multisoft
Systems

Smart Contract Development Training

COURSE CONTENT

GET IN TOUCH

Multisoft Systems
B - 125, Sector - 2, Noida

(+91) 9810-306-956

info@multisoftsystems.com

www.multisoftsystems.com

About Multisoft

Train yourself with the best and develop valuable in-demand skills with Multisoft Systems. A leading certification training provider, Multisoft collaborates with top technologies to bring world-class one-on-one and certification trainings. With the goal to empower professionals and business across the globe, we offer more than 1500 training courses, which are delivered by Multisoft's global subject matter experts. We offer tailored corporate training; project Based Training, comprehensive learning solution with lifetime e-learning access, after training support and globally recognized training certificates.

About Course

The Smart Contract Development Training by Multisoft Systems is designed to equip learners with the essential skills needed to build, deploy, and manage secure blockchain-based applications. As industries increasingly adopt decentralized technologies, the demand for professionals who can develop smart contracts continues to grow. This training provides a structured pathway for beginners and experienced developers to understand blockchain concepts, Ethereum architecture, Web3 technologies, and the crucial role of smart contracts in automating digital transactions.

Module 1: Introduction to Blockchain & Smart Contracts

- ✓ Fundamentals of Blockchain Technology
- ✓ Centralized vs Decentralized Systems
- ✓ Understanding Distributed Ledger Technology
- ✓ Overview of Ethereum and EVM
- ✓ What are Smart Contracts?
- ✓ Real-world applications of Smart Contracts
- ✓ Benefits & limitations of Smart Contracts

Module 2: Ethereum Architecture & Development Environment

- ✓ Ethereum Blockchain Overview
- ✓ Ethereum Virtual Machine (EVM) Concepts
- ✓ Gas, Transactions & Mining
- ✓ Setting up the Development Environment
- ✓ Installing Node.js, Hardhat, Truffle, Ganache
- ✓ Introduction to Remix IDE
- ✓ Working with MetaMask Wallet

Module 3: Solidity Programming Fundamentals

- ✓ Overview of Solidity
- ✓ Data Types, Variables & Operators
- ✓ Functions, Conditionals & Loops
- ✓ Arrays, Mappings & Structs
- ✓ Modifiers, Events & Error Handling
- ✓ Constructors & Inheritance
- ✓ Understanding ABI & Bytecode

Module 4: Smart Contract Design & Best Practices

- ✓ Smart Contract Architecture Principles
- ✓ Coding Standards & Style Guidelines
- ✓ Versioning, Libraries & Reusability
- ✓ Secure Design Patterns
- ✓ Handling Upgrades in Smart Contracts
- ✓ Role-based Permissions & Access Control
- ✓ Gas Optimization Techniques

Module 5: Building & Deploying Smart Contracts

- ✓ Writing Your First Smart Contract
- ✓ Compiling & Debugging Contracts
- ✓ Local Deployment using Ganache
- ✓ Deployment on Testnets (Goerli, Sepolia)
- ✓ Deployment on Mainnet
- ✓ Contract Interaction with Web3.js & ethers.js

Module 6: Testing & Debugging Smart Contracts

- ✓ Importance of Contract Testing
- ✓ Unit Testing with Hardhat
- ✓ Unit Testing with Truffle
- ✓ Using Chai & Mocha Frameworks
- ✓ Debugging Common Smart Contract Issues
- ✓ Test Coverage & Automation

Module 7: Security in Smart Contract Development

- ✓ Common Vulnerabilities (Reentrancy, Overflow, DoS, Phishing)
- ✓ Secure Coding Guidelines
- ✓ Tools for Contract Analysis (Slither, MythX, Oyente)

- ✓ Understanding Audit Reports
- ✓ Writing Security-focused Smart Contracts

Module 8: Tokens, NFTs & DeFi Smart Contracts

- ✓ ERC-20 Standard: Token Design & Deployment
- ✓ ERC-721 Standard: NFT Development
- ✓ ERC-1155 Multi-Token Standard
- ✓ Building Staking & Reward Contracts
- ✓ Smart Contracts in DeFi (AMMs, Liquidity Pools, Vaults)
- ✓ Bridging & Interoperability Concepts

Module 9: Integrating Smart Contracts with dApps

- ✓ Overview of Web3 Integration
- ✓ Connecting Front-End with Smart Contracts
- ✓ Using ethers.js / Web3.js
- ✓ UI Interaction & Transaction Handling
- ✓ Signing Messages & Wallet Integration
- ✓ Complete dApp Build Exercise

Module 10: Advanced Smart Contract Topics

- ✓ Layer 2 Networks (Optimism, Arbitrum, Polygon)
- ✓ Contract Upgradeability (UUPS, Transparent Proxy)
- ✓ Oracles & External Data (Chainlink)
- ✓ IPFS & Decentralized Storage
- ✓ Cross-Chain Contracts & Bridges
- ✓ Tokenomics Fundamentals