

**Course: Major**  
**Relational Database Management System**

<b>Semester: II</b>	<b>Credits: 2</b>	<b>Subject Code: BCMAJCLA223142</b>	<b>Lectures: 30</b>
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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.

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

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



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Chairperson (HoD)	BBA(CA)	Mrs. Smita Borkar	<i>[Handwritten Signature]</i>

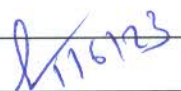
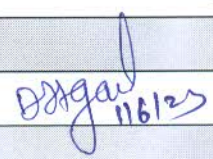
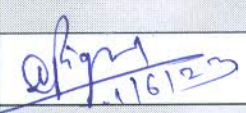
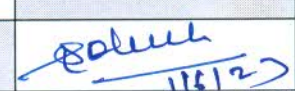
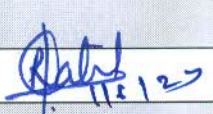
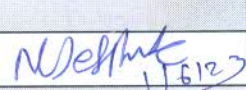
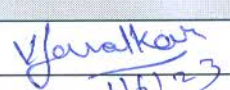
- Storage Structures: Storage Types, Data Access
- Recovery and Atomicity - Log based Recovery , Deferred Database Modification , Immediate Database Modification, Checkpoints
- Recovery with Concurrent Transaction :Transaction Rollback, Restart Recovery
- Advance Recovery Techniques - Logical undo logging, 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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