

## **BTA-BCSA: Blockchain Solution Architecture Training**

Course Code: BTA-BCSA

Duration: 3 days

Instructor-led Training (ILT) | Virtual Instructor-led Training (VILT)

### **OVERVIEW**

This instructor-led 3days Blockchain Architecture training is for technical leaders who need to make decisions about architecture, environment, and development platforms.

### **SKILLS COVERED**

- What is Blockchain?
- How does Blockchain work?
- Types of Blockchains?
- How is Blockchain different from what we have today?
- What are use cases for Blockchain?
- What does a Blockchain app look like?
- How do I design a Blockchain app?
- How do I develop a Blockchain app?
- How do I test a Blockchain app?

### **WHO SHOULD ATTEND?**

Technical leaders who need to make decisions about architecture, environment, and development platforms.

### **PREREQUISITES**

There are no prerequisites for this class.

### **MODULES**

#### **Module 1: What is Blockchain**

- Blockchain Basic Principles
- Centralized and Decentralized Ledgers
- Mechanics of Blockchain

- What is a Block?
- How are Blocks Chained Together?

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

- Benefits and Drawbacks of Blockchain
- Cryptography
- Public Key Cryptography
- Cryptographic Hashing
- Blockchain Consensus
- Proof of Work Consensus
- Proof of Stake Consensus
- Other Consensus Mechanisms Explained
- Lifecycle of a Public Blockchain Transaction

#### **Module 3: Types of Blockchains**

- Public vs Private Blockchains
- Open vs Closed Blockchains
- Open Source Blockchain Projects
- Blockchain Smart Contracts
- Tokens and Coins
- Using Gas in Ethereum
- “Blockless” Solution Platforms

#### **Module 4: How is Blockchain Different than what we have Today**

- Types of Networks
- Centralized Networks
- Distributed Networks
- Decentralized Networks
- Software vs Firmware
- Blockchain vs Database

#### **Module 5: What does a Blockchain Application Look Like**

- Blockchain Application Architecture
- Integrated Development Environment (IDE)
- User Interaction Layer
- Middle/Interface Layer
- Smart Contracts/Chaincode

**Module 6: How do I design a Blockchain Application?****END OF PAGE**

- Guiding Design Principles
- Personas (User Types)
- User Stories (Application Interaction)
- Application Functional Requirements
- Application Technical Requirements
- Design Tasks
- Fundamental Design Questions

**Module 7: How do I develop a Blockchain Application?**

- Fundamental Design Concepts
- Calling External Contracts
- Error Handling
- Pull vs Push Payments
- On-Chain Data
- Local Testing Recommendations
- Not Using Agile Development Process
- Technology Design Decisions
- Monolithic vs Modular
- Complexity Models

**Module 8: How do I test a Blockchain Application?**

- Blockchain Testing Approaches
- Unit Testing
- Developer Level Testing
- Configuration & Environment Testing
- Load/Performance Testing
- Volume/Stress Testing
- Regression Testing
- Application Bug Classifications
- User Load Testing
- Key Blockchain Architecture Testing Questions

**Module 9: Use Cases for Blockchain**

- Real world implementations of Blockchain