

Department of Computer Science & Engineering

Course Syllabi with CO's

Academic Year: 2023 - 2024							
Department: Computer Science& Engineering							
Course Code	Course Title	Core/Elective	Prerequisite	Contact Hours			Total Hrs/ Sessions
				L	T	P	
21CSL55	DBMS LABORATORY WITH MINI PROJECT	Core	Relational Models, Relational Algebra			2	32
Course Learning Objectives	This course will enable students to:						
	<div>1. Foundation knowledge in database concepts, technology and practice to groom students into well-informed database application developers.</div> <div>2. Strong practice in SQL programming through a variety of database problems.</div> <div>3. Develop database applications using front-end tools and back-end DBMS.</div>						
Topics Covered as per Syllabus							
Programs List:							
PART A							
<div>1. Consider the following schema for a Library Database: BOOK(Book_id, Title, Publisher_Name, Pub_Year) BOOK_AUTHORS(Book_id, Author_Name) PUBLISHER(Name, Address, Phone) BOOK_COPIES(Book_id, Programme_id, No-of_Copies) BOOK_LENDING(Book_id, Programme_id, Card_No, Date_Out, Due_Date) LIBRARY_PROGRAMME(Programme_id, Programme_Name, Address) Write SQL queries to 1. Retrieve details of all books in the library – id, title, name of publisher, authors, number of copies in each Programme, etc. 2. Get the particulars of borrowers who have borrowed more than 3 books, but from Jan 2017 to Jun 2017. 3. Delete a book in BOOK table. Update the contents of other tables to reflect this data manipulation operation. 4. Partition the BOOK table based on year of publication. Demonstrate its working with a simple query. 5. Create a view of all books and its number of copies that are currently available in the Library.</div> <div>2. Consider the following schema for Order Database: SALESMAN(Salesman_id, Name, City, Commission) CUSTOMER(Customer_id, Cust_Name, City, Grade, Salesman_id) ORDERS(Ord_No, Purchase_Amt, Ord_Date, Customer_id, Salesman_id) Write SQL queries to 1. Count the customers with grades above Bangalore’s average. 2. Find the name and numbers of all salesman who had more than one customer</div>							

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3. List all the salesman and indicate those who have and don't have customers in their cities (Use UNION operation.)
 4. Create a view that finds the salesman who has the customer with the highest order of a day.
 5. Demonstrate the DELETE operation by removing salesman with id 1000. All his orders must also be deleted.
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3. Consider the schema for Movie Database:
ACTOR(Act_id, Act_Name, Act_Gender)
DIRECTOR(Dir_id, Dir_Name, Dir_Phone)
MOVIES(Mov_id, Mov_Title, Mov_Year, Mov_Lang, Dir_id)
MOVIE_CAST(Act_id, Mov_id, Role)
RATING(Mov_id, Rev_Stars)
Write SQL queries to
 1. List the titles of all movies directed by 'Hitchcock'.
 2. Find the movie names where one or more actors acted in two or more movies.
 3. List all actors who acted in a movie before 2000 and also in a movie after 2015 (use JOIN operation).
 4. Find the title of movies and number of stars for each movie that has at least one rating and find the highest number of stars that movie received. Sort the result by movie title.
 5. Update rating of all movies directed by 'Steven Spielberg' to 5.
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4. Consider the schema for College Database:
STUDENT(USN, SName, Address, Phone, Gender)
SEMSEC(SSID, Sem, Sec)
CLASS(USN, SSID)
COURSE(Subcode, Title, Sem, Credits)
IAMARKS(USN, Subcode, SSID, Test1, Test2, Test3, FinalIA)
Write SQL queries to
 1. List all the student details studying in fourth semester 'C' section.
 2. Compute the total number of male and female students in each semester and in each section.
 3. Create a view of Test1 marks of student USN '1BI15CS101' in all Courses.
 4. Calculate the FinalIA (average of best two test marks) and update the corresponding table for all students.
 5. Categorize students based on the following criterion:
If FinalIA = 17 to 20 then CAT = 'Outstanding'
If FinalIA = 12 to 16 then CAT = 'Average'
If FinalIA < 12 then CAT = 'Weak'
Give these details only for 8th semester A, B, and C section students.
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5. Consider the schema for Company Database:
EMPLOYEE(SSN, Name, Address, Sex, Salary, SuperSSN, DNo)
DEPARTMENT(DNo, DName, MgrSSN, MgrStartDate)
DLOCATION(DNo, DLoc)
PROJECT(PNo, PName, PLocation, DNo)
WORKS_ON(SSN, PNo, Hours)
Write SQL queries to
 1. Make a list of all project numbers for projects that involve an employee whose last name is 'Scott', either as a worker or as a manager of the department that controls the project.

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well as the maximum salary, the minimum salary, and the average salary in this department

4. Retrieve the name of each employee who works on all the projects controlled by department number 5 (use NOT EXISTS operator).

5. For each department that has more than five employees, retrieve the department number and the number of its employees who are making more than Rs. 6,00,000.

PART B: Mini Project

- For any problem selected
- Make sure that the application should have five or more tables
- Indicative areas include; health care

List of Text Books

1. Fundamentals of Database Systems, Ramez Elmasri and Shamkant B. Navathe, 7th Edition, 2017, Pearson.
2. Database management systems, Ramakrishnan, and Gehrke, 3rd Edition, 2014, McGraw Hill

List of Reference Books

1. Silberschatz Korth and Sudharshan, Database System Concepts, 6th Edition, Mc-GrawHill, 2013.
2. Coronel, Morris, and Rob, Database Principles Fundamentals of Design, Implementation and Management, Cengage Learning 2012.

List of URLs, Text Books, Notes, Multimedia Content, etc

1. <https://www.smartdraw.com/entity-relationship-diagram/>
2. https://en.wikipedia.org/wiki/Database_normalization
3. www.databasteknik.se/webbkursen/relalg-lecture
4. [https://technet.microsoft.com/en-us/library/bb264565\(v=sql.90\).aspx](https://technet.microsoft.com/en-us/library/bb264565(v=sql.90).aspx)
5. pages.cs.wisc.edu/~dbbook/openAccess/thirdEdition/.../Ch16_Overview_Xacts.pdf
6. www.databasejournal.com/features/mysql/generating-reports-on-mysql-data.html

Course Outcomes

After studying this course, students will be able to

1. Create, Update and query on the database.
2. Demonstrate the working of different concepts of DBMS
3. Implement, analyze and evaluate the project developed for an application.

Internal Assessment Marks: 40 (one Internal Test is conducted at the end of the semester and LCR marks).

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

Subject Code:	18CSL58	TITLE: Database Laboratory with Mini Project											
List of Course Outcomes	Program Outcomes												Total
	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	-	-	-	-	-	-	-	-	-	-	-	1
CO-2	1	-	-	-	-	-	-	-	-	-	-	-	1
CO-3	-	-	-	-	-	-	-	-	-	-	1	-	1
Total	2	-	-	-	-	-	-	-	-	-	1	-	3

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



A T M E

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

Subject Code:	18CSL58	TITLE: Database Laboratory with Mini Project		
List of Course Outcomes	Program Outcomes			Total
	PSO-1	PSO-2	PSO-3	
CO-1	-	-	-	0
CO-2	-	-	-	0
CO-3	-	-	-	0
CO-4	-	-	-	0
Total	0	0	0	0

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