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### DATA STRUCTURES LAB

**II Year B.Tech. CSE (AI & ML) I Sem.**  
**Course Code: A223584**

L	T	P	C
0	0	2	1

#### Course Outcomes:

1. Develop the programs on stacks and its applications.
2. Design and implementation of programs on Linked lists and Tree Traversals.
3. Apply Tree Concepts on advanced Trees
4. Implement Graph and its Traversing techniques
5. Apply Hashing techniques in real world applications

#### List of Experiments:

1. C Programs to illustrate concepts of arrays, structures, unions and enumerated data types.
2. Write a Program to implement stack, queue using linked list
3. Program to convert infix to postfix notation
4. Program to evaluate postfix notations
5. Write a program to implement doubly linked list and its operations
6. Program to illustrate tree traversals
  - a) In order
  - b) Pre order
  - c) Post order
7. Program to illustrate insertion, deletion and searching in Binary Search Tree.
8. Program to illustrate Insertion, deletion and Rotation on AVL Trees.
9. Program to illustrate Graph traversals
  - i. Breadth First Search
  - ii. Depth First Search
10. Program to implement hash table using linear and quadratic probing.
11. Implement Dictionaries using hashing.



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#### Text Books:

1. Fundamentals of Data Structures in C, 2nd Edition, E. Horowitz, S. Sahni and Susan Anderson Freed, Universities Press.
2. Data Structures using C – A. S. Tanenbaum, Y. Langsam, and M. J. Augenstein, PHI/Pearson Education.

#### Reference Books:

1. Data Structures: A Pseudocode Approach with C, 2nd Edition, R. F. Gilberg and B. A. Forouzan, Cengage Learning.



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### OPERATING SYSTEMS LAB

II Year B.Tech. CSE (AI & ML) I Sem.

L T P C

Course Code: A223587

0 0 2 1

#### Course Outcomes:

After learning the contents of this course, the students must be able to:

1. Simulate and implement operating system concepts such as scheduling, deadlock management, file management and memory management.
2. Able to implement C programs using Unix system calls
3. Comprehensive knowledge on page replacement algorithms

#### List of Experiments:

1. Simulate the following CPU Scheduling Algorithms using C program:
  - a. FCFS b. SJF
2. Simulate the following CPU Scheduling Algorithms using C program:
  - a. Priority b. Round Robin
3. Write a C program to implement the producer-consumer problem using semaphores.
4. Write a C program for implementing memory allocation method for fixed partition using First fit.
5. Write a C program for implementing memory allocation method for fixed partition using Best fit
6. Write a C program for implementing memory allocation method for fixed partition using Worst fit
7. Simulate Paging Technique of Memory Management using C program.
8. Write a program to implement FCFS page replacement algorithm
9. Write a program to implement Optimal page replacement algorithm
10. Write a program to implement LRU page replacement algorithm
11. Write a C program to simulate the following file allocation strategies.
  - a) Sequential b) Indexed c) Linked
12. Write a program to implement Banker's algorithm for deadlock avoidance.



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#### Text Books:

1. Operating System Principles- Abraham Silberchatz, Peter B. Galvin, Greg Gagne 7<sup>th</sup> Edition, John Wiley
2. Advanced programming in the Unix environment, W.R.Stevens, Pearson education.

#### Reference Books:

1. Operating Systems – Internals and Design Principles, William Stallings, Fifth Edition–2005, Pearson Education/PHI
2. Operating System - A Design Approach-Crowley, TMH.
3. Modern Operating Systems, Andrew S Tanenbaum, 2nd edition, Pearson/PHI
4. UNIX Programming Environment, Kernighan and Pike, PHI/Pearson Education UNIX Internals: The New Frontiers, U. Vahalia, Pearson



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### SKILL DEVELOPMENT COURSE - DJANGO

**II Year B.Tech. CSE (AI & ML) I Sem.**

**Course Code: A224590**

**L T P C**  
**0 0 2 1**

#### Course Outcomes:

At the end of the course, the student will be able to,

1. Build a blog with HTML, CSS, and Bootstrap and little JavaScript.
2. Demonstrate Advanced features of JavaScript and learn about JDBC
3. Design a django application for cookies and forms and admin page

#### List of Experiments

1. Create a static web blog using html, css
2. Create a web calculator using Html, bootstrap and javaScript
3. Create a website which store contact in session storage and perform curd operation
4. Design a website using html, css, javascript and django
5. Develop a application to perform curd operations in sqLite (Ex: Todo App)
6. Design a login page and signup page to login into the website using django authentication
7. Develop a multi-page web application using django
8. Create a web application for shopping cart with registration, login, catalog and cart pages.
9. Add a customized admin page to add new products to the catalog using django
10. Create a application which fetches the data from a rest api and display the data using theChart.js in django use cookies and Http sessions
11. Create a django application which uses generic views and forms



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**II Year B.Tech. CSE (AI & ML) II Sem.**

S.No.	Course Code	Category	Course Title	L	T	P	Credits
1	A224520	PC-6	Discrete Mathematics	3	0	0	3
2	A224521	PC-7	Automata Theory and Compiler Design	3	0	0	3
3	A224523	PC-8	Database Management Systems	3	0	0	3