

## File Organization and Database Management Systems

<b>Semester II</b>	<b>Subject Code: BC21502</b>	<b>Lectures: 48</b>
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### Objectives:

- The syllabus aims in equipping students with
1. Data processing using computers.
  2. Basic organization of data using files.
  3. Creations, manipulation and querying of data in databases.



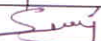

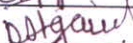
Unit 1 : File Structure and organization	6 Lects.
<ul style="list-style-type: none"> <li>• Introduction.</li> <li>• Physical / logical files.</li> <li>• Types of file organization (heap, sorted, indexed, hashed).</li> <li>• Choosing a file organization.</li> </ul>	<p>2</p> <p>2</p> <p>2</p>

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Prof. Gautam Kudale	<i>Gautam Kudale</i>
Prof. Mahesh Pawar	<i>Mahesh Pawar</i>
Mr. Suraj Agarwal	<i>Suraj Agarwal</i>
Ms. Netra Jadhav	<i>Netra Jadhav</i>
Mrs. Smita Borkar	<i>Smita Borkar</i>
Mrs. Divya Chitre	<i>Divya Chitre</i>
Mrs. Monika Rajguru	<i>Monika Rajguru</i>
Ms. Deepali Agarwal	<i>Deepali Agarwal</i>
Mrs. Shubhangi Jagtap	<i>Shubhangi Jagtap</i>



<b>Unit 2 Database Management System</b>	<b>14 lects</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                             <ul style="list-style-type: none"> <li>• Users of DBMS : Application programmer, Specialized users, Sophisticated users, End Users, DBA</li> </ul> </li> <li>• Views of Data</li> <li>• Data Independence</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 Model</li> </ul> </li> <li>• Entity Relationship Diagram (ERD): Extended features of ERD, Case study</li> </ul>	<p>2</p> <p>3</p> <p>1</p> <p>1</p> <p>4</p> <p>3</p>

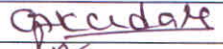





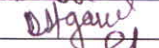
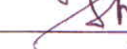

<b>Unit 3 – Relational Model</b>	<b>8 Lects.</b>
<ul style="list-style-type: none"> <li>• Introduction</li> <li>• Terms: Relation, Tuple, Attribute, Cardinality, Degree of relationship set, Domain</li> <li>• Keys : Super Key, Candidate Key, Primary Key, Foreign Key</li> <li>• Relational Algebra Operations : Select, Project, Union, Difference, Intersection, Cartesian Product, Natural Join(Queries)</li> </ul>	<p>1</p> <p>2</p> <p>2</p> <p>3</p>

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<b>Unit 4 – SQL(Structured query language)</b>	<b>12 Lects.</b>
<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>• Aggregate functions</li> <li>• Nested Queries</li> <li>• Joins</li> </ul>	1 2 2 2 2 2 2 1







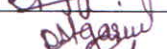

<b>Unit 5 – Relational Database Design</b>	<b>8 Lects.</b>
<ul style="list-style-type: none"> <li>• Introduction</li> <li>• Anomalies of unnormalized database</li> <li>• Functional Dependency: Decomposition, Multivalued Dependency</li> <li>• Normalization:               <ul style="list-style-type: none"> <li>○ Normal Form :1 NF, 2 NF, 3 NF, BCNF, Examples</li> </ul> </li> </ul>	1 1 3 3

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**Reference Books:**

- Database System Concepts By Henry korth and A. Silberschatz 5<sup>th</sup> edition 2006.
- SQL, PL/SQL The Programming Language Oracle :- Ivan Bayross, BPB Publication.
- Fundamentals of Database system- Ramez Elmasri, Shamkant Navathe 5<sup>th</sup> edition 2008.
- Introduction to Database Systems- C.J.Date, A. Kannan, S.Swamynathan 8<sup>th</sup> edition 2008

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