Blockchain Solution Architecture (CBSA)

Course Overview

This course is designed for non-technical business professionals who require basic knowledge about Blockchain and how it will be executed within an organization. The affiliated exam is NOT appropriate for technology professionals seeking to gain deeper understanding of Blockchain technology implementation or programming.

This exam will prove that a student completely understands

- The difference between proof of work, proof of stake, and other proof systems and why they exist
- Why cryptocurrency is needed on certain types of blockchains
- The difference between public, private, and permissioned blockchains
- How blocks are written to the blockchain
- Where cryptography fits into blockchain and the most commonly used systems
- Common use cases for public blockchains
- Common use cases for private & permissioned blockchains
- What is needed to launch your own blockchain
- Common problems & considerations in working with public blockchains
- Awareness of the tech behind common blockchains
- When is mining needed and when it is not
- Byzantine Fault Tolerance
- Consensus among blockchains
- What is hashing
- How addresses, public keys, and private keys work
- What is a smart contract
- Security in blockchain
- Brief history of blockchain
- The programming languages of the most common blockchains
- Common testing and deployment practices for blockchains and blockchain-based apps

Target Audience

Consultants
Programmers & Developers
University Professors
Software Engineers
CEO/CTO/CIO
Government Officials

Course Objectives

- Architecture of blockchain solutions
- Work effectively with blockchain engineers and technical leaders
- Choose appropriate blockchain systems for various use cases
- Work effectively with both public and permissioned blockchain systems

Prerequisites

- Understanding of Blockchain basics
- Basic knowledge of Ethereum and Hyperledger

Duration

3 Days

Certifications

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Contact Us

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Course Outline

Session 1: What is Blockchain?
- Blockchain Basic Principles
- Centralized and Decentralized Ledgers
- Mechanics of Blockchain
- What is a Block?
- How are Blocks Chained Together?

Session 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

Session 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

Session 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

Session 5: What Does a Blockchain Application Look Like?
- Blockchain Application Architecture
- Integrated Development Environment (IDE)
- User Interaction Layer
- Middle/Interface Layer
- Smart Contracts/Chaincode

Session 6: How Do I Design a Blockchain Application?
- Guiding Design Principles
- Personas (User Types)
- User Stories (Application Interaction)
- Application Functional Requirements
- Application Technical Requirements
- Design Tasks
- Fundamental Design Question

Session 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

Session 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

Session 9: Use Cases for Blockchain
- Real world implementations of Blockchain