



BITS Pilani
Pilani Campus

Database Systems (CS F212)

Dr.Sadhana Jha

Outline of the Lecture



- General course information
- Course Logistics
- Objectives of the course
- Course outline
- Introduction to Database Systems

General Course Information



Instructor(s) : Dr. Yashvardhan Sharma (I/C)

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: Dr. Sadhana Jha

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**Lab Instructors: Dr. Yashvardhan Sharma
Dr. Sadhana Jha
Avisekh Vyas**

Course Logistics



Components	Weightage in %
Quiz	10
Mid sem	25
Comprehensive	40
Lab*	10 + 15

***Weekly labs and a lab test**

Text Book



A. Silberschatz, H.F. Korth and S. Sudarshan,
Database System Concepts, 6th Edition.

Reference Books

1. **R. Ramakrishna & J. Gehrke.** Database Management Systems, 3e, Mc-Graw Hill, 2003.
2. **Hector G Molina, Jeffrey D. Ullman & Jennifer Widom,** “Database Systems – The Complete Book”, Pearson Education, 2002.
3. **R. Elmarsri & S. B. Navathe.** Fundamental of Database System, 5e, Pearson Education, 2008.

Objectives of the Course



- 1. Understand the basic database concepts, including the structure and operation of the relational data model.**
- 2. Design and develop databases**
- 3. Construct queries using SQL**
- 4. Understand the concept of a database transaction, concurrency control, backup and recovery, and data object locking and protocols.**
- 5. Aid in understanding the concepts of advanced database topics, such as distributed database systems and the data warehouse**

Course Outline



- Overview of Database Systems
- Foundations
 - Data Models: ER, Relational Models
 - Query languages : RA, SQL
- Design & Development
 - Normalization, Application Development
- Efficiency & Scalability
 - Storage & Indexing
 - Query evaluation & optimization
- Concurrency & Robustness
 - Transaction Management – concurrency, recovery

Introduction to DBMS



DBMS: A system used for **managing database**

Components of DBMS:

Database: A collection of inter-related data

Managing: A tool or software used for accessing and processing the data

Examples of Database Applications

Banking services

Airline reservations

Purchases using your credit card

Using the local library

Taking out insurance

Using the Internet

Studying at university

Finance

Human Resources

Big Names in Database Systems



<i>Company</i>	<i>Product</i>
Oracle	Oracle 8i, 9i, 10g, 11g, 12c, 18c
IBM	DB2, Universal Server
Microsoft	Access, SQL Server-2008
Sybase	Adaptive Server
Informix	Dynamic Server