Programme: Computer Applications
(Minor)
w.e.f. AY 2024-25

COURSE STRUCTURE

Year	Semester	Course	Title of the Course	No. of Hrs /Week	No. of Credits
II	IV	3	Data Base Management System with Oracle	3	3
			Data Base Management System with Oracle Practical Course	2	1
		4	Programming with C	3	3
			Programming with C Practical Course	2	1

SRI VENKATESWARA UNIVERSITY::TIRUPATI
Computer Applications Minor
II Year IV SEMESTER
COURSE3:DATABASEMANAGEMENTSYSTEMWITHORACLE
w.e.f. 2024-25

Theory Credits:3 3 hrs/week

Course Objectives:

To familiarize with concepts of database design

Learning Outcomes: On successful completion of the course, students will be able to

1. Differentiate between database systems and file based systems
2. Design a database using ER model
3. Use relational model in database design
4. Use SQL commands for creating and manipulating data stored in databases.
5. Write PL/SQL programs to work with databases.

Unit 1: Overview of Database Systems: Introduction: Database system, Characteristics (Database Vs File System), Database Users, Advantages of Database systems, Database applications.

Data Models: Introduction; categories of data models, Schema, Instance and database state; Three schema architecture and data independence; Database system environment, Centralized and Client Server architecture for the DBMS.

Case Study:

- Describe the differences between Database systems and File based systems
- Study about database models and their advantages and dis-advantages

Unit 2: Entity Relationship Model: Introduction, Entity Types, Entity Sets, Attributes, and Keys relationship types, relationship degree.

Relational Model: CODD Rules, Relational Model Concepts (concepts of domain, attribute, tuple, relation, Characteristics of a Relation), constraints (Domain, Key constraints, integrity constraints) and their importance, concept of keys (super key, candidate key, primary key, surrogate key, foreign key),

Normalization: Purpose of Normalization or schema refinement, concept of functional dependency, normal forms based on functional dependency(1NF, 2NF and 3 NF)

Case Study:

- Describe Relational model and normalization for database design

Unit 3: BASIC SQL: Database schema, data types, DDL operations (create, alter, drop, rename), DML operations (insert, delete, update), basic SQL querying (select and project) using where clause, arithmetic & logical operations, grouping, ordering.

Case Study:

- Examine issues in data storage and query processing using SQL.
- Create, maintain and manipulate a relational database using SQL

Unit 4: SQL: Creating tables with relationship, implementation of key and integrity constraints, Nested queries/ sub queries, implementation of different types of joins, views, relational set operations, SQL functions (Date, Numeric, String, Conversion functions).

Case Study:

- Try to convert some sample data to information and show how it can you be used in decision making.

Unit 5: PL/SQL: Introduction, Structure of PL/SQL code, Data types and Operators, Control Structures, Cursors, Procedure, Function, Triggers.

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Case Study:

- Outline the role of triggers.

Suggested Text Books

- Fundamentals of Database Systems, 6th Edition, Ramez Elmasri, Shamkant B. Navathe
- Database Management Systems, 3rdEdition ,Raghurama Krishnan, Johannes Gehrke, TMH
- Database System Concepts,5thEdition ,Silberschatz, Korth, TMH

SEMESTER-IV

COURSE 11: DATABASE MANAGEMENT SYSTEM WITH ORACLE

Practical Credits: 1 2 hrs/week

LIST OF EXPERIMENTS

SQL:

Cycle-I: Aim: The marketing company wishes to computerize its operations by using the following tables.

Table Name: Client Master

Description: Used to store client information

Column Name	Data Type	Size	Attribute
CLIENT_NO	Varchar2	6	Primary key
NAME	Varchar2	20	Not null
ADDRESS1	Varchar2	30	
ADDRESSS	Varchar2	30	
CITY	Varchar2	15	
PINCODE	Varchar2	8	
STATE	Varchar2	15	
BAL_DUE	Number	10,2	

Table Name: Product Master

Description: Used to store product information

Column Name	Data Type	Size	Attribute
PRODUCT_NO	Varchar2	6	Primary key
DESCRIPTION	Varchar2	15	Not null
PROFIT _PERCENT	Number	4,2	Not null
UNIT_MEASUE	Varchar2	10	
QTY_ON_ HAND	Number	8	
REORDER_LVL	Number	8	
SELL_PRICE	Number	8,2	Not null, cannot be 0
COST _PRICE	Number	8,2	Not null,cannot be 0

Table Name: Salesman master

Description: Used to store salesman information working for the company.

