

	Course Title: DATABASE MANAGEMENT SYSTEMS LABORATORY WITH MINI PROJECT LAB		
	Course Code : 21CLS505	No. of Credits: 0: 0: 1 (L-T-P)	No. of lecture hours / week: 2
	Exam Duration : 3 hours	CIE + SEE = 50+50=100	
Course Objectives:	Description		
	1. Provide a strong formal foundation in database concepts and technology and techniques relating to query processing by SQL. 2. Design and implement a real time database application for a given problem-domain. 3. Demonstrate the use of relational data model and systematic database design approaches covering conceptual design, logical design through the mini project. 4. Introduce MongoDB, CRUD Operations & its usage in Enterprise Applications.		
COURSE CONTENTS:			
Part A	1. Execution of given 3 exercises. 2. Introduction to MongoDB and CRUD Operations. 3. MongoDB Usage in Enterprise Applications.		
Part B	Implementation of mini project.		
PART – A			
INSTRUCTIONS:			
1. The exercises are to be solved in an RDBMS environment like Oracle or DB2. 2. Suitable tuples have to be entered so that queries are executed correctly. 3. Relevant queries other than the ones listed along with the exercises may also be asked in the examinations. 4. Questions must be asked based on lots.			
1	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.		

2	<p>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</p> <ol style="list-style-type: none"> 1. Count the customers with grades above Bangalore's average. 2. Find the name and numbers of all salesmen who had more than one customer. 3. List all the salesmen 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 12345. All his orders must also be deleted.
3	<p>Consider the schema for College Database: STUDENT(USN, SName, Address, Phone, Gender) SEMSEC(SSID, Sem, Sec) CLASS(USN, SSID) SUBJECT(Subcode, Title, Sem, Credits) CIEMARKS(USN, Subcode, SSID, CIE1, CIE2, CIE3, FinalCIE) Write SQL queries to</p> <ol style="list-style-type: none"> 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 '1DA15CS101' in all subjects. 4. Calculate the FinalCIE (average of best two test marks) and update the corresponding table for all students. 5. Categorize students based on the following criterion: If FinalCIE = 17 to 20 then CAT = 'Outstanding' If FinalCIE = 12 to 16 then CAT = 'Average' If FinalCIE < 12 then CAT = 'Weak' <p>Give these details only for 8th semester A, B, and C section students.</p>

PART – B

A mini project should be implemented by the students in teams. The maximum size of a team can be 3 from the same batch. The students have to finalize a project topic by discussing with the faculty. The mini project must be carried out in the college only.

Design a Database application for a particular case study using Visual Basic/Java Script in visual studio /Eclipse Tool.

The tasks when implementing mini project would be:

1. Understand the complete domain knowledge of the application and derive the complete data requirement specification for the mini project.
2. Design the ER diagram for the application.
3. Design Relational Schema diagram for the application.
4. Normalization of the relational design.
5. Implement minimum 5 queries for the application.
6. Documentation & submission of report.

General guidelines:

- Database for the project - Oracle / MySQL/ DB2 / SQL Server / MongoDB etc.

Sample Mini Projects.

Inventory Control System.	Placement management system
Material Requirement Processing.	Library management system
Hospital Management System.	Web Based User Identification System.
Railway Reservation System.	Timetable Management System
Hotel Management System	Personal Information System

Note: In the examination, the marks will be evaluated based on database execution from Part A and project demonstration, project report and viva-voce from Part B.

Course Outcomes	Description	RBT Levels
CO1	Understand, analyze, and effectively explain the underlying concepts of database technologies.	L4
CO2	Use SQL to create, secure, populate, maintain and query a database.	L4
CO3	Design and implement real time applications according to design principles that balance data retrieval performance with data consistency.	L5
CO4	Identify the Core MongoDB Operations.	L2

CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3										
CO2	3	3	3									
CO3	3	3	3	3	3				3			
CO4	3				2							

Strong - 3 Medium - 2 Weak - 1

TEXT BOOKS:

1. Fundamental of Database Systems by Elmasri and Navathe, 7th Edition, Addison-Wesley, 2015
ISBN-10: 0133970779, **ISBN-13:** 978-0133970777

REFERENCE BOOKS:

1. Database Management Systems by Raghu Ramakrishnan and Johannes Gehrke – 3rd Edition, McGraw-Hill, 2006.
 2. An Introduction to Database Systems by C.J. Date, A. Kannan, S. Swamynathan, 8th Edition, Pearson Education, 2013.
 3. Data Base system Concepts by Silberschatz, Korth and Sudharshan, 5th edition McGraw Hill, 2011.

SELF STUDY REFERENCES/WEBLINKS:

1. <https://www.mongodb.com/>
2. <https://docs.mongodb.com/manual/crud/>

COURSE COORDINATOR:	Dr. Asha, Mrs. Veena Potdar
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