



# Indira Gandhi Delhi Technical University For Women

Department of Electronics and Communication Engineering

## COMPUTER VISION AND IMAGE PROCESSING (CVIP) LABORATORY



**FACULTY INCHARGE**

**Prof. Nidhi Goel**

**TECHNICAL ASSISTANT**

**Ms. Neetu Meena**



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Department of Electronics and Communication Engineering

**COMPUTER VISION AND IMAGE PROCESSING (CVIP)  
LABORATORY**

## FACILITIES (SOFTWARE AND HARDWARE)

1. NVIDIA four port 40 GB A100 DGX workstation
2. HP Desktops (Count: 20)
  - 2.1 Processor: Intel(R) Core(TM) i7 CPU 3.40 GHz
  - 2.2 RAM: 4.00 GB and 8.00 GB
  - 2.3 System Type: 64 bit Operating System Windows 8
3. FPGA Boards (Count: 05)
4. MATLAB R2022a (Campus-Wide License)





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Department of Electronics and Communication Engineering

## DATA STRUCTURE LABORATORY

SEMESTER-III (B.TECH- ECE/ECE-AI)

SUBJECT CODE: BCS-201

Room No. E-106

### LIST OF EXPERIMENTS

1. Write a C program to implement array data structure with following operations:
  - a. Traversal
  - b. Insertion
  - c. Deletion
  - d. Sorting
  - e. Searching (linear search)
2. Write a C program to perform following operations on matrices:
  - a. Addition
  - b. Subtraction
  - c. Multiplication
  - d. Transpose
3. Write a C program to perform following string operations:
  - a. Concatenate two strings
  - b. Reverse a string
  - c. Find the no. of occurrences of a word in a string
4. Write a C program to perform following operations on a Single Linked List data structure
  - a. Traversal
  - b. Insertion :
    1. Insertion after a particular node
    2. Insertion before a particular node
  - c. Deletion
  - d. Reversal of a Linked List by reversing the links
5. Write a C program to add two Polynomial Equations using Linked List
6. Write a C program to perform following operations on a Doubly Linked List
  - a. Traversal
  - b. Insertion
  - c. Deletion



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### LIST OF EXPERIMENTS

(contd.)

7. Write a C program to perform following operations on a Circular Linked List

a. Traversal

b. Insertion

c. Deletion

8. Write a C program to implement Stack using Array.

9. Write a C program to implement Stack using Linked List.

10. Write a C program to implement Queue using Array.

11. Write a C program to implement Linked List using Queue.

12. Write a C program for conversion of infix expression to Postfix expression.

\*\* use the stack created in experiment no 11 or 12

13. Write a C program for evaluation of Postfix Expression.

\*\* use the stack created in experiment no 11 or 12

14. To implement Binary tree traversal algorithms – Inorder, preorder & postorder



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### LIST OF EXPERIMENTS

(contd.)

15. Write a C program to implement Binary Search Tree and perform following operations
  - a. Searching for a particular node
  - b. Insertion of a new Node
  - c. Deletion of a particular node N
    - Case 1: when node N has no children
    - Case 2: Node N has exactly one child
    - Case 3: Node N has two children
16. Write a C program to implement Binary Search.
17. Write a C program to implement
  - a. Bubble Sort
  - b. Quick Sort
  - c. Heap Sort
  - d. Insertion Sort
  - e. Merge Sort
18. Implement Graph traversal algorithms – BFS & DFS
19. Write a C program to create a file, store information and perform following operation
  - a. Delete a specific line from a text file
  - b. Find the number of lines in a text file
  - c. Append the content of file at the end of another file
  - d. Copy file in to another file





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NEURAL NETWORK AND ARTIFICIAL INTELLIGENCE  
LABORATORY

SEMESTER-III (B.TECH- ECE-AI)

SUBJECT CODE: BAI-205

Room No. E-106

## LIST OF EXPERIMENTS

1. To study the basics of Artificial Intelligence and its applications.
2. Write a program to implement the Hill climbing techniques.
3. Write a program to implement the BFS search method.
4. Write a program to solve the Monkey banana problem.
5. Write a program to implement inform A\* search method.
6. Write a program to implement a Tic-Tac-Toe game.
7. Write a program to show the back-propagation network for the X-OR function.
8. Write a program to find how the Perceptron learning rule works for Linearly Separable problems.
9. Write a program to implement an artificial neural network with backpropagation.
10. Write a program to implement a decision tree for restaurant waiting problem.



