



Introduction to Blockchain

Blockchain is a decentralized digital ledger that allows multiple parties to record and verify transactions securely. It has the potential to revolutionize industries beyond finance.

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Week 3-4: Bitcoin and Cryptocurrencies

Introduction to Bitcoin

Learn about the origins of Bitcoin, its features, and how it has disrupted traditional financial systems.

Bitcoin Transactions

Explore the process of how transactions are conducted and validated on the Bitcoin network.

Bitcoin Mining

Discover the concept of mining and the Proof of Work (PoW) consensus algorithm that secures the Bitcoin network.

Cryptocurrencies beyond Bitcoin

Learn about alternative cryptocurrencies and their unique features that differentiate them from Bitcoin.

Week 5-6: Ethereum and Smart Contracts

1 Introduction to Ethereum

Explore the capabilities of the Ethereum blockchain and its role in enabling programmable smart contracts.

2 Smart Contracts

Understand how smart contracts automate and enforce agreements, revolutionizing industries beyond finance.



Week 7-8: Blockchain Development Tools and Environments

Setting up a development environment

Learn how to set up a blockchain development environment for building decentralized applications.

Overview of development tools

Explore popular blockchain development tools, such as Remix and Truffle, to streamline the development process.

Week 9-10: Consensus Mechanisms and Security

- 1** Deep dive into consensus mechanisms
Examine different consensus mechanisms, including Proof of Work (PoW), Proof of Stake (PoS), and Delegated Proof of Stake (DPoS).
- 2** Security in Blockchain
Learn about the security measures implemented in blockchain systems to protect against attacks and vulnerabilities.



Week 11-12: Privacy and Confidentiality in Blockchain

1 Privacy-focused blockchains

Explore blockchains designed with a focus on privacy and discover their advantages and use cases.

2 Zero-knowledge proofs

Learn about zero-knowledge proofs and how they enable privacy-preserving transactions on the blockchain.



Week 13-14: Decentralized Applications (DApps)

1

Building decentralized applications

Discover the process and technologies involved in developing decentralized applications on blockchain platforms.

2

Overview of popular DApps

Explore successful decentralized applications and the real-world use cases they address.



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Week 15-16: Blockchain Interoperability and Scaling Solutions

1 Challenges in blockchain interoperability

Understand the obstacles to achieving interoperability between different blockchain networks and how they can be overcome.

2 Introduction to sidechains and cross-chain communication

Learn about sidechains and explore solutions for enabling seamless communication between different blockchains.





Week 17-18: Industry-Specific Blockchain Applications

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Blockchain in finance (DeFi)

Discover the disruption caused by blockchain in the finance industry, particularly in the realm of decentralized finance (DeFi).



Week 19-20: Future Trends and Emerging Technologies

1

Current trends in blockchain technology

Stay up to date with the latest advancements, trends, and innovations in the field of blockchain technology.

Final Project

1 Capstone project: Blockchain-based application or solution

Apply your knowledge to develop a practical and innovative blockchain-based application or solution for a real-world problem.

