CLOUD CREDENTIAL COUNCIL

BLOCKCHAIN FOUNDATION

Syllabus

Version 1.0.0

March 2019

CLOUD CREDENTIAL COUNCIL

COURSE	DESCRIPTION
Course Title	Blockchain Foundation
Course Duration (Classroom course)	2 Days

SCOPE AND PURPOSE OF THIS DOCUMENT

The purpose of this document is to inform all parties interested in the Blockchain Foundation course of the areas covered in the course.

COURSE INTRODUCTION

The Blockchain Foundation certification is designed to provide candidates a well-rounded understanding of blockchain concepts. It covers the potential for blockchain applications that can be used for solving real business problems in industry, and an overview of blockchain technology and cryptocurrencies as a use case of blockchain.

This is a blockchain technology course with some practical exercises to experience two of the most popular cryptocurrencies – Bitcoin and Ethereum. Candidates will understand blockchain technology well enough to put their knowledge to use in real life. The course exposes candidates to real-life blockchain and crypto trading with the purpose of using this knowledge in business opportunities.

After completing the course, candidates will be equipped with fundamental blockchain knowledge, and comfortable with cryptocurrency concepts. This knowledge can be used as a starting point in the journey of blockchain opportunities.

CLOUD
CREDENTIAL
COUNCIL

TARGET AUDIENCE

This is a foundation course for blockchain, intended for anyone who wants to quickly understand and expand their knowledge of how blockchain and Bitcoin work as well as how they are applied in business. The target audience includes but is not limited to:

- Technology enthusiasts
- Investment bankers and advisors
- Consultants and service providers
- Entrepreneurs interested in blockchain opportunities
- Supply chain managers
- Corporate executives looking to connect corporate strategy to technology
- CXO's, board members, and business operation heads
- Government officials looking to better understand blockchain capabilities
- IT architects, software engineers, programmers, and developers
- Security professionals and administrators
- Venture capitalists and investors

COURSE REQUIREMENTS

Requirements involve having a basic understanding of the Internet and an open, curious mind.

CLOUD CREDENTIAL COUNCIL

EXAM DETAILS

BLOCKCHAIN FOUNDATION CERTIFICATION EXAM	
Exam Type	Multiple Choice
No. of Questions	40
Duration	60 minutes
Additional Time Provisions	15 minutes additional time for candidates who speak English as a second language.
Prerequisite	There are no required prerequisites. We recommend that participants possess basic knowledge of computer science to understand the concepts in this certification.
Supervised (Proctored)	Yes (Web/Live)
Open Book	No
Pass Score	65%
Delivery	Online

LEARNING LEVEL OF THE SYLLABUS

The modern version of Bloom's taxonomy of learning is a widely used classification framework for course syllabi and assessments for certification. The taxonomy classifies learning into six ascending levels.

- Level 1- the Knowledge Level: Exhibit memory of previously learned materials by recalling facts, terms, basic concepts, and answers.
- Level 2 - the Comprehensive Level: Demonstrative understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas.
- Level 3 - the Application Level: Using new knowledge. Solve problems to new situations by applying acquired knowledge, facts, techniques, and rules in a different way.

- Level 4 - the Analysis Level: Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalization.
- Level 5 - the Evaluate Level: Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria.
- Level 6 - the Creation Level: Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions

The level of this course is level 1-2 (Knowledge and comprehensive).

SYLLABUS

Module 1. Blockchain Overview

TOPIC	SUB TOPIC
1.1 Introduction to Blockchain	• Evolution of Money • What is a ledger? • History of Ledger • Types of Ledgers • How financial system works? • Known Challenges of Financial System • What is blockchain? • Comparing Distributed Ledger and Blockchain • History and Origin of Blockchain • Differences between Blockchain and traditional Database • Participants in Blockchain Network • Benefits of Blockchain • Comparing Blockchain and Centralized Server
1.2 Understanding Blocks and Nodes	• What is a block? • Types of Blocks • Structure of a Block • Properties of a Block • Nodes • Types of Nodes • Peer-to-Peer Network

1.3 Components of Blockchain	• Blockchain Components • Assets • Consensus in Blockchain • Consensus Protocol – Proof of Work (PoW) • Consensus Protocol – Proof of Stake (PoS) • Proof of Work v/s Proof of Stake • Basic Parameters of Consensus Mechanism • Immutable Ledger of Transparency
1.4 Types of Blockchain	• Blockchain Types • Public Versus Private Blockchain • Permissioned and Permission-less Blockchain • Open and Closed Blockchain • Selecting a Suitable Blockchain Type

