|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **SCHOOLOFCOMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE** | | | | | **DEPARTMENTOFCOMPUTER SCIENCE ENGINEERING** | | | | |
| **ProgramName:**B. Tech | | | | **AssignmentType: Lab** | | | **AcademicYear:**2025-2026 | | |
| **CourseCoordinatorName** | | | | Venkataramana Veeramsetty | | | | | |
| **Instructor(s)Name** | | | | |  | | --- | | Dr. V. Venkataramana (Co-ordinator) | | Dr. T. Sampath Kumar | | Dr. Pramoda Patro | | Dr. Brij Kishor Tiwari | | Dr.J.Ravichander | | Dr. Mohammand Ali Shaik | | Dr. Anirodh Kumar | | Mr. S.Naresh Kumar | | Dr. RAJESH VELPULA | | Mr. Kundhan Kumar | | Ms. Ch.Rajitha | | Mr. M Prakash | | Mr. B.Raju | | Intern 1 (Dharma teja) | | Intern 2 (Sai Prasad) | | Intern 3 (Sowmya) | | NS\_2 ( Mounika) | | | | | | |
| **CourseCode** | | | 24CS002PC215 | **CourseTitle** | | AI Assisted Coding | | | |
| **Year/Sem** | | | II/I | **Regulation** | | R24 | | | |
| **DateandDay**  **of Assignment** | | | Week6 - WednesDay | **Time(s)** | |  | | | |
| **Duration** | | | 2 Hours | **Applicableto**  **Batches** | |  | | | |
| **AssignmentNumber:11.3**(Presentassignmentnumber)/**24**(Totalnumberofassignments) | | | | | | | | | |
|  | **Q.No.** | **Question** | | | | | | ***ExpectedTime***  ***to complete*** |  |
|  | 1 | **Lab 11 – Data Structures with AI: Implementing Fundamental Structures**  **Lab Objectives**   * To implement fundamental data structures with the assistance of AI tools. * To understand how AI suggests different implementations and optimizations. * To analyze the readability, correctness, and performance of AI-generated code. * To reinforce problem-solving skills using AI-powered coding assistance.   **Learning Outcomes**  After completing this lab, students will be able to:   1. Implement stack, queue, and linked list using Python with AI support. 2. Use AI tools to optimize and refactor basic data structure operations. 3. Compare multiple AI-suggested implementations for the same structure. 4. Apply AI assistance to generate test cases for verifying data structure behavior. 5. Demonstrate understanding of trade-offs in AI-generated solutions.   **Task Description #1 – Stack class implementation**  Task: Ask AI to implement a stack class with push(), pop(), peek() and is\_empty() methods  CODE:      OUTPUT:    **Task Description #2 – Queue Implementation**  Task: Use AI to generate a Queue class with enqueue(), dequeue(), and is\_empty().  Code:      OUTPUT:    **Task Description #3 – Linked List Implementation**  Task: Ask AI to create a singly linked list with insert\_at\_end(), insert\_at\_beginning(), and display().  CODE:      OUTPUT:    **Task Description #4 – Binary Search Tree (BST)**  Task: Ask AI to generate a simple BST with insert() and inorder\_traversal().  CODE:      OUTPUT: | | | | | | Week5 - Monday |  |