CS-605: DATA MINING & DATA WAREHOUSING

Teaching and Examination Scheme:

Teaching Scheme			Credits	Marks			Duration of End Semester Examination
L	T	P/D	C	Sessional	End Semester Exams	Total	
3	1	0	4	40	60	100	3Hrs

COURSE OBJECTIVE:

The course should enable the students to understand the basic concepts of data mining and its functionalities, obtain knowledge in different data mining techniques and algorithms and to go through various application domains of data mining.

COURSE CONTENT:

UNIT	CONTENT	No. Hrs
I	**Data warehousing:** Definition, data warehouse users, 3- Tier data warehouse architecture, data warehouse features: subject oriented data, integrated data, time variant data, nonvolatile data, data granularity. **Data warehouse process & architecture:** Introduction, characteristics of data warehouse architecture, goals, OLTP vs. OLAP, OLAP in the data warehouse, types of OLAP servers (MOLAP, ROLAP and HOLAP), distributed and virtual data warehouses, infrastructure as the foundation for data warehousing, data ware house security, backup and recovery.	10
II	**DW tools and technologies:** Reporting and query tools, the need for applications, extraction, cleansing and transformation tools, DW admin and management tools, data marts-reasons and issues. **Data warehouse schema:** Dimensional modeling, the star schema, the snowflake schema, aggregate tables, data warehouse and the data model. **Data Warehousing Design:** Designing, dimensionality modeling, design methodology, data warehousing and web, DW design using Oracle, data warehouse development, testing, growth and maintenance.	10
III	**Data mining:** Basics & tasks, data mining user's perspective, other issue, foundation of data mining, measuring data mining effectiveness, data mining architecture, the knowledge discovery process, integrating data mining with data warehousing, KDD vs. data mining, DBMS vs. data mining. **Frequent pattern mining:** Mining associate rule, application, variation, FIM, optimal FIM algorithm, incremental mining, and sequential rule.	10

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	Data mining techniques: Clustering techniques, decision tree, clustering analysis, case-based reasoning, genetic algorithms, knowledge discovery through neural networks & generic algorithm, rough sets, support victor machines and fuzzy techniques.	
IV	**Moving into Data mining:** Relational data, transactional data, and multi-dimensional data, data stream, application of data mining, web mining, text mining, temporal data mining, sequence mining, time series analysis, spatial data mining, issue and challenges in data mining, current trends in data mining. **Mining Complex data objects:** Multimedia databases, time series and sequence data, mining text databases and mining world wide web.	9

Text Books:

1. Paulraj Ponniah , ***"Data warehousing Fundamentals"***, India Edition.
2. ReemaThareja, ***"Data warehousing"*** , Oxford University press.
3. Jiawei Han &Micheline Kamber ,Morgan Kaufmann , ***"Data Mining concepts & Techniques"*** .

Reference Book:

1. Pudi, ***"Data Mining"***, Oxford University press.
2. Arun Pujari , ***"Data Mining Techniques"***, University Press; Hyderabad .
3. Alex Berson, ***"Data Warehousing , Data Mining and OLAP"***,, McGraw Hill
4. Mallach, ***"Data Warehousing System"***, McGraw Hill
5. W.H. Longhman, C.Klelly, ***"Managing the Data Warehouses"***, John Wiley & Sons.
6. Miner, RandallMatignon, ***"Data Mining using SAS Enterprise"***, Willey India Edition.
7. Ravindernath, B , ***"Decision support Systems & Data Warehouses"***, New Age Internationa Publishers, New Delhi.