

## Subject: File Organization and Fundamentals of Databases-II

Semester – II

Subject Code: BS-21502

Lectures: 40

### Objectives:

The syllabus aims in equipping students with,

1. Understanding the use of Structured Query Language (SQL) and learn SQL syntax.
2. Applying normalization techniques to normalize the database.
3. Understanding the needs of database processing and learn techniques for controlling the consequences of concurrent data access.

### Unit 1: Structured Query Language

No. of  
Lects.=20

#### Chapter 1: Introduction to SQL

8

- SQL data definition
- Basic Constraints
- DDL and DML Statements
- Activity
  - Simple SQL queries

#### Chapter 2 : Advanced SQL

- Set operations
- Aggregate operators (order by, group by, having)
- Aggregate functions
- Null values
- Nested sub queries(set membership, set comparison)
- Logical connections (AND,OR,NOT) and Outer Joins
- Activity
  - Examples

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BOS Members:

Prof. Manisha Bharambe(Subject Expert)

Prof.Poonam Ponde(Subject Expert)

Ms Febi Byju(Industry Expert)

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Prof. Ashwini Kulkarni(Chairman)

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**Unit 2: Functional Dependency and Normalization**

No. of  
Lects.=20

**Chapter 3 : Functional Dependency**

12

- Introduction to schema refinement (problems caused by redundancy, use of decomposition, problems related to decomposition)
- Functional dependencies.
- Motivating schema refinement ( constraints on an entity set and Constraints on relation set)
- Identifying attributes of entities, identifying entity sets
- Attribute closure and Canonical cover
- Activity
  - Examples

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**Chapter 4 : Normalization**

- Normalization forms ( 1NF, 2NF, 3NF, BCNF)
- Decomposition ( lossless join, dependency preserving property)
- Normalization ( decomposition into 3NF,decomposition into BCNF)
- Multi-valued dependencies
- Activity
  - Case Study

**Recommended Books:**

- Avi Silberschatz, Henry F. Korth, S. Sudarshan, *Database System Concepts*-6th edition- McGraw-Hill
- Elmasri, Navathe, *Fundamentals of Database Systems* -5th edition Pearson.
- Joshua D. Drake, John C Worsley , *Practical Postgresql* , (O'Reilly publications)

**Reference Links:**

- <http://www.postgresql.org/docs/9.3/static/tutorial.html>
- [http://www.w3schools.com/html/html5\\_intro.asp](http://www.w3schools.com/html/html5_intro.asp)

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