



COMPUTING LAB

VISION

To create professionally competent and socially responsible technocrats with latest knowledge and innovative ideas to uplift the academia, industry and society.

MISSION

- To achieve academic excellence by imparting in-depth knowledge to the students through effective pedagogies and practical exposure on latest tools and technologies.
- To provide environment & opportunity for students to bring out their inherent talents for their overall development through training programs, workshops, projects and internships.
- To promote innovative research in Computer Science and Engineering and interdisciplinary domains to cater the needs of the Government, Industry and Society.
- To Educate and nurture entrepreneurial and ethical values through guidance and support.



COMPUTING LAB

This “**computing lab**” is designed to develop basic to advance level computer skills in students coming from any field of study. It aims to provide students with an understanding of the role computation can play in solving problems of their field of study.

Computational Resources:

➔ **System:** HP Pro Desk 400 G4 SFF

➔ **System Count:** 40

➔ **System Configuration:**

- HP LED 24" Monitor
- Intel Core i7-7700CPU@ 3.60 GHz,3600Mhz, 4 Cores
- Operating System- Microsoft Windows 10 Pro
- RAM 16 GB
- HDD 1 TB



Softwares and Utility available



- Python-3.10.4
- Mysql5.5
- Turbo C
- MATLAB r2020b
- Microsoft office 2016
- Code Blocks
- Visual Basic
- Jupyter
- Dev C++
- Mozilla Firefox



COMPUTING LAB



URL of Department Webpage

LAB ETHICS

- Be on time for your assigned lab session.
- Make Proper entry in log register before taking your assigned system.
- Perform practical's as explained by the facilitator individually, ask for guidance from the facilitator when stuck.
- Aim to finish, at least one practical in a session
- After completion, shut down your systems properly.
- Collect your extensible if any like flash drive, mobiles, notebook, pen extra before you leave your station.
- Arrange the stools and chairs properly before you leave your assigned station and the lab.

LAB In-charge

Dr. Manish Dixit

LAB Instructor

Mr. Sanjay Aroliya



COMPUTING LAB

- Turn off the machine when you are no longer using it.
- Report any broken plugs or exposed electrical wires to the teacher immediately.
- Remember that all use of IT facilities is logged and monitored.
- Think carefully about your online conduct to protect personal information.
- Keep your operating systems and software up to date.
- Use passwords that can't be easily guessed, and protect your passwords.
- Beware of scams.
- Protect information when using the Internet and email.
- Make sure your external devices are VIRUS FREE.
- Feel free to ask for assistance.
- Behave properly
- Do not install or download unknown or unsolicited programs/apps.
- Make backup copies of files or data you are not willing to lose.

- Do not eat or drink inside the laboratory.
- Do not insert metal objects such as clips, pins, and needles into the computer casings.
- Do not remove anything from the computer laboratory.
- Do not touch, connect, or disconnect any plug or cable without permission.
- Do not open an external device without scanning them for computer viruses.
- Do not change the icons on the computer screen.
- Do not switch the keyboard letters around.
- Do not attempt to repair, open, tamper, or interfere with anything inside the lab.
- Do not access pornographic or obscene material or material that could offend others.
- Do not let anyone else use any of your accounts or tell anyone your password.
- Do not download videos, music or anything else that's copyrighted by other people.
- Do not use IT facilities to bully or harass other people.
- Do not install unlicensed or malicious software.
- Do not use IT facilities to advertise goods or services.
- Do not uninstall security software.





COMPUTING LAB

COMPUTER GRAPHICS AND ANIMATION-290305(DC)

LIST OF EXPERIMENTS:

1. Installation and Introduction to OpenGL basics, graphic functions, commands for compiling and executing an OpenGL Program.
2. Write a Program to create an output window, to plot a point with given coordinates and other basic demonstrations.
3. Write a Program to implement DDA Line Drawing Algorithm.
4. Write a Program to implement Bresenham,s Line Algorithm.
5. Write a Program to implement Mid-Point Circle Algorithm.
6. Write a Program to implement following 2D transformations:
 - i. Translation of a point, line and polygon.
 - ii. Scaling of a line and polygon.
 - iii. Rotation of a line and polygon around origin.
7. Write a Program to implement:
 - i. Flood Filling Algorithm using polygon.
 - ii. Boundary Filling Algorithm using polygon.



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Course Outcomes (CO)

After completion of the course students will be able to:

- ➔ **CO1. Demonstrates the fundamental concepts of Computer Graphics and its applications.**
- ➔ **CO2. Explain and use hardware's and software's component of computer graphics.**
- ➔ **CO3. Apply various image generation, manipulations and color model techniques in coding.**
- ➔ **CO4. Implement algorithms for create and manipulate image in programs.**
- ➔ **CO5. Develop the ability to write computer programs for create image and animation using graphics concepts.**
- ➔ **CO6. Develop application programs and projects in terms of image and animation using**



COMPUTING LAB

DESIGN AND ANALYSIS OF ALGORITHM-290302(DC)

LIST OF EXPERIMENTS:

1. WAP to implement the following using array as data structure and analyze its time Complexity.

- | | | | |
|-------------------|-------------------|----------------|---------------|
| a) Insertion sort | b) Selection sort | c) Bubble sort | d) Quick sort |
| e) Bucket sort | f) Radix sort | g) Heap sort | h) Merge sort |

2. WAP to implement Linear and Binary Search and analyze its time complexity.

3. WAP to implement Matrix Chain Multiplication and analyze its time complexity.

4. WAP to implement Longest Common Subsequence Problem and analyze its time Complexity.

5. WAP to implement Optimal Binary Search Tree Problem and analyze its time complexity.

6. WAP to implement Huffman Coding and analyze its time complexity.

7. WAP to implement Dijkstra's Algorithm and analyze its time complexity.

8. WAP to implement Bellman Ford Algorithm and analyze its time complexity.

9. WAP to implement DFS and BFS and analyze their time complexities.

10. WAP to Implement 0/1 knapsack using dynamic programming.



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Course Outcomes (CO)

After completion of this course, the students would be able to:

- ➔ CO1. Relate the principles of algorithm design in solving problems.
- ➔ CO2. Demonstrate basic algorithms and different problem solving strategies.
- ➔ CO3. Build creativeness and confidence to solve non-conventional problems.
- ➔ CO4. Analyze running times of algorithms using asymptotic analysis.
- ➔ CO5. Compare various algorithm design approaches for solving real world problems.
- ➔ CO6. Design and implement optimization algorithms in specific applications