



**Relational Database
Relational Database
[CORE COURSE]**

Semester: II	Credits: 3	Subject Code: BC22004	Lectures: 48
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Course Outcomes:

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

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

Unit 1: Introduction to RDBMS and PL/SQL	14
<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, %rowtype, numeric, character, date • Operators and Control Statements • Exception Handling: Predefined, User-defined • Functions, Procedures • Cursor: Definition, types (Implicit, Explicit, Parameterized) • Trigger • Package 	
Unit 2: Transaction Management	6
<ul style="list-style-type: none"> • Transaction Concept • Transaction Properties • Transaction States • Concurrent Execution • Serializability: Types: Conflict and View Serializability • Recoverability • Recoverable Schedule • Cascadeless Schedule 	
Unit 3: Concurrency Control	12
<ul style="list-style-type: none"> • Lock Based Protocol : Locks, Granting of Locks, Two Phase locking Protocol • Timestamp Based Protocol : Timestamp, Timestamp Ordering Protocol , 	

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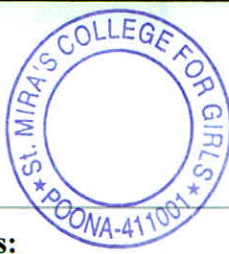
<p>Thoma's Write Rule</p> <ul style="list-style-type: none"> • Graph based protocol • Validation Based Protocol • Deadlock Handling: <ul style="list-style-type: none"> ○ Deadlock Prevention ○ Deadlock Detection ○ Deadlock Recovery 	
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Unit 4: Recovery System	8
<ul style="list-style-type: none"> • Failure Classification : Transaction Failure, System Crash, Disk Failure • Storage Structures: Storage Types, Data Access • Recovery and Atomicity <ul style="list-style-type: none"> ○ Log based Recovery ○ Deferred Database Modification ○ Immediate Database Modification ○ Checkpoints • Recovery with Concurrent Transaction :Transaction Rollback, Restart Recovery • Remote Backup System 	

Unit 5: Database Security and Authorization	8
<ul style="list-style-type: none"> • Introduction to Database Security and Issues : Types of Security, Database Security and the DBA, Access Protection, User accounts and Database Audit • Discretionary Access Control Based on Granting and Revoking Privileges: Types of Discretionary Privileges, Specifying Privileges using views, Revoking Privileges, Propagation of Privileges using GRANT option, Specifying limits on Propagation of Privileges • Mandatory Access Control and Role-Based Access Control for Multilevel security: Comparing Discretionary Access Control and Mandatory Access Control, Role-Based Access Control, Access Control Policies for E-commerce and the Web 	

#12 hours for Library work, assignments, practical or field work

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Recommended Text Books:


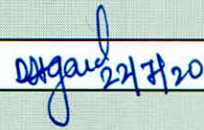

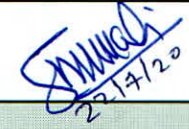
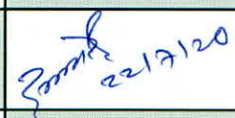
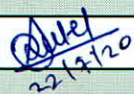
- Henry korth, A Silberschatz, *Database System Concepts*, Tata McGraw-Hill publication fifth edition 2006.
- Ivan Bayross, *SQL, PL/SQL The Programming Language*, BPB Publication.

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- Ivan Bayross, *SQL, PL/SQL The Programming Language*, BPB Publication
- RamezElmasri, ShamkantNavathe, *Fundamentals of Database system*, 5th edition; 2008

Websites:

- www.w3cschools.com

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Head of the Department	Ms Smita Borkar		
Faculty*	Asst Prof. Deepali Gupta		
Faculty*	Asst Prof DivyaChitre		
Subject Expert (Outside SPPU)	Dr.Shankar Mali		
Subject Expert (Outside SPPU)	Dr. Sagar Jambhorkar		
VC Nominee	Prof Anjum Patel		
Industry Expert	Mr Sumit Palsingh:		
One Alumni***	Ms. Vidhi Thakkar		

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