MCA I SEMESTER SYLLABUS
(2025-2026)

Course Code: 1PCAA101C	**Programming and Problem Solving in C**	**Credits : 04**
Hours/Week (L:T:P) : 3:0:2		**CIE Marks : 50**
Total Hours of Pedagogy (Theory + Lab): 40 hours Theory + 10 hours Lab		**SEE Marks : 50**
Course Type: Integrated		

Course Objectives:

1. Implement the constructs of C Language.
2. Construct C Programs using basic programming constructs
3. Develop C programs using arrays and strings
4. Organize modular applications in C using functions
5. Integrate pointers and structures in C applications and Execute input/output and file handling in C

UNIT-I	**10Hrs.**

BASICS OF C PROGRAMMING: Problem solving using Algorithm and flowchart, Structure of C program - C programming: Data Types - Constants – Enumeration Constants - Keywords – Operators: Precedence and Associativity - Expressions - Input/ Output statements, Assignment statements Decision making statements - Switch statement. Jumping statements.

UNIT-II	**10Hrs.**

Looping statements – Preprocessor directives - Compilation process. **ARRAYS** Introduction to Arrays: Declaration, Initialization – One dimensional array Two dimensional arrays **STRINGS:** String operations: length, compare, concatenate, copy –

UNIT-III	**10Hrs.**

FUNCTIONS: Modular programming - Function prototype, function definition, function call, Built-in functions (string functions, math functions) Recursion, Binary Search using recursive functions – **POINTERS:** Pointer operators Pointer arithmetic Arrays and pointers – Array of pointers – Parameter passing: Pass by value, Pass by reference.

UNIT-IV	**10Hrs.**

STRUCTURES: Structure - Nested structures – Pointer and Structures – Array of structures Self referential structures typedef. **Union** - Storage classes and Visibility. **FILE PROCESSING** Files Types of file processing: Sequential access, Random access Sequential access file - Random access file - Command line arguments.

Practical Module

Sl. NO	Experiments
1	Simulation of a Simple Calculator.
2	Implement Binary Search on Integers
3	Sort the given set of N numbers using Bubble sort.
4	Implement Matrix multiplication and validate the rules of multiplication.
5	An electricity board charges the following rates for the use of electricity: for the first 200 units 80 paise per unit for the next 100 units 90 paise per unit: beyond 300 units Rs 1 per unit. All users are charged a minimum of R 100 as

	meter charge. If the total amount is more than Rs 400, then an additional surcharge of 15% of total amount is charged. Write a program to read the name of the user, number of units consumed and print out the charges.
6	Write functions to implement string operations such as compare, concatenate, and find string length. Use the functions with parameter passing techniques.
7	Implement structures to read, write and compute average- marks of the students, list the students scoring above and below the average marks for a class of N students.
8	Write a C program to copy a text file to another file, read both the input file name and target file name.
9	Write a C function to find the transpose of a matrix.
10	Write a C program to find the sum of rows and columns of a matrix.

Suggested Learning resources

TEXT BOOKS:

1. Reema Thareja, "Programming in C", Oxford University Press, Second Edition, 2016
2. Kernighan, B.W and Ritchie,D.M, "The C Programming language", Second Edition, Pearson Education, 2015.

REFERENCES:

1. Paul Deitel and Harvey Deitel, "C How to Program with an Introduction to C++", Eighth edition, Pearson Education, 2018.
2. Yashwant Kanetkar, Let us C, 17th Edition, BPB Publications, 2020.
3. Byron S. Gottfried, "Schaum's Outline of Theory and Problems of Programming with C", McGraw-Hill Education, 1996.
4. Pradip Dey, Manas Ghosh, "Computer Fundamentals and Programming in C", Second 5. Edition, Oxford University Press, 2013.
5. Anita Goel and Ajay Mittal, "Computer Fundamentals and Programming in C", 1st Edition, Pearson Education, 2013.