Column Name	Data Type	Size	Attribute
SALESMAN_NO	Varchar2	6	Primary key
SALESMAN_NAME	Varchar2	20	Not null
ADDRESS1	Varchar2	30	
ADDRESS2	Varchar2	30	
CITY	Varchar2	20	
PINCODE	Number	8	
STATE	Vachar2	20	
SAL_AMT	Number	8,2	Not null, cannotbe0
TGT_TO_GET	Number	6,2	Not null, cannotbe0
YTD_SALES	Number	6,2	Not null
REMARKS	Varchar2	20	

Table Name: SALES_ORDER
Description: Used to store client orders

Column Name	Data Type	Size	Attribute
ORDER_NO	Varchar2	6	Primary key
CLIENT_NO	Varchar2	6	Foreign Key
ORDER _DATE	Date		
DELY_ADDRESS	Varchar2	25	
SALESMAN_NO	Varchar2	6	Foreign Key
DELY_TYPE	Char	1	Delivery:part(p)/full(f)anddefault‘ F’
BILL_YN	Char	1	
DELY_DATE	Date		Can’tbe lessthanorderdate
ORDER _STATUS	Varchar2	10	Values(“InProcess”,“Fulfilled”, “Back Order”, “Cancelled)

Table Name: SALES_ORDER_DETAILS

Description:Used to store client's order with details of each product ordered.

ColumnName	Data Type	Size	Attribute
ORDER_NO	Varchar2	6	Primary key references SALES_ORDER table
PRODUCT_NO	Varchar2	6	Foreign Key references SALES_ORDER_table
QTY_ ORDERED	Number	8	
QTY_ DISP	Number	8	
PRODUCT_RATE	Number	10,2	Foreign Key

Solve the following queries by using the above tables.

1. Retrieve the list of names, city, and the state of all the clients.
2. List all the clients who are located in 'Mumbai' or 'Bangalore'.
3. List the various products available from the product_mastertable.
4. Find the names of salesmen who have a salary equal to Rs.3000.
5. List the names o fall clients having 'a' as the second letter in their names.
6. List all clients whose Baldue is greater than value 1000.
7. List the clients who stay in a city whose first letter is 'M'.
8. List all information from the sales-order table for orders placed in the month of July.
9. List the products whose selling price is greater than 1000 and less than or equal to 3000.
10. Find the products whose selling price is greater than 1000 and also find the new selling price as the original selling price of 0.50.

Cycle-II Supplier

Aim: A manufacturing company deals with various parts and various suppliers supply these parts. It consists of three tables to record its entire information. Those are as follows.

Supplier (Supplier_No, Sname, City, status) Part(Part_no, pname, color, weight, city, cost)
Shipment (supplier No, Part_no, city) JX (project_no, project_name, city)
SPJX (Supplier no, part_no, project_no,city)

1. Get supplier numbers and status for suppliers in Chennai with status>20.
2. Get project names for projects supplied by supplier 'S'.
3. Get colors of parts supplied by supplier S1.
4. Get part numbers for parts supplied to any project in Mumbai
5. Find the id's of suppliers who supply a red or pink parts.

Cycle–III Employee Database

Aim: An enterprise wishes to maintain a database to automate its operations. Enterprise is divided into certain departments and each department consists of employees. The following two tables describe the automation schemas.

Emp(Empno, Ename, Job, Mgr, Hiredate, Sal, Comm, Deptno) Dept(Deptno, Dname, Loc)

1. List the details of employees who have joined before the end of September '81.

2. List the name of the employee and designation of the employee, who does not report to anybody.
3. List the name,salary and PF amount of all the employees(PF is calculated as10%of salary)
4. List the names of employees who are more than 2 years old in the organization.
5. Determine the number of employees, who are taking commission.
6. Update the employee salary by 20%,whose experience is greater than 12 years.
7. Determine the department does not contain any employees.
8. Create a view, which contains employee name and their manager names working in sales department.
9. Determine the employees, whose total salary is like the minimum salary of any department.
10. List the department numbers and number of employees in each department.

PL/SQL PROGRAMS

1. Write a PL/SQL program to check the given string is palindrome or not.
2. The HRD manager has decided to raise the employee salary by 15% write a PL/SQL block to accept the employee number and update the salary of that employee. Display appropriate messages based on the existence of the record in the Emp table.
3. Write a PL/SQL program to display the top 10 rows in the Emp table based on their job and salary.
4. Write a PL/SQL program to raise the employee salary by 10% for department number 30 people and also maintain the raised details in the raise table.
5. Create a procedure to update the salaries of Employees by 20%, for those who are not getting commission
6. Write a PL/SQL procedure to prepare an electricity bill by using following table.

