Course Lesson Plan: Blockchain

📌 **Course Layout**

🖼️ **Module 1: Introduction to Blockchain**

- Overview of Blockchain Technology

- History and Evolution of Blockchain

- Peer-to-Peer (P2P) Networks

- Smart Contracts: Definition and Use Cases

- Digital Wallets and Cryptocurrencies

- Ledgers and Their Role in Blockchain

- Types of Blockchain Platforms (Public, Private, Consortium, Hybrid)

🖼️ **Module 2: Consensus Mechanisms**

- **Understanding Consensus in Blockchain**

- Permissioned vs. Permissionless Blockchains

- **Different Consensus Mechanisms:**

  - Proof of Work (PoW)

  - Proof of Stake (PoS)

  - Proof of Activity (PoA)

  - Proof of Burn (PoB)

  - Proof of Elapsed Time (PoET)

  - Proof of Authority (PoA)

  - Proof of Importance (PoI)

🖼️ **Module 3: Cryptocurrency and Wallets**

- Types of Cryptocurrency Wallets

  - Desktop Wallets

  - Mobile App-Based Wallets

  - Browser-Based Wallets

- Metamask: Introduction and Setup

- Creating an Account in Metamask

- Using a Faucet to Fund Wallets

- Transferring Cryptocurrency in Metamask

Module 4: Smart Contracts and Ethereum

- **Introduction to Ethereum**

- Writing Smart Contracts in Solidity

- Introduction to Remix IDE

- Ethereum Networks: Mainnet, Testnets (Ropsten, Kovan, Rinkeby, Goerli)

- Practical Blockchain Exploration at blockchain.com

- Compilation and Deployment of Smart Contracts Using Remix

Module 5: Understanding Hyperledger Fabric

- Overview of the Open-Source Hyperledger Project

- **Hyperledger Fabric Architecture:**

  - Identities and Policies

  - Membership and Access Control

  - Channels in Hyperledger Fabric

  - Transaction Validation

- Writing Smart Contracts Using Hyperledger Fabric

Module 6: Blockchain Use Cases

- **Enterprise Applications of Blockchain:**

  - Cross-Border Payments

  - Know Your Customer (KYC) Compliance

  - Blockchain in Food Security

  - Blockchain in Trade Finance (WeTrade Network)

  - Supply Chain Financing

  - Digital Identity on Blockchain

  - Blockchain in the Energy Sector

  - Blockchain in Governance and Public Sector

📌 **Course Highlights:**

✅ Hands-on practice with Metamask, Remix IDE, and Ethereum Networks

✅ Learn practical implementations of Blockchain in real-world applications

✅ Understand the differences between public and enterprise blockchain solutions

✅ Build smart contracts and deploy them on Ethereum and Hyperledger