# List of Practical for
# Master in Computer Application
# (5 Year Integrated)
# (Through Distance Education)


**Directorate of Distance Education**
**Guru Jambeshwar University of**
**Science & Technology, Hissar**

# 2nd Year

**GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR**
**DIRECTORATE OF DISTANCE EDUCATION**

**Programme: MCA 5 year Integrated Course** **Course: Practical(Based on MCA-201)**

**Code: MCA 207** **Total Marks=100**

# Data Structure & Algorithms Lab

1 Write a C program to implement the following string manipulation functions:
a) String copy b) String concatenation and c) String compare.

2. Write a C program that uses functions to perform the following:
a) Matrix Addition
b) Matrix Subtraction
c) Matrix Multiplication
Display results after every operation on matrices.

3. Write a C program that uses functions to perform the following:
a) Create a singly linked list of integers.
b) Insert an integer in the above linked list in the beginning.
c) Insert an integer in the above linked list in the end.
d) Insert an integer in the above linked list before a given element.
e) Insert an integer in the above linked list after a given element.
f) Display the contents of the above list after every insertion.

4. Write a C program that uses functions to perform the following:
a) Create a singly linked list of integers.
b) Delete an integer from the beginning of above linked list.
c) Delete the last integer from the above linked list.
d) Delete a given integer from the above linked list.
e) Display the contents of the above list after every deletion.

5. Write a C program that uses functions to perform the following:
a) Create a binary search tree of characters.
b) Traverse the above Binary search tree recursively in Preorder, Inorder and Postorder.

6. Write C programs for implementing the Quick sort sorting methods to arrange a list of integers in ascending order.

7. Write C programs for implementing the following searching methods:
a) Linear Search b) Binary search

8. Write a C program that accepts the vertices and edges for a graph and stores it as an adjacency matrix. Implement functions to print indegree, outdegree and to display the adjacency matrix.

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**GJUS&T, Hisar**

**GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR**
**DIRECTORATE OF DISTANCE EDUCATION**

**Programme: MCA (5-year integrated course)** **Course:Practical (Based on MCA - 202)**
**Code: MCA-208** **Max Marks: 100**

# DBMS Lab (MCA-208)

1. Define various Database Languages.
2. Write a program to create a database.
3. Write a program to create table with constraints such as 'NOT NULL', 'UNIQUE', 'DEFAULT', 'PRIMARY KEY', 'CHECK' etc.
4. Write a program to add a few record to the database.
5. Write a program to insert values into a specific column.
6. Write a program to study the viewing commands (select, update) and executes the following queries:
   - Find the names of all students who study in MCA 3rd year.
   - Find the student names whose age is greater than 20 years.
7. Write a program for following query to modify the structure of table using Alter or Delete command:
   - Add an attribute named 'Phone' to the table 'Student'.
   - Drop the attribute 'Gender' from the table 'Student'.
   - Delete the entries from the table 'Student' who left the course in between.
8. Write a program to Update the record using 'WHERE' clause and without using 'WHERE' clause.
9. Write a program to Update the record using Sub Query.
10. Write a program to add and remove a 'FOREIGN KEY'.
11. Write a program to order the records in ascending and descending order.
12. Write a program to Group the records using 'HAVING' clause.
13. Write programs for various Aggregate functions such as 'SUM', 'COUNT', 'AVG', 'MAX', 'MIN'.
14. Write programs for various relational algebraic operations such as 'UNION', 'INTERSECT', 'EXCEPT'.
15. Write a program for Join operation as 'INNER JOIN', 'OUTER JOIN', 'CROSS JOIN'.

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# 3rd year

**GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR**
**DIRECTORATE OF DISTANCE EDUCATION**

**Programme: MCA (5-year integrated course)** **Course:Practical (Based on MCA - 302)**
**Code: MCA-307** **Max Marks: 100**

# Object Oriented Programming using C++ (MCA-307)

1. Write a c++ Program to implement Matrices multiplication
2. Write a c++ program to check whether given number is Palindrome or not.
3. Write a c++ program to implement Functions
4. Write a c++ program to implement Bank account Class
5. Write a c++ program to implement Student information Class
6. Write a c++ program to implement Constructors.
7. Write a c++ program to find Factorial of a given number using Recursion
8. Write a c++ program to implement Friend function
9. Write a c++ program to implement Function Templates
10. Write a c++ program to implement Multiple inheritance
11. Write a c++ program to implement Hierarchical inheritance
12. Write a c++ program to implement Function overloading
13. Write a c++ program to implement Exceptional handling
14. Write a c++ program to implement Class Templates.
15. Write a c++ program to implement Virtual Functions

**Prepared By: Ritu**
**Assistant Professor**
**Deptt.of DDE**
**GJUS&T, Hisar**

# 4th Year

**GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR**
**DIRECTORATE OF DISTANCE EDUCATION**

**Programme: MCA 5 year Integrated Course** **Course: Practical(Based on MCA-401)**

**Code: MCA 407** **Total Marks=100**

# Computer Graphics & Multimedia LAB (MCA-407)

1. Write a program to draw a line using DDA algorithm.
2. Draw a triangle inside other triangle.
3. Write a program to draw a cube in using Bresenham's algorithm.
4. Write a program for clock with hours, minute and second hand.
5. Write a program to rotate a circle around to a triangle lines.
6. Write a program to implement polygon filling.
7. Write a program for window clipping.
8. Write a program using painter algorithm for depth reducing of an shape.
9. Write a program for transformations of triangle- translation, scaling, and rotation.
10. Write a program for converting the shape of an object.

**Prepared By: Sunil Verma**
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**GJUS&T, Hisar**

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**Programme: MCA 5 year Integrated Course** **Course: Practical(Based on MCA-402)**

**Code: MCA 408** **Total Marks=100**

## Artificial Intelligence Lab

1. Turbo Prolog features and format.
2. Write a program for usage of rules in prolog.
3. Write a program for using Input, Output and fail predicates in prolog.
4. Write a program for studying usage if arithmetic operators in prolog.
5. Write a program to study usage of Cut, Not, Fail predicates in prolog.
6. Write a program to study usage of recursion in prolog.
7. Write a program to implement DFS/ BFS.
8. Write a program to implement A* algorithm.
9. Write a program to solve 8 queens problem.
10. Write a program to solve travelling salesman problem.

**Prepared By: Dr.Dharmender Kumar**
**Associate Professor**
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**GJUS&T, Hisar**