Course Outcomes:

CO1: Demonstrate knowledge on C Programming constructs
CO2: Develop simple applications in C using basic constructs
CO3: Design and implement applications using arrays and strings
CO4: Develop and implement modular applications in C using functions
CO5: Develop applications in C using structures and pointers

CO-PO Mapping

Course Outcomes	Programme Outcomes							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
CO1	**3**							
CO2	**3**		**3**					
CO3			**3**					
CO4			**2**			**1**		
CO5			**3**	**1**				

Course Code: 1PCAA102C	Mathematical Foundation for Computer Applications	Credits : 03
Hours/Week (L:T:P) : 3:0:0		CIEMarks:50
Total Hours/Week: 40 Hrs		SEEMarks:50
Course Type: Theory		

UNIT-I	10 Hrs.

Set Theory: Sets and Subsets, Set Operations and the Laws of Set Theory, Counting and Venn Diagrams, Principles of Inclusion and Exclusion, Permutations and Combinations with repetition. **Fundamentals of Logic :**Basic Connectives and Truth Tables, Logic Equivalence- the laws of Logic, Logical Implications, Rules of Inference, The use of Quantifiers, Quantifier Definitions.

UNIT–II	10 Hrs.

Functions: Cartesian products and Relations, Functions-Plain and One-to-One, Onto Functions, Special functions, The Pigeon-hole principle, Function composition and inverse functions. **Relations :**Properties of Relations, Computer recognition-Zero One Matrices and Directed graphs, Posets and Hasse Diagrams

UNIT–III	10 Hrs.

Graph Theory :Graphs and Graphs models, Graph Terminology and Special Types of Graphs, Representing Graphs and Graph Isomorphism, Connectivity, Euler and Hamilton Paths, Shortest-Path Problems, Planar Graphs, Graph Coloring,

UNIT–IV	10 Hrs.

Statistics: Introduction**,** Measures of central tendency (Arithmetic mean ,Geometric mean, Harmonic mean, Median , Quartiles , Mode). Measures of dispersion (Range, Quartile deviation, mean deviation and standard deviation).**Random variable and probability distribution** Concept of random variable, discrete probability distributions, continuous probability distributions, Mean, variance and co-variance and co-variance of random variables. Binomial and normal distribution, Exponential and normal distribution with mean and variables and problems.

Reference Books *

1. Ralph P. Grimaldi, Discrete and Combinatorial Mathematics an Applied Introduction, 4th Edition, Pearson Education, 2003.
2. Kolman, Busby and Ross, Discrete Mathematics for Computer Science, PHI Publication.
3. A.K.Jaiswal and Anju khandelwal , “Computer based numerical and statistical techniques”, New age international publishers , 2009.

4. Richard A Johnson and C.B Gupta “Probability and statistics for engineers” Pearson Education.
5. H.K.Dass , “Advanced engineering mathematics “, S.Chand Ltd, 2009.
6. Dr. K. S. Chandrashekhar, Engineering Mathematics- IV, Sudha Publications

Course Outcomes

After completion of the course student will be able to

1. Apply the fundamentals of set theory and mathematical logic to perform various set operations and logic to the real world problems.
2. Apply the concept of relations and functions on sets to determine their types and compositions.
3. Acquire ability to work with graph theory.
4. Analyze mathematical concepts like statistics, probability and graph theory to optimize the solutions of engineering problem
5. Demonstrate the ability to use counting techniques, permutations, combinations, and the principles of inclusion and exclusion to solve complex computational and analytical problems.

Course Outcomes	Programme Outcomes							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
CO1	**3**							**2**
CO2	**3**							
CO3	**3**			**2**				
CO4	**3**	**2**	**2**	**2**				**3**
CO5	**3**	**2**	**2**	**3**				

Course Code: 1PCAA103C	Database Management Systems	Credits:03
Hrs/Week:L:T:P:**3:0:0**		**CIE Marks:50**
Total Hours/Week:40Hrs		**SEE Marks:50**

Course Type: Theory

Course Objectives:

1. Analyze the basic concepts and the applications of database systems.
2. Evaluate the different issues involved in the design and implementation of Database System.
3. Explain the basic concepts of relational data model, entity relationship model, relational database design, relational algebra and database language SQL.
4. Design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS

UNIT-I	10Hrs.

