SCHEME OF COURSE WORK

Department of Information Technology

Course Details:

Course Title	*Data Warehousing and Data mining*
Course Code	: *13IT2114*
Program:	: M.TECH
Specialization:	Software Engineering
Semester	I
Prerequisites	: Database Management Systems
Courses to which it is a prerequisite:--	

Course Outcomes (COs):

CO No.	Course outcomes
CO1	Apply data preprocessing techniques.
CO2	Design data warehouse schema.
CO3	Discover associations and correlations in given data.
CO4	Apply classification techniques.
CO5	Apply clustering techniques.

Course Outcome versus Program Outcomes:

Course outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1		M	M	S	S	S				M	S
CO2		S	S	S	S	M	M				S
CO3		S	S	S	S	M	M				S
CO4		S	S	S	S	M					S
CO5		S	S	S	S	M					S

Assessment Methods: Assignment / Quiz / Seminar / Case Study / Mid-Test / Assignment,Mid-Test

Teaching-Learning and Evaluation

Week	TOPIC / CONTENTS	Course Outcomes	**Sample questions**	TEACHING-LEARNING STRATEGY	Assessment Method & Schedule
1	Introduction:Data mining-On what kinds of Data, Data Mining Functionalities, Classification of Data Mining systems, Data Mining Task Primitives	CO-1	1.Define Data mining. 2.Compare and contrast Data, information and knowledge.	▫ Lecture / Discussion	Assignment (Week 7-8) Mid-Test 1 (Week 9)
2	Integration of a Data Mining System with a Database or Data Warehouse System, Major issues in Data Mining.	CO-1	. 1. What is the difference between prediction and classification	▫ Lecture / Discussion	Assignment (Week 7-8) Mid-Test 1 (Week 9)
3	Data Preprocessing: Descriptive data summarization, Data Cleaning, Data Integration and Transformation,	CO-1	1.What is the need of Preprocessing.	▫ Lecture / Discussion ▫ Problem solving	Mid-Test 1 (Week 9)
4	Data Reduction, Discretization and Concept Hierarchy Generation.	CO-1	1. What are the phases in preprocessing.	▫ Lecture / Discussion ▫ Problem solving	Assignment (Week 7-8) Mid-Test 1 (Week 9)
5	Data Warehouse and OLAP Technology: Multidimensional Data Model, Data WarehouseArchitecture	CO-2	1.What is the model used for construction of a warehouse. 2. Whar are the ways in which the warehouse may be coupled with the data mining system 3. Expand OLAP system 4. Give the difference between OLAP and OLTP.	▫ Lecture ▫ Problem solving	Mid-Test 1 (Week 9)

6	Data Warehouse Implementation, From Data Warehousing to Data Mining	CO-2	1.What are the application areas of OLAP system.	▫ Lecture / Discussion ▫ Problem solving	Assignment (Week 7-8) Mid-Test 1 (Week 9)
7	Data Cube Computation and Data Generalization: Efficient methods for Data Cube Computation, Further Development of Data Cube and OLAP Technology, Attribute-Oriented Induction.	CO-2	1 Explain BUC algorithm.	▫ Lecture / Discussion ▫ Problem solving	Assignment (Week 7-8) Mid-Test 1 (Week 9)
8	Mining Frequent Patterns, Association and Correlations: Basic concepts, Efficient and Scalable Frequent Itemset Mining Methods	CO-3	1.Differnce between association and correlation. 2. When is an item said to be frequent. 3. Define support and confidence.	▫ Lecture / Discussion ▫ Problem solving	Assignment (Week 7-8) Mid-Test 1 (Week 9)
9	Mid-Test 1	CO-3			
10	Mining Various kinds of Association Rules	CO-3	1. What is the purpose of mining frequent item sets. 2.What re the drawbacks of apriori algorithm.	▫ Lecture / Discussion ▫ Problem solving	Assignment (Week 15-17) Mid-Test 2 (Week 18)
11	From Association Mining to Correlation Analysis, Constraint Based Association	CO-3	1 What are constraints imposed over assoc rules.	▫ Lecture / Discussion ▫ Problem solving	Assignment (Week 15-17) Mid-Test 2 (Week 18)
12	Classification and Prediction-1: Issues Regarding Classification and Prediction, Classification by Decision Tree Induction	CO-4	1.Give the formula for gainratio. 2. What is bayes rule. 3. Give the formula for error in back propagation classification.	▫ Lecture / Discussion ▫ Problem solving	Assignment (Week 15-17) Mid-Test 2 (Week 18)
13	Bayesian Classification,Rule-Based Classification, Classification by	CO-4	1. What is the basic ides in ID3 algorithm.	▫ Lecture / Discussion ▫ Problem solving	Assignment (Week 15-17) Mid-Test 2 (Week 18)

	Backpropagation.		2.What is training set.		
14	Classification and Prediction-2: Support Vector Machines, Association Classification, Other Classification Methods	CO-4	1 What are the different types of SVM's.	▫ Lecture / Discussion ▫ Problem solving	Assignment (Week 15-17) Mid-Test 2 (Week 18)
15	Prediction, Accuracy and Error Measures, Evaluating the Accuracy of a Classifier or Predictor.	CO-4	1 Give the formula for accuracy.	▫ Lecture / Discussion ▫ Problem solving	Assignment (Week 15-17) Mid-Test 2 (Week 18)
16	Cluster Analysis Introduction :Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Methods, Hierarchical Methods,	CO-5	1.Define cluster. 2. Give the formula for precision and recall. 3. What is clusterability.	▫ Lecture / Discussion ▫ Problem solving	Assignment (Week 15-17) Mid-Test 2 (Week 18)
17	Density-Based Methods, Grid-Based Methods, Model-Based Clustering Methods, Outlier Analysis	CO-5	1. Mention different types of clustering techniques 1.Give example for Partional clustering.	▫ Lecture / Discussion ▫ Problem solving	Assignment (Week 15-17) Mid-Test 2 (Week 18)
18	Mid-Test 2				
19/20	END EXAM				