

Blockchain For All

Duration: 4.5 Hours

Course Description:

In this comprehensive course, we will embark on a journey to explore the revolutionary concepts and applications that underlie this groundbreaking technology. Blockchain, initially popularized as the underlying technology for cryptocurrencies like Bitcoin, has evolved into a robust and versatile solution with far-reaching implications across various industries. From finance and healthcare to supply chain management and beyond, blockchain is reshaping the way we interact, transact, and trust in a digital age. Beyond its association with cryptocurrencies, blockchain stands as a decentralized ledger that has the potential to reshape industries and redefine trust in the digital era.

Target Audience:

This basic blockchain course is designed to cater to a diverse audience, as blockchain technology has applications across various industries. Here are some groups of individuals who may benefit from enrolling in a basic blockchain course:

Technology Professionals:

- Software developers and programmers who want to understand the aspects of blockchain and explore potential applications in their projects.
- IT professionals seeking to stay updated on emerging technologies and enhance their skills in decentralized systems.

Business and Finance Professionals:

- Business executives, managers, and entrepreneurs interested in understanding how blockchain can impact and transform traditional business models.
- Finance professionals exploring the potential of blockchain in areas such as smart contracts, digital assets, and decentralized finance (DeFi).

Students and Researchers:

- Students in computer science, information technology, or business-related fields who want to explore a rapidly evolving and innovative technology.
- Researchers interested in studying the theoretical and practical aspects of blockchain technology.

Blockchain Enthusiasts:

- Individuals who are curious about the technology and its potential but may not have a technical background. A basic course can provide a foundational understanding.

Entrepreneurs:

- Individuals looking to start their own businesses or ventures in industries where blockchain technology can bring about innovation and efficiency.

Government and Regulatory Professionals:

- Policymakers, regulators, and legal professionals who need to understand the regulatory implications and challenges posed by blockchain technology.

Supply Chain and Logistics Professionals:

- Those involved in supply chain management who want to explore how blockchain can enhance transparency, traceability, and efficiency in the supply chain.

Healthcare Professionals:

- Professionals in the healthcare industry interested in understanding how blockchain can improve data security, interoperability, and patient record management.

Anyone Interested in Future Technologies:

- Individuals who have a general interest in emerging technologies and want to stay informed about the latest developments in the tech landscape.

In essence, this basic blockchain course is designed to be accessible to a broad audience, regardless of technical background, and aims to provide foundational knowledge that can be applied across different professional domains.

Prerequisites:

Anyone can attend the course.

Course Objectives:

Throughout this course, we will navigate the intricacies of blockchain, from its fundamental principles to its wide-ranging applications. Whether you're an industry professional aiming to stay ahead of the curve or a curious enthusiast eager to understand the underpinnings of this decentralized paradigm, our exploration will provide you with the knowledge and skills to navigate the rapidly evolving landscape of blockchain technology.

Course Outline

Module 1

Introduction

- Blockchain technology
- Importance of blockchain in today's digital world

Evolution of Blockchain

- Blockchain vs. Distributed Databases: When to Choose Decentralization over Centralization
- Difference between DLT and Blockchain

How does blockchain technology work?

- Components
- Blockchain architecture
- The process of adding transactions to the blockchain involves verification, validation, and recording.

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COURSE OUTLINE

Types of blockchain

- Types of blockchains
- Public blockchain is a permissionless network that anyone can join and participate in, such as the Bitcoin blockchain.
- A private blockchain is a permissioned network that only selected parties can join and participate in, such as a blockchain used within an organization or consortium.
- A hybrid blockchain is a combination of public and private blockchains that can provide the benefits of both.

How it began and the blockchain landscape: market size, geographies, and significant players.

Business application framework: challenges and solutions in integration and implementation

Module 2

- Introduction to Cryptocurrency
- How cryptocurrency works?
- Major cryptocurrencies in the global economy and their key features.
- Cryptocurrency hashing function.
- How are smart contracts created or used in the world of Cryptocurrency?
- What is the difference between centralized and decentralized exchange?
- Decentralized and Centralized exchanges in the world of Cryptocurrency
- What is an Automated Market Maker?
- What is staking in cryptocurrency?
- Role of crypto exchanges for rating, trading, and liquidity pools.
- Role of Launchpads and What is airdrop?
- What is the difference between launchpads and airdrops?
- Proof of work and Proof of concept
- Difference between a Coin and a Token
- Explore innovations that are driving the creation of new coins and tokens.
- Types of wallets used for storing cryptocurrencies.
- What is a stable coin?
- What is an NFT?
- Crypto debit cards and ATM's
- What is Rug pull?
- Analysis of case studies, including crypto-tokens, crowdfunded ICO startups, smart contracts, and eco-system resource exchanges, to inform innovation in your business or work.

Module 3

Revolutionizing Business with Blockchain: Navigating Decentralization, Buzz, and Action Principles for Sustainable Success

- Blockchain: A Game-Changer for Business Sustainability and Disruption
- Blockchain Beyond the Hype: Action Principles for Business Value Management
- Charting Your Path to Success: Crafting an Action Plan for Your Business with Expert Faculty Input
- Integrating Blockchain with Other Emerging Technologies

Module 4

- Regulatory and Policy Considerations of Blockchain Technology
- Key regulatory bodies and their roles in overseeing blockchain technology.
- Need for policies that balance innovation and risk mitigation
- Identify and manage risks, problems, and challenges and how to assess likely business value
- Organizational implementation challenges and emerging solutions
- Sources for raising funds

Module 5

- From Hype to Reality: How Blockchain is Revolutionizing the New Frontier of Decentralized Governance
- Blockchain is Revolutionizing the New Frontier of Decentralized Governance
- Developments in the world of Decentralized Autonomous Organizations (DAOs)

Module 6

Understanding Ethereum as a Platform:

- Introduction
- Explain how Ethereum implements a decentralized ledger.
- Define smart contracts and their role in Ethereum.
- Explain how smart contracts enable self-executing code on the blockchain.
- The concept of the Ethereum Virtual Machine as the runtime environment for smart contracts.
- Break down the concept of gas and its importance in executing transactions.
- Discuss transaction fees and their impact on the network.

Introduction to Ether (ETH) and Gas:

- Explain the role of Ether as the native cryptocurrency of the Ethereum network.
- Discuss how miners and validators are rewarded with Ether.
- The distinction between public and private keys
- Discuss the types of Ethereum addresses and wallet options.
- Discuss the relationship between Gas and transaction fees.
- Highlight the factors influencing Gas price and transaction cost.

Basics of Writing a Simple Smart Contract:

- Introduce Solidity, the high-level programming language for writing smart contracts on Ethereum.
- Explain key Solidity concepts like data types, variables, functions, and control flow statements.
- Demonstrate Gas estimation tools and techniques for budgeting smart contract execution.
- Develop a basic smart contract example, such as a simple voting system or token transfer mechanism.

Deep dive into Solidity programming language syntax:

- Break down control flow statements (if-else, loops, switch) and function definitions.
- Introduce concepts like modifiers, events, and inheritance in Solidity.

Compare and contrast Solidity with other blockchain development languages (e.g., Vyper, Move).

Truffle and Beyond: Smart Contract Development Workflow:

- Introduce Truffle as a comprehensive smart contract development framework.
- Explain Truffle components: project structure, configuration files, compilers, and testing tools.

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