Table used: Elect

Name	Null?	Type
MNNO	NOT NULL	NUMBER(3)
CNAME		VARCHAR2(20)
CUR_READ		NUMBER(5)
PREV_READ		NUMBER(5)
NO_ UNITS		NUMBER(5)
AMOUNT		NUMBER(8,2)
SER_TAX		NUMBER(8,2)
NET_AMT		NUMBER(9,2)

7. Create a trigger to avoid any transactions (insert, update, delete) on EMP table on Saturday & Sunday.

MODEL QUESTION PAPER
SRI VENKATESWARA UNIVERSITY::TIRUPATI
Computer Applications Minor
II Year IV SEMESTER
COURSE 3: Database Management System with ORACLE
(w.e.f. 2024-25)

Time :3Hrs **Max Marks 75**

SECTION - A

Answer any Five of the following **5 X 3= 15 Marks**

1. Short answer question from Unit-1
2. Short answer question from Unit-1
3. Short answer question from Unit-2
4. Short answer question from Unit-2
5. Short answer question from Unit-3
6. Short answer question from Unit-3
7. Short answer question from Unit-4
8. Short answer question from Unit-4
9. Short answer question from Unit-5
10. Short answer question from Unit-5

SECTION - B

Answer any Five of the following **5 X 12= 60 Marks**

11. Long answer question from Unit-1
12. Long answer question from Unit-1
13. Long answer question from Unit-2
14. Long answer question from Unit-2
15. Long answer question from Unit-3
16. Long answer question from Unit-3
17. Long answer question from Unit-4
18. Long answer question from Unit-4
19. Long answer question from Unit-5
20. Long answer question from Unit-5

Note: **The question paper setter is requested to set question paper based on a model question paper and ensure coverage across all units equally**.

SRI VENKATESWARA UNIVERSITY::TIRUPATI
Computer Applications Minor
II Year IV SEMESTER
COURSE4: Programming with C
w.e.f. 2024-25

Theory Credits:3 3 hrs/week

Learning Objectives

To introduce the fundamental concepts of Programming.

Learning Outcomes

Upon successful completion of the course, a student will be able to:

- Understand the basic programming constructs
- Able to apply the concepts of 'C' language in problem solving.

Unit-I Introduction:

History of 'C' - Structure of C program – Writing the first C Program – Compiling and Executing C Programs C character set, Tokens– C data types – Variables - C operators - Standard I/O statements.

Unit-II Conditional and Looping statements:

Conditional statements : if and switch, Looping Statements : While, Do..While and For Loops – Use of Break and Continue Statements-

Unit-III Arrays and Pointers:

Array Notation and Representation– declaration of arrays - Accessing and Manipulating Array Elements –Array Types.

Pointers: Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – Pointer Expressions and Pointer Arithmetic

Unit-IV Structures and Union:

Introduction – declaring structures - Nested Structures – Arrays of Structures – Structures and Functions - Unions – Enumerated Data Types

Unit-V Functions and Strings:

Functions – Introduction - Defining Functions- Function Call - Call By Value, Call By Reference – Recursion. String: Declaration and initialization, String handling functions.

References:

E. Balagurusamy "Programming with C"
Mastering C by K R Venugopal and Sudeep R Prasad, McGrawHill
Let Us C YashavantKanetkar

Online Resources:

https://www.tutorialspoint.com/cprogramming/index.htmlhttps://www.learn-c.org/
https://www.programiz.com/c-programming
https://www.w3schools.in/c-tutorial/
https://www.cprogramming.com/tutorial/c-tutorial.html

Computer Applications Minor
II Year IV SEMESTER
COURSE4: Programming with C
w.e.f. 2024-25

COURSE 4: Programming with C

Practicals Credits: 1 2 hrs/week

1. Write a C Program to simple interest.
2. Write a C program to demonstrate the usage of if statement.
3. Write a C program to demonstrate the usage of switch statement.
4. Write a C program to print depreciation of a product using straight line method for 10 years.
5. Write a C program to find the frequency table of given n numbers.
6. Write a C program to calculate average of given n numbers
7. Write a C program to create a student data type using structures.
8. Write a C program to demonstrate the usage of union.
9. Write a C program to demonstrate call by reference and call by value parameter passing methods.
10. Write a C program to demonstrate the usage of recursion.

MODEL QUESTION PAPER
SRI VENKATESWARA UNIVERSITY::TIRUPATI
Computer Applications Minor
II Year IV SEMESTER
COURSE 4: Programming with C
(w.e.f. 2024-25)

Time :3Hrs **Max Marks 75**

SECTION - A

Answer any Five of the following **5 X 3= 15 Marks**

1. Short answer question from Unit-1
2. Short answer question from Unit-1
3. Short answer question from Unit-2
4. Short answer question from Unit-2
5. Short answer question from Unit-3
6. Short answer question from Unit-3
7. Short answer question from Unit-4
8. Short answer question from Unit-4
9. Short answer question from Unit-5
10. Short answer question from Unit-5

SECTION - B

Answer any Five of the following **5 X 12= 60 Marks**

11. Long answer question from Unit-1
12. Long answer question from Unit-1
13. Long answer question from Unit-2
14. Long answer question from Unit-2
15. Long answer question from Unit-3
16. Long answer question from Unit-3
17. Long answer question from Unit-4
18. Long answer question from Unit-4
19. Long answer question from Unit-5
20. Long answer question from Unit-5

Note: **The question paper setter is requested to set question paper based on a model question paper and ensure coverage across all units equally**.