

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING – Data Science

COURSE MODULE OF THE SUBJECT TAUGHT FOR THE SESSION 2023-24 (ODD SEMESTER)

Course Syllabus with CO's

Database Application Development: Accessing databases from applications, An introduction to JDBC, JDBC classes and interfaces, SQLJ, Stored procedures, Case study: The internet bookshop.

MODULE-4:

Normalization:Database Design Theory—Introduction to Normalization using Functional and Multi valued Dependencies: Informal design guidelines for relation schema, Functional Dependencies, Normal Forms based on Primary Keys, Second and Third Normal Forms, Boyce-Codd Normal Form, Multi valued Dependency and Fourth Normal Form, Join Dependencies and Fifth Normal Form. Examples of Normal Forms.

Normalization Algorithms: Inference Rules, Equivalence, and Minimal Cover,Properties of Relational Decompositions, Algorithms for Relational Database Schema Design, Nulls, Dangling tuples, and alternate Relational Designs, Further discussion of Multi valued dependencies and 4NF, Other dependencies and Normal Forms.

MODULE-5:

TransactionProcessing: Introduction to Transaction Processing, Transaction and System concepts, Desirable properties of Transactions, Characterizing schedules based on recoverability, Characterizing schedules based on Serializability, Transaction support in SQL.

Concurrency Control in Databases: Two-phase locking techniques for Concurrency control, Concurrency control based on Timestamp ordering, Multi version Concurrency control techniques, Validation Concurrency control techniques, Granularity of Data items and Multiple Granularity Locking..

List of Text Books

1. Fundamentals of Database Systems, Ramez Elmasri and Shamkant B.Navathe,7thEdition, 2017,Pearson.
2. Data base management systems, Ramakrishnan, and Gehrke,3rdEdition,2014,McGrawHill

List of URLs,TextBooks,Notes,Multimedia Content,etc

Weblinks and Video Lectures (e-Resources):

1. <https://www.youtube.com/watch?v=3EJloveyfcA>
2. <https://www.youtube.com/watch?v=9TwMRs3qTcU>
3. <https://www.youtube.com/watch?v=ZWl0Xow304I>
4. <https://www.youtube.com/watch?v=4YilEjkNPrQ>
5. <https://www.youtube.com/watch?v=CZTkgMoqVss>
6. <https://www.youtube.com/watch?v=Hi4NZB1XR9c>
7. https://www.youtube.com/watch?v=EGEwkad_llA
8. <https://www.youtube.com/watch?v=t5hsV9lC1rU>

Course Outcomes	At the end of the course the student will be able to: CO 1. Identify, analyze and define database objects, enforce integrity constraints on a database using RDBMS CO 2. Use Structure Query Language (SQL) for database manipulation and also demonstrate the basic of query evaluation. CO 3. Design and build simple database systems and relate the concept of transaction, concurrency control and recovery in database CO 4. Develop application to interact with databases, relational algebra expression. CO 5. Develop applications using tuple and domain relation expression from queri										

The Correlation of Course Outcomes (CO's) and Program Outcomes (PO's)

Subject Code:	21CS53	Title: Database Management System										
List of Course Outcomes	Program Outcomes											
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12
CO-1	1	-	2	-	-	-	-	-	-	-	-	-
CO-2	-	1	3	-	-	-	-	-	-	-	-	-
CO-3	-	2	3	-	-	-	-	-	-	-	-	-
CO-4	-	-	3	-	-	-	-	-	-	-	-	-
Total	1	3	11	-	-	15						

Note:

3=Strong Contribution 2=Average Contribution 1= Weak Contribution 0=No Contribution

The Correlation of Course Outcomes (CO's) and Program Specific Outcomes (PSO's)

Subject Code:	21CS53	Title: Database Management System	
List of Course Outcomes	Program Specific Outcomes		
	PSO-1		PSO-2
CO-1	1	-	-
CO-2	1	-	-
CO-3	1	-	-
CO-4	1	-	-
Total	4	-	4

Note: 3=Strong Contribution 2=Average Contribution 1= Weak Contribution 0=No Contribution