Databases and Database Users: Introduction, Characteristics of the Database Approach, Actors on the scene, Workers behind the scene, Advantages of using the DBMS approach, When not to use a DBMS, **Database System Concepts and Architecture:** Data models, schemas and instances, Three-schema architecture and data independence, Database language and interfaces, The database system environment.

Data Modelling Using the Entity-Relationship(ER) Model: Using High-Level Conceptual Data Models for Database Design; An Example Database Application; Entity Types, Entity Sets, Attributes and Keys; Relationships, Relationship Types, Roles and Structural Constraints; Weak Entity Types; Refining the ER Design for the COMPANY Database; ER Diagrams, Naming Conventions and Design Issues.

UNIT–II	10Hrs.

The Relational Data Model and Relational Database Constraint: Relational Model Concepts, Relational Constraints and Relational Database Schemas, Update Operations, Transactions, and Dealing with Constraint Violations. Relational Algebra and Relational Calculus: Unary Relational Operations, Relational Algebra Operations from Set Theory, Binary Relational Operations, Additional Relational Operations, Overview of Tuple Relational Calculus and Domain Relational Calculus; Examples of Queries in Relational Algebra. **Relational Database Design Using ER and EER to-Relational Mapping:** Relational Database Design Using ER to Relational Mapping.

SQL-99: Schema Definition, Constraints, Queries and Views: SQL Data Definition and Data types, Specifying Constraints in SQL, Schema Change statement in SQL, Basic Queries in SQL, Insert, Delete and Update Statements in SQL, Specifying Constraints as Assertion and Triggers, Views in SQL.

UNIT–III	10Hrs.

Functional Dependencies and Normalization for Relational Database: Informal Design Guidelines for Relation Schemas, Functional Dependencies, Normal Forms Based on Primary Keys, General Definitions of Second and Third Normal Forms, Boyce-Codd Normal Form. **Relational Database Design Algorithms and Further Dependencies:** Multi-valued Dependencies and fourth normal form, Join Dependencies and fifth normal form.

UNIT–IV	10Hrs.

Overview of Transaction Management: The ACID Properties: Consistency and Isolation, Atomicity and Durability; Transactions and Schedules; Concurrent Execution of Transactions: Motivation for Concurrent Execution, Serializability, Anomalies due to Interleaved Execution, Schedules Involving Aborted Transactions**; Lock- Based Concurrency Control:** Strict Two-Phase Locking, Deadlocks; Performance of

Locking; Timestamp Based Protocols- Validation- Based Protocols,Multiple Granularity. **Transaction Support in SQL:** Creating and Terminating Transactions, What Should We Lock? Transaction Characteristics in SQL.

Introduction to Crash Recovery: Stealing Frames and Forcing Pages, Recovery - Related Steps during Normal Execution, Overview of ARIES recovery algorithm, Atomicity: Implementing Rollback. Check Points Buffer Management, Failure with loss of nonvolatile storage.

Database Security: Introduction to Database Security; Access Control; Discretionary Access Control: Grant and Revoke on Views and Integrity Constraints; **Mandatory Access Control:** Multilevel Relations and Poly instantiation, Covert Channels, DoD Security Levels.

Suggested Learning resources

Text Books:

1. Elmasri and Navathe, Fundamentals of Database Systems, 6th Edition, Pearson Education, 2011.
2. Raghu Ramakrishnan, JohannesGehrke, Database Management Systems, 3rdEdition,TATA McGrawHill.
3. Silberschatz and Korth, DatabaseSystemConcepts,7th edition, McGrawhill.

ReferenceBooks:

1. C.J.Date, A.Kannan, S.SwamiNadhan, An Introduction to Database systems, 8th Edition, Pearson.
2. M. L.Gillenson, Fundamentals of Database Management Systems, Wiley Student Edition.
3. S.ShahandV.Shah, Oracle for Professionals, The XTeam, SPD.

Course Outcomes:

CO1: Demonstrate the basic elements of a relational database management system.

