

Course: Major
Relational Database Management System

Semester: II	Credits: 2	Subject Code: BCMAJCLA223142	Lectures: 30
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Course Outcomes:

At the end of this course the learner will be able to,

- CO1-Gain knowledge about PL/SQL scripts.
- CO2-Recognize relational database management concepts.
- CO3-Apply their mind to various concurrency control techniques.
- CO4-Analyze their mind in recovering the data from database.

Unit 1: Introduction to RDBMS ,PL/SQL and Transaction Management	15
<ul style="list-style-type: none"> • Introduction to RDBMS • Difference Between DBMS and RDBMS • Relationship among application programs and RDBMS • Overview of PL/SQL • Data types: %type, % row type, numeric, character, date • Operators and Control Statements • Exception Handling: Predefined, User-defined • Functions, Procedures • Cursor: Definition, types (Implicit, Explicit, Parameterized) • Trigger • Transaction Concept • Transaction Properties • Transaction States • Implementation of Atomicity and Durability • Concurrent Execution • Serializability: Types: Conflict and View Serializability • Recoverability • Recoverable Schedule • Cascadeless Schedule 	

Unit 2: Concurrency Control and Recovery System	15
<ul style="list-style-type: none"> • Lock Based Protocol : Locks, Granting of Locks, Two Phase locking Protocol • Timestamp Based Protocol : Timestamp, Timestamp Ordering Protocol • Thoma's Write Rule • Graph based protocol • Validation Based Protocol • Deadlock Handling- Deadlock Prevention , Deadlock detection, Deadlock Recovery • Failure Classification : Transaction Failure, System Crash, Disk Failure 	

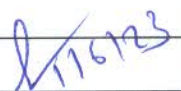
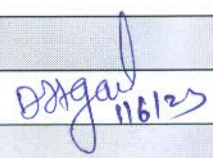
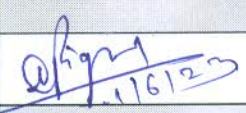
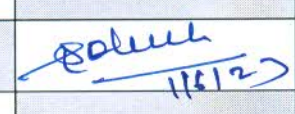
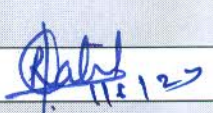
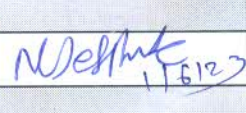
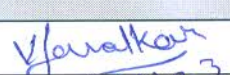
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- Storage Structures: Storage Types, Data Access
- Recovery and Atomicity - Log based Recovery , Deferred Database Modification , Immediate Database Modification, Checkpoints
- Recovery with Concurrent Transaction :Transaction Rollback, Restart Recovery
- Advance Recovery Techniques - Logical undo logging, Transaction rollback , Checkpoints , Restart recovery, Fuzzy check pointing
- Remote Backup System

- Recommended Text Books:**
- Henry korth, A Silberschatz, *Database System Concepts*, Tata McGraw-Hill publication fifth edition 2006.
 - Ivan Bayross, *SQL, PL/SQL The Programming Language* , BPB Publication.

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