

Devi Ahilya University, Indore, India Institute of Engineering & Technology			ME I Year Information Technology (Sp. Information Security) Semester- A				
Subject Code & Name	Instructions Hours per Week			Credits			
ISR1G1: Advanced Database Management Systems	L	T	P	L	T	P	Total
Duration of Theory Paper: 3 Hours	3	1	0	3	1	0	4

Course Objective:

To enhance the understanding of practical issues related to advance topics of Database systems.

COURSE CONTENT

Unit I : Introduction to Data Warehousing and Data Mining

Introduction to Knowledge discovery process, OLTP, OLAP, Data Mining: Functionalities, Process, Schemas and Applications etc.; Data Warehouse : Construction and other issues.

Unit II : Transaction Processing and Concurrency Control

Introduction, Properties; Schedules, Types of Schedules, Characterizing Schedules, Serializability, Two-phase locking, Dealing with Deadlock and Starvation, Time Stamp Ordering and Multi version Concurrency control etc.

Unit III : Data Storage, Indexing and Physical Database Design

Types of Files, Introduction to Hashing, Multilevel Indexes, B-trees, B+ -trees, Indexes on Multiple Keys, Overview of Physical Database Design and Database Tuning in Relational Databases

Unit IV : Query Optimization

Introduction to Query Optimization, Overview of algorithms used in External Sorting and other SQL operations, Use of Heuristics, Cost Estimation and Selectivity used in Query Optimization, Semantic Query Optimization etc.

Unit V : Distributed Databases and Security

Concepts, Types and Query Processing in Distributed Databases, Data Fragmentation, Replication and Allocation Techniques, Introduction to Database Security Issues, Access Control Policy, Statistical Database Security etc.

Text and Reference books:

- [1] Fundamentals of Database Systems, Elmasri and Navathe, Pearson Education, 6th Edition, 2014.
- [2] Data Mining Concepts and Techniques, Han and Kamber, Morgan Kauffman, 3rd Edition, India, 2012.
- [3] Database System Concepts, Silberchatz, Korth, Sudarshan, Mcgraw Hill, 6th Edition, 2010.
- [4] Database Systems : A practical Approach to Design, Implementation, and Management, Connolly and Begg, Pearson Education, 6th Edition, 2014.