

DATA WAREHOUSING AND DATA MINING

Subject Code: 10CS755
Hours/Week : 04
Total Hours : 52

I.A. Marks : 25
Exam Hours: 03
Exam Marks: 100

PART - A

UNIT - 1

6 Hours

Data Warehousing:

Introduction, Operational Data Stores (ODS), Extraction Transformation Loading (ETL), Data Warehouses. Design Issues, Guidelines for Data Warehouse Implementation, Data Warehouse Metadata

UNIT - 2

6 Hours

Online Analytical Processing (OLAP): Introduction, Characteristics of OLAP systems, Multidimensional view and Data cube, Data Cube Implementations, Data Cube operations, Implementation of OLAP and overview on OLAP Softwares.

UNIT - 3

6 Hours

Data Mining: Introduction, Challenges, Data Mining Tasks, Types of Data, Data Preprocessing, Measures of Similarity and Dissimilarity, Data Mining Applications

UNIT - 4

8 Hours

Association Analysis: Basic Concepts and Algorithms: Frequent Itemset Generation, Rule Generation, Compact Representation of Frequent Itemsets, Alternative methods for generating Frequent Itemsets, FP Growth Algorithm, Evaluation of Association Patterns

PART - B

UNIT - 5

6 Hours

Classification - 1 : Basics, General approach to solve classification problem, Decision Trees, Rule Based Classifiers, Nearest Neighbor Classifiers.

UNIT - 6

6 Hours

Classification - 2: Bayesian Classifiers, Estimating Predictive accuracy of classification methods, Improving accuracy of classification methods, Evaluation criteria for classification methods, Multiclass Problem.



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UNIT – 7**8 Hours**

Clustering Techniques: Overview, Features of cluster analysis, Types of Data and Computing Distance, Types of Cluster Analysis Methods, Partitional Methods, Hierarchical Methods, Density Based Methods, Quality and Validity of Cluster Analysis

UNIT – 8**6 Hours**

Web Mining: Introduction, Web content mining, Text Mining, Unstructured Text, Text clustering, Mining Spatial and Temporal Databases.

Text Books:

1. Pang-Ning Tan, Michael Steinbach, Vipin Kumar: Introduction to Data Mining, Pearson Education, 2005.
2. G. K. Gupta: Introduction to Data Mining with Case Studies, 3rd Edition, PHI, New Delhi, 2009.

Reference Books:

1. Arun K Pujari: Data Mining Techniques 2nd Edition, Universities Press, 2009.
2. Jiawei Han and Micheline Kamber: Data Mining - Concepts and Techniques, 2nd Edition, Morgan Kaufmann Publisher, 2006.
3. Alex Berson and Stephen J. Smith: Data Warehousing, Data Mining, and OLAP Computing, Mc GrawHill Publisher, 1997.

NEURAL NETWORKS

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PART – A**UNIT – 1****7 Hours****Introduction**

What is a Neural Network?, Human Brain, Models of Neuron, Neural Networks viewed as directed graphs, Feedback, Network Architectures, Knowledge representation, Artificial Intelligence and Neural Networks.

UNIT – 2**6 Hours****Learning Processes – 1**

Introduction, Error-correction learning, Memory-based learning, Hebbian learning, Competitive learning, Boltzmann learning, Credit Assignment problem, Learning with a Teacher, Learning without a Teacher, Learning tasks, Memory, Adaptation.

UNIT – 3**7 Hours**

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