CO2: Ability to identify and build the data models for relevant problems.

CO3: Design entity relationship and convert entity relationship diagrams into relations and Formulate SQL queries to process the data.

CO4: Ability to analyze the relational model on rules of normal forms.

CO5: Build well-structured transaction.

Course Outcomes	Programme Outcomes							
	1	2	3	4	5	6	7	8
CO1	**3**							
CO2		**3**	**2**					
CO3		**2**	**3**					
CO4	**3**	**2**						
CO5			**3**	**1**				

Course Code: 1PCAA104C	Operating Systems	Credits : 03
Hours/Week (L:T:P) : 3:0:0		CIE Marks : 50
Total Hours: 40		SEE Marks : 50

Course Type: Theory

Course Objectives:

1. Explain the need and services of the operating system
2. Explore how the operating system handles processes and manages memory.
3. Recognize deadlock condition and technique to handle deadlock situation.
4. Analyze various memory management strategies and file handling concepts.

UNIT-I	10 Hrs.

Introduction to Operating Systems, What operating systems do, Operating System Operations, Computing Environments, Operating Systems Structure, Operating System Services, System Calls, Types of System Calls, System Programs, Operating System Structure, System Boot. Processes, Process Concept, Process Scheduling, Interprocess Communication.

UNIT-II	10 Hrs.

Process Scheduling, Basic Concepts, Scheduling Criteria, Scheduling Algorithms. Synchronization, Background, The Critical Section Problem, Mutex Locks, Semaphores, Classic Problems of Synchronization: Readers-Writers Problem, Dining Philosophers Problem using Semaphores.

UNIT-III	10 Hrs.

Deadlocks, System model, Deadlock Characterization, Methods for handling deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection and Recovery from Deadlock. Memory Management Strategies Basic Hardware, Swapping, Contiguous Memory Allocation, Segmentation, Paging.

UNIT-IV	10 Hrs.

Virtual Memory Management Background, Demand Paging, Page Replacement. File System, File concept, Access methods, Directory overview Implementing File System Allocation methods, Free Space Management

Suggested Learning resources

Text Books

1. Abraham Silberschatz, Peter Baer Galvin, Greg Gagne: Operating Systems Principles, 10th Edition, Wiley India, 2019.

Reference Books:

1. D M Dhamdhere: Operating Systems A Concept Based Approach, 3rd Edition, Tata McGraw Hill, 2017.
2. Harvey M Deital: Operating Systems, 3rdEdition, Addison Wesley, 1990.

Course Outcomes:

CO1: Describe the elements and various functionalities of the operating system
CO2: Apply the techniques of process management and demonstrate process synchronization.
CO3: Recognize deadlock condition and technique to handle deadlock situation.
CO4: Analyze various memory management strategies.
CO5: Describe file handling concepts.

CO-PO Mapping

Course Outcomes	Programme Outcomes							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
CO1	**1**	**2**	**3**					
CO2	**2**	**1**	**3**					
CO3	**2**	**3**	**1**					
CO4	**3**	**2**	**1**					
CO5	**1**	**2**	**3**					

Course Code: 1PCAA105C	Computer Networks	Credits : 03
Hours/Week (L:T:P) : 3:0:0		CIE Marks : 50
Total Hours: 40		SEE Marks : 50

Course Type: Theory

Course Objectives:

1. Understand computer networks fundamentals and issues.
2. Appreciate computer network models and role of layers in each model.
3. Understand different protocols and techniques supported at each level of network software
4. Comprehend application and challenges of computer networks.

UNIT-I	10 Hrs.

Introduction: Uses of Computer Networks, Network Hardware. Network Software: Protocol Hierarchies, Design Issues for the Layers. Types of Networks, Topologies, **Reference Models:** The OSI Reference Model, The TCP/IP Reference Model, A Comparison of the OSI and TCP/IP Reference Models. Physical Layer- Guided Transmission Media, Digital Modulation and Multiplexing.

UNIT-II	10 Hrs.

