COURSE CODE	COURSE TITLE	L	T	P	C
1151CS114	DATA WAREHOUSING AND DATA MINING	3	0	0	3

Course Category: Program Core

A. Preamble:

To introduce the necessary background, the basic algorithms, and the applications of computer graphics and image processing.

B. Pre-requisite

Sl. No	Course Code	Course Name
1	1151CS107	Database Management System

C. Link to Other courses

Sl. No	Course Code	Course Name
1	1156CS601	Minor Project
2	1156CS701	Major Project

D. Course Educational Objective

Students undergoing this course are expected to

- Introduction to computer graphics leading to the ability to understand contemporary terminology, progress, issues, and trends.
- Explain the thorough introduction to computer graphics techniques, focusing on Modeling.
- Basics of the Image Processing, Segmentation and Restoration

E. Course Outcomes

CO Nos.	Course Outcomes	Level of learning domain (Based on revised Bloom's taxonomy)
CO1	Explain and identify the subject areas for which a data warehouse is to be built.	K2
CO2	Design Multidimensional data model for data warehouse and analyze the market needs by applying the suitable OLAP operations.	K3
CO3	Explain the concept of Data mining system and apply the various preprocessing techniques on large dataset.	K2
CO4	Apply Association rule mining, classification and clustering techniques to discover various mining patterns.	K3
CO5	Apply clustering techniques in various data mining applications	K3

F. **Correlation of COs with Programme Outcomes:**

Cos	PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO11	PO 12	PSO 1	PSO 2	PSO 3
CO1	H	L	M	H										M	
CO2	H	H	M	H		M		M	M	M		L		M	M
CO3	H	H	H	M					L			M	M	M	L
CO4	H	M	H	M		M		M	L				H	H	M
CO5	H	L	H	L	M	M		M				M	H	H	M

H- Strong; M-Medium; L-Low

G. Course content

UNIT I DATA WAREHOUSING **L-10**

Introduction to Data warehousing – Evolution of Decision Support systems – Modeling a Data Warehouse – Granularity in the Data Warehouse - Building a Data Warehouse – Data Warehouse Components –Data Warehouse Architecture - Metadata.

UNIT II BUSINESS ANALYSIS **L-9**

Mapping the Data Warehouse to a Multiprocessor Architecture – DBMS Schemas for Decision Support – Data Extraction, Cleanup, and Transformation Tools –. Reporting and Query tools and Applications –Online Analytical Processing (OLAP) – Need – Multidimensional Data Model – OLAP Guidelines – Multidimensional versus Multirelational OLAP – Categorization of OLAP Tools.

UNIT III DATA MINING **L-8**

Introduction to Data mining and Knowledge Discovery – Data – Databases – Data Mining Functionalities – Steps in Data Mining Process, Architecture of Typical Data Mining systems – Classification of Data Mining Systems – Data Mining Task Primitives – Overview of Data mining Techniques – Issues –Data Preprocessing.

UNIT IV ASSOCIATION RULE MINING AND CLASSIFICATION **L-10**

Mining Association Rules in Large Databases – Mining Various Kinds of Association Rules – Correlation Analysis –Constraint Based Association Mining – Classification and Prediction - Basic Concepts - Decision Tree Induction - Bayesian Classification –Classification by Back propagation – Support Vector Machines – Associative Classification – Lazy Learners – Other Classification Methods – Prediction.

UNIT V CLUSTERING, APPLICATIONS AND TRENDS IN DATA MINING **L-8**

Cluster Analysis - Types of Data – Categorization of Major Clustering Methods - K- means – Partitioning Methods – Hierarchical Methods - Outlier Analysis – Data Mining Applications – Social Impacts of Data Mining – Mining WWW - Mining Text Database – Mining Spatial Databases - Case Studies (Simulation Tool). **TOTAL: 45 Hours**

H. Learning Resource

i. Text Books

1. W.H. Inmon, "Building the Data Warehouse", John Wiley & Sons, Inc, 4th Edition, 2005.
2. Alex Berson and Stephen J. Smith, "Data Warehousing, Data Mining & OLAP", Tata McGraw – Hill Edition, Tenth Reprint 2007.
3. Jiawei Han and Micheline Kamber, "Data Mining Concepts and Techniques", Third Edition, Elsevier, 2012.

ii. **Reference Books**

1. Pang-Ning Tan, Michael Steinbach and Vipin Kumar, "Introduction to Data Mining", Person Education, 2007.
2. K.P. Soman, Shyam Diwakar and V. Ajay ", Insight into Data mining Theory and Practice", Easter Economy Edition, Prentice Hall of India, 2006.
3. G. K. Gupta, "Introduction to Data Mining with Case Studies", Easter Economy Edition, Prentice Hall of India, 2006.
4. Daniel T.Larose, "Data Mining Methods and Models", Wile-Interscience, 2006.

iii Web References

1. www.slideshare.net/.../data-warehousing-and-data-mining-presentation
2. www.wright.edu/~arijit.sengupta/mis710/notes/lect6a-datamining.ppt
3. https://www.cse.iitb.ac.in/infolab/Data/Talks/krithi-talk-impact.ppt