

CLASS: B. Sc (Information technology)		Semester – II
SUBJECT: DBMS (USIT204)		
Periods per week	Lectures – 5	3 Credits

Unit – I	Introduction to Databases and Transactions : What is database system, purpose of database system, view of data, relational databases, database architecture, transaction management,	8 Lect
Unit- II	Data Models : The importance of data models, Basic building blocks, Business rules, The evolution of data models, Degrees of data abstraction.	8 Lect
Unit- III	Database Design, ER-Diagram and Unified Modeling Language: Database design and ER Model:overview, ER-Model, Constraints, ER-Diagrams, ERD Issues, weak entity sets, Codd's rules, Relational Schemas, Introduction to UML Relational database model: Logical view of data, keys, integrity rules. Relational Database design: features of good relational database design, atomic domain and Normalization (1NF, 2NF, 3NF, BCNF).	8 Lect
Unit- IV	Relational Algebra and Calculus: Relational algebra: introduction, Selection and projection, set operations, renaming, Joins, Division, syntax, semantics. Operators, grouping and ungrouping, relational comparison. Calculus: Tuple relational calculus, Domain relational Calculus, calculus vs algebra, computational capabilities.	8 Lect
Unit- V	Constraints, Views and SQL: What is constraints, types of constrains, Integrity constraints, Views: Introduction to views, data independence, security, updates on views, comparison between tables and views SQL: data definition, aggregate function, Null Values, nested sub queries, Joined relations. Triggers.	8 Lect
Unit- VI	Transaction management and Concurrency control: Transaction management: ACID properties, serializability and concurrency control, Lock based concurrency control (2PL, Deadlocks),Time stamping methods, optimistic methods, database recovery management.	8 Lect

Books:

A Silberschatz, H Korth, S Sudarshan, “*Database System and Concepts*”, *fifth Edition* McGraw-Hill ,
Rob, Coronel, “*Database Systems*”, *Seventh Edition*, Cengage Learning

Term Work for USIT204

- i) Assignments: Should contain at least 2 assignments covering the Syllabus.
- ii) Class Tests: One. Also Known as Unit Test or In-Semester Examinations
- iii) Tutorial : Minimum Three tutorials covering the syllabus

Practicals (USIT2P4):

Journal Practical	3 Lectures per Week (1 Credit)
List of Practical:	
<ol style="list-style-type: none">1. Design a Database and create required tables. For e.g. Bank, College Database2. Apply the constraints like Primary Key , Foreign key, NOT NULL to the tables.3. Write a sql statement for implementing ALTER,UPDATE and DELETE4. Write the queries to implement the joins5. Write the query for implementing the following functions: MAX(),MIN(),AVG(),COUNT()6. Write the query to implement the concept of Intergrity constrains7. Write the query to create the views8. Perform the queries for triggers9. Perform the following operation for demonstrating the insertion , updation and deletion using the referential integrity constraints10. Write the query for creating the users and their role.	