Blockchain

Certification Training

In Collaboration with **IBM**

IntelliPaat

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About the Program

Intellipaat's Blockchain certification course offers a definitive training program in Blockchain technology that includes Blockchain programming, Solidity, Ethereum, the concept of distributed ledger, Hyperledger, MultiChain, cryptocurrency, Bitcoin mining, Blockchain architecture, core layers, applications, and more. In this Blockchain course, you will work on real-world projects and case studies for gaining hands-on experience. As part of this online Blockchain training, you will receive two additional courses co-created with IBM, namely, 'IBM Blockchain Foundation Developer' and 'Deploy a Web-based Blockchain Insurance Application.'

IBM

Collaborating with IBM

IBM is one of the leading innovators and the biggest player in creating innovative tools. Top subject matter experts from IBM will share their knowledge in the domain of Blockchain through this training program, which will help you gain the breadth of knowledge and industry experience.

Benefits for students from IBM

- Industry-recognized IBM certificate
- Access to IBM Watson for hands-on training and practice
- Industry in-line case studies and project work

About Intellipaat

Intellipaat is one of the leading e-learning training providers with more than 600,000 learners across 55+ countries. We are on a mission to democratize education as we believe that everyone has the right to quality education.

Our courses are delivered by subject matter experts from top MNCs, and our world-class pedagogy enables learners to quickly learn difficult topics in no time. Our 24/7 technical support and career services will help them jump-start their careers in their dream companies.

Key Features

32 HRS INSTRUCTOR-LED TRAINING

32 HRS SELF-PACED TRAINING

40 HRS REAL-TIME PROJECT WORK

LIFETIME ACCESS

24/7 TECHNICAL SUPPORT

INDUSTRY-RECOGNIZED CERTIFICATION

JOB ASSISTANCE THROUGH 80+ CORPORATE TIE-UPS

FLEXIBLE SCHEDULING

Career Support

SESSIONS WITH INDUSTRY MENTORS

Attend sessions from top industry experts and get guidance on how to boost your career growth

MOCK INTERVIEWS

Mock interviews to make you prepare for cracking interviews by top employers

GUARANTEED INTERVIEWS & JOB SUPPORT

Get interviewed by our 400+ hiring partners

RESUME PREPARATION

Get assistance in creating a world-class resume from our career services team

Why take up this course?

Blockchain is one of the revolutionary technologies that can herald the advent of the fourth industrial revolution. It is a peer-to-peer decentralized network that provides the infrastructure for Bitcoin and is increasingly used in various industries, especially banking and finance. Taking up Intellipaat's self-paced or instructor-led Blockchain course can help you make the most of the shortage of qualified and certified Blockchain professionals and command high salaries. You can also be part of the Blockchain Hyperledger community after the completion of this training.

Blockchain technology today is very robust, and there are lots of aspects, such as Solidity programming language, distributed ledger cloud platform, Ethereum, Bitcoin cryptocurrency, etc., associated with it. Taking up Intellipaat's industry-designed Blockchain Developer course can help you master all these technologies and much more. You will get Intellipaat-verified Blockchain certification upon the successful completion of this training.

Who should take up this course?

Anyone who wants to upskill their knowledge of Blockchain and enter this field can sign up for Intellipaat's Blockchain online training courses.

Program Curriculum

Blockchain Training Course Content

1. INTRODUCTION TO BLOCKCHAIN

Blockchain introduction, Blockchain technology, network, and its mechanism, Blockchain history, Blockchain benefits, blocks and transactions in Blockchain, peer-to-peer systems, block structure in Blockchain, dynamic shared ledger, digital signatures, building Blockchain solutions, using hashes as addresses, Bitcoin keys storage, using a key as identity, Bitcoins trade and transactions, Blockchain ecosystem core, and Blockchain layers: the data layer, the consensus layer, and the network layer

2. DETAILED STUDY OF BLOCKCHAIN

What is Bitcoin? Bitcoins network, Bitcoin mining, Bitcoin wallets, Blockchain alternatives, smart contract, public network and private consortium, Ethereum virtual machine, Ethereum environment, Merkle tree, Dapps, decentralized autonomous organization (DAO), double-spend problem, Blockchain impact on cryptocurrencies, Bitcoin mechanics, transcriptions, scripts, peer-to-peer network, blocks, and security measures

3. BLOCKCHAIN & BITCOIN

Identification of Bitcoins and their era, where and how to get Bitcoins, identifying Bitcoin wallets, Jaxx wallet, defining the selling of Bitcoins, comparing between Bitcoin and Blockchain, transaction and transaction scripts, defining scripts in Bitcoin, describing various transaction forms in Bitcoin, listing the nodes in Bitcoin network, etc.