Data Link Layer-Data link Layer Design issues, Framing, Flow Control and Error Correcting and Detection codes, Sliding Window Protocols (Stop and Wait, Go-Back-N (GBN) and Selective Repetitive (SR)), Medium Access Control-The Channel Allocation Problem, Multiple Access Protocols.

Data Link Layer Switching: Uses of bridges, repeaters, hubs, switches, routers and gateways.

UNIT-III	10 Hrs.

The Network Layer: Network Layer Design issues, Routing algorithms- The Optimality Principal, Shortest Path Algorithm, Flooding, Distance Vector Routing, Link State Routing, Hierarchical routing, Congestion Control Algorithms, Quality of Service, Internetworking. The Network Layer in the Internet: The Network Layer in the internet- IP version 4 Protocol(IPv4), The Main IPv6 Header, Extension Headers,

Internet Control Protocols: ICMP, ARP, DHCP.

UNIT-IV	10 Hrs.

The Transport Layer -The Transport Service: Services Provided to the Upper Layers, Berkeley Sockets, Elements of Transport Protocols, Internet transport protocols.TCP: Introduction to TCP, The Service Model, Protocol, Segment Header, UDP.

The Application Layer- The Domain Name System, Electronic Mail, The World-Wide-Web.

Suggested Learning resources

Text Books

1. Andrew S. Tanenbaum, David J Wetherall, “Computer Networks”, Pearson Education, Pearson Publication, 5th Edition, 2012.
2. Behrouz A Forouzan, Firouz Mosharraf, “Computer Networks A Top-Down Approach”, Tata McGraw-Hill Education Pvt. Ltd, 2011.
3. William Stallings, "Data and Computer Communication" ,8th edition, Pearson Publications,2007.

Course Outcomes:

After completion of the course student will be able to

CO1: To comprehend basics of data communication system.

CO2: Enumerate the layers of the OSI, TCP/IP model and demonstrate functions of each layer and comprehend the concept of data link protocols.

CO3: To exhibit the ability to apply different error detection and correction technique to solve communication problem.

CO4: To exhibit the ability to understand issues related to transport layer and protocols.
CO5: Demonstrate the concept of internetworking, routing techniques of network layer.

CO-PO Mapping

Course Outcomes	Programme Outcomes							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
CO1	**1**	**2**						
CO2	**2**	**2**	**1**					
CO3	**2**	**1**	**1**					
CO4		**1**	**2**					
CO5		**1**	**2**					

Course Code: 1PCAA106L	Database Management System Laboratory	Credits:2
Hours/Week (L:T:P) : 0:0:4		CIEMarks:50
Total Hours of Pedagogy (Theory + Lab):		SEEMarks:50

1. Create the following tables with properly specifying Primary keys, Foreign keys for the medical consultation center.

   SPECIALIZATION(Sp_Id, Sp_Name, Sp_Description)

   Doctor (D_Id,D_Name, Sp_Id)

   PATIENT (P_Id, P_name, p_address, date_of_ registration)

   CONSULTATION DATE (C_date, D_Id, P_Id).

   Write the SQL statements for the following queries.

   i. Generate list of patients and their consultation detail.

   ii. Find patients consulted by specific doctor.

   iii. List the patients by the their date of registered

   iv. Find the details of the entire faculty based on specialization and have consultation date next month.

   v. Find the patient whose consultation date is today along with the concerned faculty detail.

2. Create the following tables with properly specifying Primary keys, Foreign keys for the library system.

   Faculty(ID, Name, Designation, DoB, Dept_ID)

   BRANCH (ID, Name, HoD)

   STUDENT (USN, Name, Address, BranchId, Sem)

   BOOK (BookId, Bookname, Authorid, Publisher, BranchId)

   AUTHOR (Authorid, Authorname, Country,DoB)

   BORROW (USN, Bookid, Borrowed_Date)

   Write the SQL statements for the following queries.

   i. List the details of Students who are all studying in 2nd sem MCA.

   ii. Display the Book names in descending order of their names.

   iii. List the names of HoDs of all the departments.

   iv. List all the books by author, branch, publisher etc.

   v. Display the faculty details in descending order of their experience.

