Semester	**6**
Course	**MAJOR**
Paper Code	
Paper Title	**ADVANCED DATABASE MANAGEMENT SYSTEM AND DATA WAREHOUSING**
No. of Credits	**4**
Theory / Practical / Composite	**THEORY**
Minimum No. of preparatory hours per week a student has to devote	**5**
Number of Modules	**ONE**
Syllabus	Transaction Management and Concurrency Control: States of Transaction, ACID properties, consistency model, storage model, cascading rollback, recoverable schedules. Concurrency: Schedules, testing for serializability, Lock-based protocols - Two-phase locking protocol, Timestamp based protocol, deadlock handling. Recovery: Failure classification, storage hierarchy, log-based recovery, shadow paging. Query processing and optimization: Steps of query processing, query interpretation, equivalence of expression, estimation of cost, join strategies Distributed Database: Principles of distributed database, levels of distribution transparency, data fragmentation, replication and allocation techniques. Data warehousing: Basic Concepts, OLTP, Advantages and Drawbacks of Data Warehouse, Data Warehouse Architecture. Data Warehouse Schema: Star, Snowflake, Fact Constellation. Data Marts: Basic concepts, Advantages and drawbacks, Components. Data Warehouse Design: Different views of designs, processes of design. On-line Analytical Processing: Concepts of OLAP, Multi-dimensional Data Model; OLAP Operations..
Learning Outcomes	1. To give an overview of the theoretical foundations of advanced database concepts like transactions, concurrency and recovery. 2. To illustrate various locking protocols, discussing the pros and cons of the techniques. 3. To familiarize with various types of failures and recovery

	techniques. 4. To learn the basic concepts of warehousing, schemas. 5. To understand Data Marts 6. To learn and design data warehouses 7. To understand the concept of OLAP and its operations.	
Reading/Reference Lists	1. Elmasri Navathe, Fundamentals of Database System, 3/e, Pearson Education. 2. Korth, Silberschatz: Database System Concepts, McGraw Hill 3. Ceri and Pelagatti, Distributed Databases: Principles and System: McGraw Hill 4. Data Mining: Concepts and techniques, J Han and M Kamber, Third Edition, Elsivier.	
Evaluation	Theory CIA: 12 Attendance: 3 Semester Exam: 45	Practical CA: 38 Attendance: 2
Paper Structure	Answer 3 out of 5 of 15 marks each	