Module 2. Working of Blockchain Demystified

TOPIC	SUB TOPIC
2.1 Working of Blockchain	• Tiering of Blockchain Technology • Foundation of Blockchain • Working of Blockchain • Transaction • Transaction Lifecycle • Creating Transactions • Broadcasting Transactions • Propagating Transactions • Types of Transactions • Relationship between Transactions and Blocks • Spending the Transaction

2.2 Cryptography	• Cryptography in Blockchain • Features of Cryptography • Types of Cryptography Algorithms • Symmetric Encryption • Asymmetric Encryption • Difference between Hashing and Encryption • Different Hash Functions • Cryptographic Hash Functions • Digital Signatures • Multisignature
2.3 Mining	• Transaction Validator • Blockchain Mining • How a Bitcoin is mined? • Functions of Bitcoin Mining • Factors Affecting Miner Profitability • Hash Rate • Mining Difficulty • Mining Hardware • Mine Bitcoin at Home • Mine Bitcoin in Cloud • Types of Mining • Solo Mining • Pooled Mining

CLOUD CREDENTIAL COUNCIL

Module 3. Cryptoeconomics

TOPIC	SUB TOPIC
3.1 Overview of Cryptoeconomics	• What is a currency? • Birth of Cryptocurrency • Economics behind Cryptocurrency • Generation of Cryptocurrency • Features of Cryptocurrency • Cryptocurrency Types • Altcoin • Token • Types of Tokens
3.2 Crypto Trading	• Features to Select Crypto Exchange • Traditional Stock Trading Ecosystem • Cryptocurrency Trading Ecosystem • What do I need to buy Bitcoin? • Storing Bitcoin and Other Cryptocurrencies • Cryptocurrency Wallet Types
3.3 Ethereum	• Introduction to Ethereum • Differences between Bitcoin and Ethereum • Advantages of Ethereum • Components of Ethereum • Ether • Gas in Ethereum • Smart Contracts • Features of Smart Contract • Smart Contract Applications • Ethereum Virtual Machine • Decentralized Autonomous Organization • Decentralized Applications

CLOUD CREDENTIAL COUNCIL

Module 4. Applications and Use Cases of Blockchain

TOPIC	SUB TOPIC
4.1 Applications of Blockchain Technology	• Evolution of Web Platform • Web 3.0 • Blockchain Ecosystem • Steps to Create and Implement Blockchain
4.2 Blockchain Use Cases	• Finance Services • Supply Chain Management • Insurance • Healthcare • Automobile • Legal

Module 5. Blockchain Consortiums

TOPIC	SUB TOPIC
5.1 Consortiums	• What is a consortium? • Success Factors for a Consortium • Types of Blockchain Consortia • Initial Coin Offerings • ICO Regulations • Security Challenges of ICO
5.2 Enterprise Ethereum Alliance	• What is Enterprise Ethereum Alliance? • Vision of EEA • Purpose of EEA • Challenges of EEA • EEA Architecture

5.3 Hyperledger	• What is Hyperledger? • Working of Hyperledger • Goals of Hyperledger • Hyperledger Modular Approach • Hyperledger Architecture • Components of Hyperledger • Hyperledger Frameworks • FABRIC • IROHA • SAWTOOTH • INDY • BURROW • Hyperledger Tools • Difference between Bitcoin, Enterprise Ethereum Alliance, and Hyperledger

Module 6. Future of Blockchain

TOPIC	SUB TOPIC
6.1 Other Blockchain Frameworks	• Stellar • Working of Stellar • Stellar Exchange • How to buy and store Lumens? • Other Framewokrs
6.2 Way Forward	• Timeline of Blockchain Developments • High Level Summary of Blockchain Risks and Challenges • Internet of Things Meets Blockchain • Blockchain and Artificial Intelligence • Blockchain and Cybersecurity • Business Continuity Planning and Blockchain • Misconceptions about Blockchain

CLOUD
CREDENTIAL
COUNCIL

CLOUD CREDENTIAL COUNCIL

The Cloud Credential Council (CCC) is an international member-based organization mandated to drive cloud readiness through effective competence development. The CCC has established critical cloud certifications for key IT roles to cultivate cloud-ready IT professionals. The certification scheme was developed after several years research investment in over 20 roles led by industry experts in conjunction with the leading technology vendors in the cloud computing arena.