3. Create the following tables with properly specifying Primary keys, Foreign keys for the vehicle insurance company.

   PERSON (Driver_Id, D_Name, address)

   CAR (Reg_No, Model, Year_of_Manunfacture, Make)

ACCIDENT (Report_No, Adate, Location)

OWNS (Driver_id, Reg_No)

PARTICIPATED (Driver_id, Reg_No, Report_No, Damage_Amount)

Write the SQL statements for the following queries.

i. Update the damage amount for the car with a specific registration number in the accident with a given report number to a specified amount.

ii. Find the owner of car that is involved in the accident of specific date.

iii. Find the total damage amount out of accidents between given dates.

iv. Find the car that is frequently meeting an accident.

v. Find more than one car frequently meeting the accident belongs to a owner.

4. Create the following tables with properly specifying Primary keys, Foreign keys for the bank system.

Customer(Cust_Id,Cust_Name,Address,DoB,PAN)

Branch(Branch_Id,Branch_Name,Location)

Account(Account_No,Account_Type,Balance,Branch_Id)

Transaction(Trans_Id,Account_No,Date_of_Trans,Trans_Type,Amount)

Opens_Account(Cust_Id,Account_No,Date_of_Creation)

Write the SQL statements for the following queries.

i. List the details of account holders who have a both accounts in the same branch.

ii. List the Name and address of account holders who have more transactions in current month.

iii. List the total number of transactions, amount deposited and amount withdrawn of a customer with given a Permanent Account Number (PAN) of a specific financial year.

iv. Display the total amount deposited and withdrawn of a branch in a specific month.

v. Display the date on which the maximum number of withdrawal transactions occurred in a specific branch.

5. Design an ER-diagram for the following scenario, Convert the same into a relational model.

Consider a Cricket Tournament “ABC CUP” organized by an organization. In the tournament many teams are contesting, each having a TeamId,Team_Name, City and a coach. Each team is uniquely identified by TeamId. A team can have many Players and a captain. Each player is uniquely identified by PlayerId, having a Name, and multiple phone numbers andDoB. A player represents only one team but can play many matches. There are many Stadiums to conduct matches and each stadium is identified by StadiumId, having a stadium_name, Address (involves city, area_name, pincode). A team can play many matches andeach match played between the two teams in the scheduled date and time in the predefined Stadium. Each match is

identified uniquely by using MatchId and match won by any one team and that also recorded in the database. For each match man_of_the match award given to a player.

Write the SQL statements for the following queries.

i. Display the youngest player (in terms of age) Name, Team name , age

ii. List the details of the stadium where the maximum number of matches were played.

iii. List the details of the player who is not a captain but got the man_of _match award at least in two matches.

iv. Display the Team details who won the maximum matches.

v. Display the team name where all its won matches played in the same stadium.

6. Referring problem definition of question 1, write the SQL statements for the following queries.

i. Find the doctors who have no consultations between dates.

ii. Generate up-to date list of doctor-wise the number of consultations.

iii. Generate list of patients who visited the center for consultation at least three times.

iv. Find the doctors who have maximum consultations.

v. Find the patient who is consulted by all faculties.

7. Referring problem definition of question 3, write the SQL statements for the following queries.

i. Find the total number of people who owned cars that were involved in accident in 2024.

ii. Find the number of accidents in which cars belonging to a specific model were involved.

iii. Find the model highly involved in the accidents.

iv. Find the vehicle that is involved in the accident at sensitive location.

v. Find the driver who is involved in more number of accidents at sensitive location.

8. Referring problem definition of question 4, write the SQL statements for the following queries.

i. Count the number of accounts of different account type in all branches of the same city.

ii. Display all the joint accounts with number of customers.

iii. Find all customers who have an account at all the branches located in 'Bagalkote'.

iv. Display the total amount of all the customers of all the branches located in ‘Bagalkote’.

v. Add 6% interest on savings accounts of senior citizens and 4.5% on all other savings accounts.

9. Create the following tables with properly specifying Primary keys, Foreign keys for an

order processing company.

