

Cyber Security Center

Topics for 52 Weeks Course Plan

1. Fundamentals
 - 1.1. Basic Syntax
 - 1.2. Types
 - 1.2.1. Struct, Enum
 - 1.2.2. Value Type
 - 1.2.3. Reference Type
 - 1.2.4. Static Type
 - 1.2.5. Anonymous Type
 - 1.2.6. Nullable Type
 - 1.2.7. Dynamic Types
 - 1.3. Operators
 - 1.4. Object & Initialization
 - 1.5. Function & Method
 - 1.6. Console Programming
2. Conditions & Loops
 - 2.1. If, Else if, Else
 - 2.2. Switch Statements
 - 2.3. For Loop
 - 2.4. While Loop
 - 2.5. Do While
 - 2.6. Foreach
3. Collections
 - 3.1. Array
 - 3.2. Multi-Dimensional Array
 - 3.3. Jagged Array
 - 3.4. Array List
 - 3.5. List
 - 3.6. Dictionary
 - 3.7. Hash Table
 - 3.8. Stack & Queue
 - 3.9. Tuple
4. Exception Handling
 - 4.1. Throw Keyword
 - 4.2. Try Catch
 - 4.3. Working with Custom Exception
5. Events & Delegates
 - 5.1. Function Delegates
 - 5.2. Action Delegates
 - 5.3. Predicate Delegates
6. Data Structures (Basic)
 - 6.1. Arrays
 - 6.2. Linked List
 - 6.3. Stack
 - 6.4. Queue
 - 6.5. Searching & Sorting
 - 6.6. Hashing
 - 6.7. Backtracking
7. Data Structure (Intermediate)
 - 7.1. Trees
 - 7.2. Set
 - 7.3. Map
 - 7.4. Heap
8. Advance DSA
 - 8.1. Dynamic Programming
 - 8.2. Graph
 - 8.3. Game Theory
 - 8.4. Advance String Algorithm
 - 8.5. Fenwick Trees and Segment Trees
 - 8.6. Suffix Tree
 - 8.7. Suffix Array
 - 8.8. Light Decomposition
 - 8.9. Disjoint Set, Graph Coloring & Network Flow
9. GIS MAP System
 - 9.1. Basic Concept
 - 9.2. GIS Programming
 - 9.3. Quadtree concept for mapping
10. Mathematics
 - 10.1. Binary Exponentiation

- 10.2. Euclidean Algorithm
- 10.3. Prime Numbers
- 10.4. Number Theory
- 10.5. Modular Arithmetic
- 10.6. Number System
- 10.7. Linear Algebra
- 10.8. Geometry
- 10.9. Combinatorics
- 11. Database (MySQL)
 - 11.1. ACID
 - 11.2. Basic Keywords and Implementation (Select, Where, And, Or, Not, OrderBy, Insertm Delete, Limit, Min, Max, Avg, Sum, Like, Wild, Between, Joins, GroupBy, Having, Drop, Alter, Create, Views)
 - 11.3. Database Function
 - 11.4. Database Indexing
 - 11.5. SQL Injection and Pretension
- 12. Coding Design Pattern
 - 12.1. OOP Principles
 - 12.1.1. Object
 - 12.1.2. Class
 - 12.1.3. Inheritance
 - 12.1.4. Encapsulation
 - 12.1.5. Interface
 - 12.1.6. Abstraction
 - 12.1.7. Polymorphism
 - 12.2. Singleton
 - 12.3. Structural
 - 12.4. Creation
 - 12.5. Mediator
 - 12.6. Memento
 - 12.7. Visitor
 - 12.8. Flyweight
 - 12.9. Template Method
 - 12.10. Chain of Responsibility
 - 12.11. Proxy
 - 12.12. Iterator
 - 12.13. Bridge
 - 12.14. Prototype
- 12.15. Factory
- 12.16. Adapter
- 12.17. Command
- 12.18. Builder
- 12.19. Observer
- 13. Thread Programming
 - 13.1. Thread
 - 13.2. Task
 - 13.3. Thread Pool
 - 13.4. Concurrent Dictionary
 - 13.5. Concurrent List
 - 13.6. Parallel Programming (Parallel Loop)
- 14. Web Concept
 - 14.1. HTML
 - 14.2. CSS
 - 14.3. MVC
 - 14.4. API
 - 14.4.1. Basic Concept
 - 14.4.2. API Creation
 - 14.4.3. Usage
 - 14.4.3.1. Google
 - 14.4.3.2. Map
 - 14.4.3.3. Bulk SMS & Voice
 - 14.4.3.4. Chat Generation
- 15. PAN Programming
 - 15.1. FTP Protocol Programming
 - 15.2. Data Transfer
- 16. GIT Control
- 17. Problem Solving

Week	Topic
1.	Fundamentals
2.	Fundamentals
3.	Conditions
4.	Exception Handling & Collections (1, 2, 5, 6)
5.	Collections (3, 4, 7, 8, 9)
6.	Coding Design Pattern (1)
7.	Coding Design Pattern (1)
8.	Coding Design Pattern (1)
9.	Data Structures (Basic)
10.	Data Structure (Intermediate)
11.	Advance DSA (1, 2, 3)
12.	Advance DSA (4, 5, 6)
13.	Advance DSA (7, 8, 9)
14.	Coding Design Pattern (2)
15.	Database (MySQL) (1, 2)
16.	Database (MySQL) (2, 3)
17.	Database (MySQL) (3, 4)
18.	Thread Programming (1, 2, 3)
19.	Thread Programming (4, 5, 6)
20.	Database (MySQL) (5)
21.	Events & Delegates
22.	Mathematics with Practice
23.	Coding Design Pattern (3, 4)
24.	Coding Design Pattern (4, 5)
25.	Coding Design Pattern (7, 8)
26.	Coding Design Pattern (9, 10)
27.	Coding Design Pattern (11, 12)

28.	Coding Design Pattern (13, 14)
29.	Coding Design Pattern (15, 16)
30.	Coding Design Pattern (17, 18)
31.	Coding Design Pattern (19)
32.	Exam (Based on Coding Design Pattern)
33.	Exam (Database and Based on Coding Design Pattern)
34.	PAN Programming (1)
35.	PAN Programming (2)
36.	GIS MAP System (1)
37.	GIS MAP System (2)
38.	GIS MAP System (3)
39.	Web Concept (1)
40.	Web Concept (1)
41.	Web Concept (1)
42.	Web Concept (2)
43.	Web Concept (2)
44.	Web Concept (3)
45.	Web Concept (3)
46.	Web Concept (3)
47.	Web Concept (4)
48.	Web Concept (4)
49.	Web Concept (4)
50.	GIT Control
51.	Idea Submission and Project
52.	Problem Solving (Start from 1 st week to Infinity)