indian reprint, PHI 2004