

**Database Management System**  
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**[CORE COURSE]**

<b>Semester: I</b>	<b>Credits: 3</b>	<b>Subject Code: BC12004</b>	<b>Lectures: 48</b>
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**Course Outcomes:**

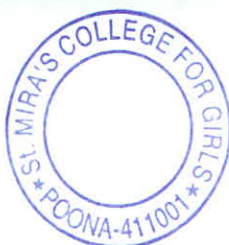
At the end of this course the learner will be able to,

- Recognize the basics of SQL queries.
- Relate and gain knowledge of database concepts.
- Design the database by using normalization concepts.
- Apply SQL queries and solve the basic problems related to database.

<b>Unit 1: File Structure and Organization</b>	<b>6</b>
<ul style="list-style-type: none"> <li>• Introduction</li> <li>• Physical and logical files</li> <li>• Basic file operations (opening, closing, reading, writing, seeking)</li> <li>• Record types (fixed, variable)</li> <li>• Types of file Organization (heap, sorted, indexed, hashed)</li> <li>• Indexing             <ul style="list-style-type: none"> <li>○ What is an Index</li> <li>○ Types of Index: Dense index, sparse index</li> </ul> </li> </ul>	

<b>Unit 2: Database Management System:</b>	<b>14</b>
<ul style="list-style-type: none"> <li>• Introduction</li> <li>• Basic Concept and Definitions : Data and Information , Data Vs Information, Data Dictionary, Data Item or Field, Record</li> <li>• Definition of DBMS</li> <li>• Applications of DBMS</li> <li>• File processing system Vs DBMS</li> <li>• Advantages and Disadvantages of DBMS</li> <li>• Users of DBMS : Database Designers, Application programmer, Sophisticated             <ul style="list-style-type: none"> <li>○ Users, End Users</li> </ul> </li> <li>• Views of Data</li> <li>• Data Models : Object Based Logical Model, Entity Relationship Data Model             <ul style="list-style-type: none"> <li>○ Record Base Logical Model : Relational Model, Network Model, Hierarchical</li> <li>○ Model</li> </ul> </li> <li>• Entity Relationship Diagram (ERD): Extended features of ERD</li> <li>• Overall System structure</li> </ul>	

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<b>Unit 3: Relational Model</b>	8
<ul style="list-style-type: none"><li>• Introduction</li><li>• Terms: Relation, Tuple, Attribute, Cardinality, . Degree of relationship set, Domain</li><li>• Keys : Super Key, Candidate Key, Primary Key, Foreign Key</li><li>• Relational Algebra Operations : Select, Project, Union, Difference, Intersection, Cartesian Product, Natural Join</li></ul>	
<b>Unit 4: SQL (Structured Query Language)</b>	12
<ul style="list-style-type: none"><li>• Introduction</li><li>• History Of SQL</li><li>• Basic Structure</li><li>• DDL Commands</li><li>• DML Commands</li><li>• Simple Queries</li><li>• Nested Queries</li><li>• Aggregate functions</li></ul>	
<b>Unit 5: Relational Database design</b>	8
<ul style="list-style-type: none"><li>• Introduction</li><li>• Anomalies of unnormalized database</li><li>• Functional Dependency: Decomposition, Multivalued Dependency</li><li>• Normalization:</li><li>• Normal Form :1 NF, 2 NF, 3 NF, BCNF</li></ul>	

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

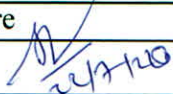
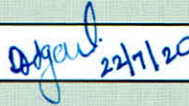



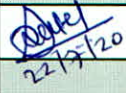
<b>Recommended Text Books:</b>
<ul style="list-style-type: none"><li>• Henry, korth, A Silberschatz, <i>Database System Concepts</i>, Tata McGraw-Hill publication fifth edition 2006.</li><li>• Bayross Ivan, <i>SQL, PL/SQL The Programming Language</i>, BPB Publication</li></ul>
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**Websites:**

- [www.w3cschool.com](http://www.w3cschool.com)

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