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Department of Electronics and Communication Engineering

## DATA COMMUNICATION AND COMPUTER NETWORKS LABORATORY

SEMESTER-V (B.TECH- ECE)

SUBJECT CODE: BIT-301

Room No. E-106

### LIST OF EXPERIMENTS

1. Write a C/C++ program to determine if the IP address is in Class A, B, C, D, or E.
2. Write a C/C++ program to translate dotted decimal IP address into 32-bit address.
3. To establish straight configuration for LAN.
4. To implement a routing protocol and check its connectivity in a variable length subnet masked network.
5. Write a C/C++ program to validate an IPv4 address.
6. Write a C/C++ program to determine Class, network and Host ID of an IPv4 address.
7. Write a C/C++ program to implement checksum technique to detect error.
8. Write a C/C++ program to implement even and odd parity checker at link layer.
9. Write a C/C++ program to translate 32-bit Binary IP address into dotted decimal IP address.



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Department of Electronics and Communication Engineering

## DATA COMMUNICATION AND COMPUTER NETWORKS LABORATORY

SEMESTER-V (B.TECH- ECE)

SUBJECT CODE: BIT-301

Room No. E-106

### LIST OF EXPERIMENTS

(contd.)

10. Write a C/C++ Program for Congestion control using Leaky Bucket Algorithm

- a. Introduction to various network simulator.
- b. Introduction to NS2 and its Installation procedure.

11. **Introduction to TCL**

- a. WAP to print "Hello World".
- b. WAP to demonstrate reading of user input and output in TCL.
- c. WAP to demonstrate use of conditional operator (if-else-if-else) in TCL.
- d. WAP to input two numbers and perform all mathematical operations.

12. **Introduction to NAM**

WAP to demonstrate the traffic of duplex link between nodes in TCL by

- a. Running FTP application over TCP and
- b. CBR over UDP.

13. Introduction to awk utility i.e., working with trace files

a. Simulate a three node point-to-point network with duplex links between them. Set the queue size and vary the bandwidth and find the number of packets dropped.

b. Simulate a 4 node point-to-point network with the links connected as follows: n0-n2 , n1-n2 and n2-n3. Apply TCP agent between n0-n3 and UDP between n1-n3. Apply relevant application over TCP and UDP agents changing the parameter and determine number of packets sent by TCP/UDP.





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## LIST OF EXPERIMENTS

(contd.)

14. Introduction to routing

WAP to demonstrate unicast routing.

15. Introduction to multicast routing

a. WAP to demonstrate “Dense Mode” multicast routing.

b. WAP to demonstrate ‘Centralized Mode’ multicasting routing.

16. Simulate the different types of Internet traffic such as FTP and TELNET over a network and analyse the throughput.

17. Introduction to Ethernet/LAN

Simulate an Ethernet LAN using n nodes (6-10), change error rate and data rate and compare throughput.

18. Simulate an Ethernet LAN using n nodes and set multiple traffic nodes and determine collision across different nodes.

19. Simulate an Ethernet LAN using n nodes and set multiple traffic nodes and plot congestion window for different source / destination.



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## CLOUD COMPUTING LABORATORY

SEMESTER-VI (B.TECH- ECE)

SUBJECT CODE: BIT-304

Room No. E-106

### LIST OF EXPERIMENTS

1. To understand what is cloud, its importance, usage, services and types of Cloud.
2. To familiarize with ThingSpeak and understand the procedure of creation of a Channel over ThingSpeak.
3. To understand the procedure of MATLAB analysis of a ThingSpeak Channel.
4. Virtualization: To install Virtualization software (VirtualBox) and create a virtual machine with guest OS different from host OS.
5. Virtualization: To import and export Virtual Machines between physical machines.
6. CloudSim: To install CloudSim and create a datacenter with one host and running one cloudlet.
7. CloudSim: To create two datacenters with one host each and run one cloudlet on it.
8. To implement Time Shared and Space Shared Algorithms in CloudSim and compare them.
9. To assign priority to cloudlets in Cloudsim.
10. To deploy an application on Google App Engine.



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### DO'S AND DON'TS

#### DO'S

- Enter and leave the lab as per the time table.
- Maintain strict discipline and silence in the lab.
- Proper handling of computer systems must be done.
- Be a keen observer while performing experiments in the lab.
- Keep your bags in the rack and the consumable items back to their original position after finishing off the experiment in the lab.
- Report any problems with the computer to the person in charge.
- Shut down the computer properly.
- Make entry in the register while occupying the computer.

#### DON'TS

- Do not leave the lab without prior permission of the Lab In-charge or Technical Assistant.
- Do not bring or eat any eatable item in the lab.
- Do not make noise or shout in the lab.
- Do not disturb the decorum or aesthetic view of the lab.
- Do not tamper with the lab or system settings.
- Do not install or download any software on any lab computer.
- Do not modify or delete any system files on any lab computer.