Name of the Course: Major Practical 1

Sr.No.	Heading	Particulars
1	**Description the course : Including but Not limited to:**	Programming with C -practical This course is stepping stone to learn other languages. This course provides students hands on experiences of coding exercises and projects. . Database Management System's practical approach is useful to gain the knowledge for software backend development. It benefits to user by providing data definition, data access, reduced data redundancy, data integrity, data sharing, data organizing, data consistency, data accuracy, and security
2	**Vertical :**	Major
3	**Type :**	Practical
4	**Credits :**	2 credits (60 Hours of Practical work in a semester)
5	**Hours Allotted :**	30 Hours (C Programming Practical) + 30 Hours(DBMS - Practical)
6	**Marks Allotted:**	50 Marks
7	**Course Objectives(CO):** CO 1. To provide exposure in developing algorithm, flowchart and to write efficient code. CO 2. To understand loops and decision making in programming. CO 3. To understand the arrays, structures, union. CO 4. To understand the use of function and pointers. CO 5. To Identify entities and its relationship with relational model structure. CO 6. To understand relational database using SQL and constraints implementation using create table queries. CO 7. To Understand DML operations and backing of database CO 8. To understand how to retrieve data from database and learn how to retrieve single value after performing calculations on group of values CO 9. To understand built-in functions to perform operations on data CO 10. To understand how to fetch data from two or more tables, which is joined to appear as single set of data CO 11. To understand nested and larger query as advanced fetching of data to understand concept of virtual table. CO 12. To understand how to control user access in a database.	

8	**Course Outcomes (OC):** OC 1. Students can demonstrate the concepts of datatypes, variables and operators in C. OC 2. Students can implement the concept of control statements and looping in C program. OC 3. Students can demonstrate the use of arrays, strings and structures in C OC 4. Students can implement modular C program using functions and pointers. OC 5. Students can demonstrate the use of arrays, strings and structures in C. OC 6. Students able to perform various operations such as insert, update delete and retrieve data from database using SQL queries. OC 7. Students able to perform alteration in tables and can restore and take backup of the database. OC 8. Students able to perform operations using simple SQL Queries to fetch data and learns various aggregate functions to get single value. OC 9. Students able to perform SQL Queries using JOIN keyword for joining two or more tables. OC 10. Students able to perform nested queries using in, exists operators. OC 11. Students able to create new table by joining one or more tables and learn how to hide attribute from end user. OC 12. Students able to restrict the user from accessing data in database. OC 13. Students should be able to create, manipulate the database management system to evaluate the business information problem.

9	**Module 1:- Programming with C** **1. Practical 1**:- a. To calculate simple interest taking principal, rate of interest and number of years as input from user. Write algorithm & draw flowchart for the same. b. Write a program to find greatest of three numbers using conditional operator. Write algorithm & draw flowchart for the same. c. Write a program to check if the year entered is leap year or not. Write algorithm & draw flowchart for the same. **2. Practical 2:-** a. Write a program to calculate roots of a quadratic equation. b. Write a menu driven program using switch case to perform add / subtract / multiply / divide based on the users choice. c. Write a program to print the pattern of asterisks. **3. Practical 3** a. Write a program using while loop to reverse the digits of a number. b. Write a program to calculate the factorial of a given number. c. Write a program to print the Fibonacci series. **4. Practical 4** a. Write a program to print area of square using function. b. Write a program using recursive function. c. Write a program to square root, abs() value using function. d. Write a program using goto statement . **5. Practical 5** a. Write a program to print rollno and names of 10 students using array. b. Write a program to sort the elements of array in ascending or descending order **6. Practical 6** a. Write a program to extract the portion of a character string and print the extracted part. b. Write a program to find the given string is palindrome or not. c. Write a program to using strlen(), strcmp() function . **7. Practical 7** Write a program to swap two numbers using a function. Pass the values to be swapped to this function using call-by-value method and call-by-reference method. **8. Practical 8** a. Write a program to read a matrix of size m*n. b. Write a program to multiply two matrices using a function. **9. Practical 9** Write a program to print the structure using Title Author Subject Book ID Print the details of two students. **10. Practical 10** Create a mini project on “Bank management system”. The program should be menu driven.	**30 Hrs**

		Module 2 1. Conceptual Designing using ER Diagrams (Identifying entities, attributes, keys and relationships between entities, cardinalities, generalization, specialization etc.) 2. Perform the following: • Viewing all databases • Creating a Database • Viewing all Tables in a Database • Creating Tables (With and Without Constraints) • Inserting/Updating/Deleting Records in a Table 3. Perform the following: • Altering a Table • Dropping/Truncating/Renaming Tables • Backing up / Restoring a Database 4. Perform the following: • Simple Queries • Simple Queries with Aggregate functions 5. Queries involving • Date Functions • String Functions • Math Functions 6. Join Queries • Inner Join • Outer Join 7. Subqueries • With IN clause • With EXISTS clause 8. Converting ER Model to Relational Model and apply Normalization on database. (Represent entities and relationships in Tabular form, Represent attributes as columns, identifying keys and normalization up to 3rd Normal Form). 9. Views • Creating Views (with and without check option) • Dropping views • Selecting from a view 10. DCL statements • Granting and revoking permissions • Saving (Commit) and Undoing (rollback)	**30 Hrs**
10	**Text Books:** 1. "Fundamentals of Database System", Elmasri Ramez, Navathe Shamkant, Pearson Education, Seventh edition, 2017 . 2. Database Management Systems", Raghu Ramakrishnan and Johannes Gehrke, 3rd Edition, 2014		
11	**Reference Books:** 1. MASTERING C, K. R. Venugopal and Sudeep R. Prasad, Tata McGraw-Hill Publications. 2. "A Computer Science –Structure Programming Approaches using C", Behrouz		

	Forouzan, Cengage Learning. 3. Schaum's outlines "Programming with C", Byron S. Gottfried, Tata McGraw-Hill Publications. 4. "Basics of Computer Science", Behrouz Forouzan , Cengage Learning. 5. "Programming Techniques through C", M. G. Venkateshmurthy, Pearson Publication. 6. "Programming in ANSI C", E. Balaguruswamy, Tata McGraw-Hill Education. 7. "MySQL: The Complete Reference", Vikram Vaswani , McGraw Hill, 2017. 8. "Learn SQL with MySQL: Retrieve and Manipulate Data Using SQL Commands with Ease", Ashwin Pajankar, BPB Publications, 2020.	
12	**Internal Continuous Assessment: 40%**	**Semester End Examination: 60%**
13	**Continuous Evaluation through:** Students are expected to attend each practical and submit the written practical of the previous session. Performing Practical and writeup submission will be continuous internal evaluation. 2.5 marks can be awarded for each practical performance and writeup submission totalling to 50 marks and can be converted to 20 marks.	30 marks practical exam of 2 hours duration
14	**Format of Question Paper: Duration 2 hours. Certified copy of Journal is compulsory to appear for the practical examination** Practical Slip: Q1. From Module 1 13 marks Q2. From Module 2 12marks Q3. Journal and Viva 05 marks	