# Embunit Testing

1. **Overview of C/C++ - Embuint**
    - Data Types, Variables and Operators
    - Control Flow and Loops
    - Understanding Program Structure
    - Creating and Using Enumerations
    - Understanding Program Structure
    - Creating and Using Enumerations
    - Functions in C
    - Function Declaration and Definition
    - Parameters and return values

2. **Overview of EmbUnit**
    - Setting up EmbUnit in a C project
    - Writing First Test Cases
    - Basic assertions in EmbUnit
    - Test Fixture and Test Suite
    - Mocking and Stubbing
    - Parameterized Testing
    - Writing parameterized test cases
    - Test case data management
    - Test-Driven Development (TDD) with EmbUnit
    - TDD principles and benefits
    - Writing tests before code
    - Refactoring and improving code
    - Generating Reports with EmbUnit
    - Analyzing test results and coverage reports

3. **C Data Structures**
    - Arrays
    - Linked Lists
    - Stacks
    - Queues
    - Trees
    - Graphs

4. Pointer
    - Introducing pointers
    - Direct and Indirect Addressing
    - Dynamic Memory Allocation
    - Declaring the pointer type, naming pointers and assigning addresses

- Declaring and using pointers to pointers
- Accessing pointer targets

5. Function Pointers
   - How function pointers are different from regular pointers
   - Passing pointers to functions
   - Returning pointers from functions
   - Using typedef to create aliases for function pointer types
   - Allocating and deallocating memory for function pointers

6. Inter-process Communication
   - Communicating between processes using pipes
   - Communicating between processes using FIFO
   - Passing a message from one process to another using the message queue
   - Functions used in IPC using shared memory and message queues
   - Communicating between processes using shared memory

7. Socket Programming
   - Communicating between the client and server using socket programming
   - Client-server model
   - Sending data to the client
   - Reading data that's been sent from the server

8. Multithreading
   - Performing a task with a single thread
   - Performing multiple tasks with multiple threads

9. Data Structure Algoritms

10. Coding for Perfromance
    - Using the register keyword in C code for better efficiency
    - Taking input faster in C
    - Applying loop unrolling for faster results
    - Buffer overflow
    - Learning how to avoid a buffer overflow