CUSTOMER (Cust_Id, Cust_Name, City)

ITEM (Item_Id, Unit_Price)

WAREHOUSE (Warehouse_No, City)

CUST_ORDER (Order_No, Cust_Id ,Ord_Date, Ord_Amt)

ORDER-ITEM (Order_No, Item_Id, Qty)

SHIPMENT (Order_No, Warehouse_No, Ship_Date)

Write the SQL statements for the following queries.

i. Display detail of orders of specific customer.

ii. Display detail of orders of the items in a proper order.

iii. List the customer who has purchased a specific item more number of times between dates.

iv. Produce a listing: CustName, Orders, Avg_Order_Amt, where the middle column is the total number of orders by the customer and the last column is the average order amount for that customer.

v. List the orders that were shipped from all the warehouses that the company has in a specific city.

10. Referring problem definition of question 9, write the SQL statements for the following queries.

i. Demonstrate how you delete an Item with a given number from ITEM table and make that field null in the ORDER-ITEM table.

ii. Generate the list of orders to be shipped next month.

iii. Display the list of orders whose customer exists in the same city that of the warehouse.

iv. To display which item is highly demanded by the customers.

v. Display the customer who purchased the items together frequently.

Course Outcomes (COs):

After completion of the course student will be able to:

1. Create database objects like table, constraint, view and index.
2. Design entity-relationship diagrams to solve given database applications.
3. Formulate SQL queries for the given problem.
4. Design PL/SQL like stored procedure, trigger etc..

CO-PO Mapping

Course Outcomes	Programme Outcomes							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
CO1	**3**	**1**	**1**					
CO2	**2**		**3**					
CO3	**2**	**3**						
CO4	**2**		**3**	**1**				
CO5								

Course Code: 1PCAA107L	Web Technologies Laboratory	Credits : 02
Hours/Week (L:T:P) : 0:0:2		CIE Marks : 50
Total Hours of Pedagogy (Theory + Lab):		SEE Marks : 50

Course Type: Practical

Course Objectives:

1. Create database objects that include tables, constraints, Views and indexes.
2. Create SQL queries to read information form tables.
3. Design Web page.
4. Building interactive web pages.

Sl. No.	Experiments
01	Design and develop a static web page using basic HTML tags to demonstrate use of different color, font, table format, bold, italic etc.
02	Design and develop a web page to demonstrate different types of style sheets.
03	Design and develop external CSS style sheet to create a login page form and validate using JavaScript.
04	Write a JavaScript to demonstrate use of alert, prompt and confirm message box by considering general feedback form.
05	Develop and demonstrate a XHTML file that includes Javascript script for the following problems: a) Input : A number n obtained using prompt Output : The first n Fibonacci numbers
06	Demonstrate use of hyperlink to pass parameters and validate those parameters in second page using JavaScript
07	Design and develop a Registration form Forward the request to success and failure page by validating user credentials using JavaScript.
08	Create a HTML form containing textbox to enter text. Write a JavaScript code block, which checks the contents entered in a form's Text element. If the text entered is in the lower case, convert to upper case. Make use of function to Uppercase( ).
09	a) Write a PHP program to store page views count in SESSION, to increment the count on each refresh, and to show the count on web page. b) write PHP program to store current date-time in a COOKIE and display the "Last visited on" date –time on the web page upon reopening of the same page.
10	Create a XHTML form with Name, Address Line 1, Address Line 2, and E-mail text

	fields. On submitting, store the values in MySQL table. Retrieve and display the data based on Name.
	Course Outcomes (COs):
	CO1: Create basic static web pages using HTML tags and formatting. **CO2:** Apply different CSS styles to enhance webpage design. **CO3:** Use JavaScript for interactivity and form validation. **CO4:** Implement PHP programs using sessions and cookies. **CO5:** Store and retrieve form data using PHP and MySQL.
	CO-PO Mapping **Course Outcomes** / **Programme Outcomes** **1** **2** **3** **4** **5** **6** **7** **8** CO1 **3** **2** CO2 **3** **2** **3** CO3 **2** **2** CO4 **3** CO5