SMART CONTRACTS SYLLABUS

Module 1: Fundamentals of Smart Contracts

- Blockchain Terminologies
- Cryptocurrency and Smart Contracts
- Understanding the Virtual Machine of a Blockchain
- Terminology, Concepts, and Practices in Smart Contracts

Module 2: Ethereum Smart Contracts

- Definition of Ethereum
- Prevalence of the Ethereum Blockchain in Smart Contracts Development
- Ethereum Virtual Machine (EVM)
- Instances of Working Ethereum Smart Contracts

Module 3: Various Aspects in Application of Smart Contracts

- Market Impact and Scientific Innovation
- Trust
- Security, Using Merkle Trees
- Future-Resistance Features in Smart Contracts Applications
- Workflow of Developing a Smart Contract
- Execution Environments in Writing a Smart Contract

Module 4: Solidity Language Basics

- Layout of a Solidity Source File
- Structure of Contracts
- Control Structures
- Functions
- Scoping and Declarations

Module 5: Solidity with Contracts

- Creating Contracts
- Object-Oriented High-Level Language Features
- Visibility and Getters
- Events
- Abstract Contracts

Module 6: Decentralized Applications

- Decentralized Application Architecture
- Connecting to the Blockchain and Smart Contracts
- Building dApps
- Deployment

Module 7: Security Issues

- Shifting from Trust-in-People to Trust-in-Code
- Data Permanence
- Selective-Obscurity
- Security Countermeasures