4. BITCOIN MINING

Understanding Bitcoin economics, Bitcoin mining, fabrication of block header, defining mining, understanding more about mining: identification of the successful mining, types of mining pools, solo mining, listing the problems in solo mining, benefits of pooled mining, consensus, independent verification of mining, autonomous verification of mining, and the checklist for the mining verification, combining transactions into blocks, combining verified transactions, portrayal of difficulty, condition of difficulty, the creation

of block header, main chain, orphan block, the creation of a new block, independent validation of the new block, race for Bitcoin mining and hash race, difficulty with the hashing power of miners, etc.

5. ETHEREUM & WORKING WITH SMART CONTRACTS

Understanding Ethereum, defining smart contracts, Ethereum cryptocurrencies' identification, Ethereum transactions, the consensus mechanism in Ethereum, listing various development technologies, how to identify Ethereum clients, defining platform functions, understanding and describing Solidity operators and functions, the MetaMask setup, Ethereum network interfacing, the first smart contract, Ethereum accounts and how to go about receiving Ether, structuring a contract, declaring a function, deploying and redeploying a contract, comparing between Wei and Ether, Remix testing, gas transaction, etc.

6. SETTING UP A PRIVATE BLOCKCHAIN ENVIRONMENT

The creation of smart contracts on Ethereum, Remix browser, defining MetaMask, Blockchain installation, Go language installation, explaining Blockchain creation: the genesis block list, genesis.json file parameters, Blockchain's making rules, performing Blockchain mining, Blockchain environment contract deployment, boilerplate requirements, project file walkthrough, syntax highlighters, compiling Solidity and script, the testing architecture, installing modules, running Windows, Web3 versioning, Web3 providers, refactor to Async/Await, deployment with Web3, Web3 version fix, initial message verification, testing message updates, deployed contracts in Remix, crowdfunding smart contract, voting ballot smart contract, applications, architecture of Ethereum and its overview, getting started with create-react-app, multiple Web3 instances, Web3 setup, etc.

7. HYPERLEDGER

Understanding Hyperledger Blockchain and Hyperledger consensus algorithm, explaining Hyperledger Iroha, identifying different Hyperledger components, learning about channels, policies, and chaincodes, listing various Hyperledger Explorer components, defining Hyperledger Composer, Hyperledger introduction, distributed ledger technology and its challenges, Hyperledger Fabric Developer Environment tools, their usage, and their setup on: Windows, Mac OS, Linux/Ubuntu, AWS, and Cloud virtual machines, development environment topology, fabric under the hood: concepts

and terminology, ledger implementation, dev environment walkthrough: Orderer and CA Server, Peer and CouchDB setup, Peer nodes: Anchor peers, and endorsing peers, client nodes, orderer nodes, endorsement policies, membership service provider and certification authority, and chaincode development

8. HYPERLEDGER COMPOSER

Hyperledger Composer and its benefits, Hyperledger conceptual components, the structure and example: business network automated auction market for cars, model, metadata, script file, ACL, open-development toolsets, archive, business networks testing, business networks modeling, Hyperledger Composer playground, and using Hyperledger Composer to develop applications

9. CREATING A PRIVATE BLOCKCHAIN WITH MULTICHAIN

Defining MultiChain and describing its various streams, creating and deploying a private Blockchain, explaining how to connect to Blockchain, identifying the MultiChain interactive mode, defining the transaction metadata, listing native assets, streams and mining, Bitcoin to private Blockchain, the hand-shake process, the aim of MultiChain, various use cases of MultiChain; MultiChain permission and assets, the basics of retrieving from streams, the consensus model, MultiChain flexibility, deployment options, speed and scalability, downloading and installing, initializing and connecting to Blockchain from a second server, connection permission, creating a new address, permission to create assets, new assets, native assets, connected peers, checking asset balance, verifying transactions, and resending assets

10. BLOCKCHAIN USE CASES

Potential use cases in Blockchain, the proof of existence, identity management, record keeping, UPROOV: Mobile Trust Machine, online music problem solution, car leasing and sales, DocuSign, Forecasting, Augur, log operational maintenance data, cloud storage, STORJ: decentralized cloud storage, Retail: OpenBazaar, Ascribe: for securing your work, ride sharing, and supply chain management, Blockchain and IoT, autonomous decentralized peer-to-peer telemetry, IOTA, freight transportation, IBM Watson IoT, ADEPT, banking industry projects: payments, trading platform, KYC, the loan management process, capital market system, and fraud reduction, government: online voting, real estate, capital markets, and devising public policies, Estonia: identity

management and e-voting, Georgia: Blockchain land registry, Delaware, USA: Smart contracts and making public policies, and Dubai: Digital passports

