

# CEP Assignment

**Course: Data Structures and Algorithms (CE200T)**

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## Course Learning Outcomes:

CLOs	Statement	BT	PLOs
1	Students shall be able to explain and classify the workings of different data structures.	C2	P1
2	Students shall be able to analyze and explain Time and Space complexity for a given solution. Also be able to explain Availability and Consistency tradeoffs, Completeness and Optimality tradeoffs.	C4	P2
3	Apply suitable data structures to optimize known algorithms.	C3	P3
4	Should be able to apply skills to divide the bigger problem into sub-problems and eventually to small tasks, which can be executed.	C3	P11

## Range of Problem Solving:

Problem-solving	Attribute	Complex Engineering Problems	
WP1	Depth of knowledge Required	Engineering Problems that cannot be resolved without in-depth engineering knowledge at the level of ONE OR MORE of WK3, WK4, WK5, WK6 or WK8 which allows a fundamentals-based, first principles analytical approach.	✓
WP2	Range of conflicting requirements	Involve wide-ranging or conflicting technical, engineering and other issues.	
WP3	Depth of analysis required	Have no obvious solution and require abstract thinking, and originality in analysis to formulate suitable models.	✓
WP4	Familiarity of issues	Involve infrequently encountered issues.	
WP5	Extent of applicable codes	Are outside problems encompassed by standards and codes of practice for professional engineering	
WP6	Extent of stakeholder involvement and conflicting requirements	Involve diverse groups of stakeholders with widely varying needs.	
WP7	Interdependence	Are high-level problems including many component parts or sub-problems.	✓

**Instructions:**

1. Students will work on this CEP as a group of at most 3 members.
2. The CEP will be submitted in four modules.
3. Students will submit the related deliverables in four stages.

**Deliverables:**

- ❖ The CEP will be submitted as a series of 4 modules:
  - **Module 1:** Submit a proposal that comprehensively details, analyzes, and targets a practical solution for a well-recognized real-world issue. The targeted application area for the CEP could be in the list provided but not limited to:
    - Management systems:
      - ✓ Inventory Management System
      - ✓ Library Management System
      - ✓ Business Management System
      - ✓ Banking Management System
      - ✓ Enterprise resource planning (ERP)
    - Social Networking Analytic Tool
    - Expert System for disease diagnosis
    - Academic Search Engine
  - **Module 2:** Submit comprehensive documentation on:
    - Detailed system architecture and data flow of the project proposed
    - The planned schedule for integration of each module identified
  - **Module 3:** Submit a report on:
    - Utilized data structures detailed in Module 2
    - Applicability to achieve project deliverables, including an analysis of their complexities.
  - **Module 4:** Submit the final report on the submission platform (Github, Google Classroom), including documentation, source code, analysis, research on the proposed solution, project outcomes, lessons learned, and project presentation.
- ❖ **CLO mapping and deliverable submission schedule:**

Module	CLO	Schedule
1	1	Sep. 07, 2023
2a 2b	1 3	Oct. 13, 2023
3a 3b	3 2	Nov. 07, 2023
4	4	Dec. 03, 2023