Final Exam – Scope

Date and Time: Wednesday, December/14/2022, 4-6 PM.

Scope:

- **Objects, Structures, Classes (ECE217_Lecture02)**
    1. Similarities and differences in implementation of Structures and Classes in C++ programming language.
- **Vectors (ECE217_Lecture03)**
    2. Bubble Sort Algorithm: Computations, Graphical Processes, and Implementation/Coding.
    3. Binary Search Algorithm: Computations, Graphical Processes, and Implementation/Coding.
    4. Using (Coding) Operations on a Vector Object.
- **Linked Lists (ECE217_Lecture04)**
    5. Building Forward and Backward Linked Lists: Creation, Insertion, and Deletion Processes.
    6. Similarities and Differences of Ordered and Unordered Linked Lists.
- **Binary Search Tree (ECE217_Lecture05 and ECE217_Lecture06)**
    7. Building Binary Search Tree: Creation, Insertion, and Deletion Processes.
- **AVL Tree (ECE217_Lecture07)**
    8. Building AVL Tree: Creation, Insertion, and Deletion Processes.
- **Cryptographic Algorithms (ECE217_Lecture08)**
    9. Side-Channel Analysis: Definition and Applications.
    10. Similarities and Differences between Symmetric and Asymmetric Key Encryption.
    11. Combination of Public-Key Encryption and Authentication.
    12. ECB, CBC, OFB, and CRT Modes of Block Ciphers.
    13. AES and DES Algorithms: Architectures and Computations.
- **Finite State Machines (ECE217_Lecture09)**
    14. Creating and Analyzing Finite State Machine (FSM) Diagram.
    15. Types of FSM.
- **Inter-process Communication (ECE217_Lecture09)**
    16. Status of a Program in Memory Layout.
    17. State Diagram of a Process Execution.
    18. Process Control Block: Role and Structure.
    19. Process Scheduling: Objectives and Usages.
    20. Flow of Context Switch for Processes.

Important Information:
- 1-Page (Letter Size) cheat sheet is allowed.
- Closed book, closed neighbor, closed notes, and closed materials from assignments (including student submissions and instructor solutions).
- No use of electronic gadgets (e.g., no cell phones, no smart watches, etc.).
- No sharing of calculator. Bring your OWN calculator.
- 10 questions.