11. IBM COURSES (SELF-PACED)

- IBM Blockchain Foundation Developer
- Deploy a Web-based Blockchain Insurance Application

Project Work

Blockchain Projects

Project 1: Setting up Hyperledger Composer

Industry: General

Problem Statement: Setting up Hyperledger Composer

Topics: In this project, you will understand how to set up Hyperledger Composer. This includes learning what a business network is, defining your assets, understanding the participants and the transactions that will go through the Hyperledger, testing the network by creating participants and assets, and submitting the transactions to change the ownership of assets.

Highlights:

- Hyperledger Composer execution runtime
- Command-line interface
- Playground web user interface

Project 2: Creating a 'To-do' List with Blockchain

Industry: General

Problem Statement: How to successfully manage a project with Blockchain, assigning tasks to various team members

Topics: In this Blockchain project, you will work on creating a 'to-do' list. You will define the structure of each list, create the mapping of notes, create a function to add a new to-do list for the sender, and add a function to mark a task as completed, all using Blockchain. Each note will have a date of creation and owner information stamped on it.

Highlights:

- Deploying Ethereum smart contract
- Implementing Solidity code
- Creating a web3.js app to interact with the contract

Project 3: Creating an Online Auction System with Dapp

Industry: The Internet

Problem Statement: How to build a model auction website with the least human intervention using Dapp

Topics: In this project, you will build an auction contract with a simple interface that allows users to place bids. After the auction is complete, they should be able to withdraw their funds. The owner of the auction needs to be able to cancel the auction in any exceptional cases, and the winner must be allowed to withdraw the winning bid.

Highlights:

- Building an algorithm to meet various conditions
- Designing a smart contract using Solidity
- Deploying a Blockchain-based Dapp

Project 4: Supply Chain Management with Hyperledger Composer

Industry: Logistics

Problem Statement: How to build an SCM application to keep track of the product flow

Topics: In this Blockchain project, you will be building a Supply Chain Management application using Hyperledger Composer Online. The type of application you develop should be coded, deployed, and tested on your Online Hyperledger Composer Playground and then be deployed locally in your computer. You will also build an Angular front-end platform to interact with it.

Highlights:

- Deploying a business network
- Hyperledger Composer Playground
- Building an Angular front-end platform

Project 5: Sample Car Auction with Hyperledger Composer

Industry: The Internet

Problem Statement: How to deploy a business network using Online Hyperledger Composer Playground

Topics: This project is meant for you to know how to deploy a business network with Blockchain. Here, the car auction business network has a set of known participants (buyers and sellers), assets (cars and car listings), and transactions (placing bids and closing auctions). You will have to model these using Hyperledger Composer and test the business logic that makes the online auction work.

Highlights:

- Hyperledger Composer Playground
- Developing a business network
- Modeling assets, participants, and transactions

Project 6: Voting with Ethereum Blockchain

Industry: Government

Problem Statement: To ensure that there is no vote-rigging in a democratic election and that there is complete transparency

Topics: This project includes deploying Ethereum Blockchain for building a secure voting system to elect a democratic government. You will learn how Ethereum Blockchain ensures confidentiality. Various aspects of the project include learning how to protect and verify the voting process, how Blockchain can overcome election fraud, and how to guarantee immutability.

Highlights:

- Building a decentralized Blockchain network
- Issuing digital tokens to all eligible voters
- Recording votes with Ethereum Blockchain
- Announcing the winner in a swift manner

Certification

After the completion of the course, you will get certificates from Intellipaat and IBM.

Success Stories

Kevin K Wada

Thank you very much for your top-class service. A special mention should be made for your patience in listening to my queries and giving me a solution, which was exactly what I was looking for. I am giving you a 10 on 10!

Sampson Basoah

The Intellipaat team helped me in selecting the perfect course that suits my profile. The whole course was practically oriented, and the trainers were always ready to answer any question. I found this course to be impactful. Thank you.

Abayomi Oladipupo

This Blockchain online training course is worth taking up. Intellipaat provided cutting-edge knowledge with real-time project experience. I received what I was promised. I am happy with the whole package. Thanks, Intellipaat! I had great learning with you!

Vishal Pentakota

The best part of this course was the series of hands-on demonstrations that the trainer performed. Not only did he explain each concept theoretically, but he also implemented all those concepts practically. Great job! A must go for beginners.

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