

# Blockchain Essentials

## BC-102

**Duration: 2 days; Instructor-led**

**Time: 9:00 AM – 5:00 PM**

### ABOUT THIS COURSE

This 2-day course is designed for non-technical business executives who are tasked with making business decisions about leveraging Blockchain technology in their businesses.

Armed with better information of the blockchain landscape, this course will help them rise to new challenges in their current role by giving them a new dimension on which they can add value to their employer.

This course provides general overview of Blockchain technology and is specifically designed to answer the following questions:

- What is Blockchain? (What exactly is it?)
- Non-Technical Technology Overview (How does it work?)
- Benefits of Blockchain (Why should anyone consider this?)
- Use Cases (Where and for what apps is it appropriate?)
- Adoption (Who is using it and for what?)
- Implementation (How do I get started?)
- Future of Blockchain (What is its future?)

### OBJECTIVES

- Master the theoretical and technical foundations of blockchain technology
- Understand the concept of decentralization, its impact, and its relationship with blockchain technology
- Understand the underlying technical principles of blockchain development and implementation
- Understand the blockchain technology mechanisms behind Bitcoin and other cryptocurrencies
- Understand how cryptography is used to secure data with practical examples
- Understand theoretical foundations of smart contracts and how Ethereum blockchain is used to develop decentralized applications using Solidity and relevant development frameworks
- Investigate alternative blockchain solutions including Hyperledger, Corda, and many more
- Discover use cases of blockchain powered applications in various industries
- Identify new research topics and future scope of blockchain technology

### PREREQUISITES

No prerequisites.

### AUDIENCE

This course is designed for non-technical professionals who are tasked with making business decisions about leveraging Blockchain technology in their businesses. This course is NOT appropriate for technology professionals seeking to gain deeper understanding of

Blockchain technology implementation or programming level depth.

Target audience includes:

- IT Leadership
- Key Business Managers
- CEO/CTO/CIO
- Network Operations
- Business Analysts
- IT Consultants
- Project Managers
- Systems Integrators
- Help Desk / Service Desk
- Managed Service Providers
- Solution Providers
- Sales Staff
- Government Officials

### COURSE CONTENTS

#### Module 1: Introduction to Blockchain

- Before Blockchain
- What is Blockchain
- Basic Principles of Blockchain
- Technical Properties of a Blockchain
- Why Use Blockchain?
- There are many Blockchains

#### Module 2: How Does Blockchain Work?

- Understanding Ledgers
- Cryptography
  - Public Key Cryptography
  - Cryptographic Hashing
- Peer-to-Peer Networking
- Transparency and Immutability
- Smart Contracts
- Blockchain Consensus
  - Proof of Work Consensus
  - Proof of Stake Consensus
  - Other Consensus Mechanisms Explained
- Governance
- DEMO: How does a block look like in a blockchain

#### Module 3: Types of Blockchain

- Public vs Private Blockchains
- Blockchain as a Service
- Blockchain in Practice
- Enterprise Solutions
- Notable Blockchain Projects

**Module 4: Bitcoin and Blockchain**

- The First Blockchain
- The Rise of Cryptocurrencies
- Decentralized Finance (DeFi)
- Non-Fungible Tokens (NFTs)
- Regulations on Cryptocurrencies

**Module 5: Blockchain Platforms**

- Ethereum
  - History of Ethereum
  - Smart Contract in Ethereum
  - How is Ethereum Used?
- Introduction to Hyperledger
  - What is Hyperledger
  - Hyperledger Modules and Platforms
  - Hyperledger Fabric
- Other Notable Platforms

**Module 6: Blockchain Adoption**

- Where Are We Now?
- Blockchain Does Not Solve All Problems
- How Do I Get Started with Blockchain?
- The "Do I Need a Blockchain" Decision Chart
- The Future of Blockchain