

Blockchain and Cryptocurrency Certification Course



Joint Program of
Eckovation and Shri
Venkateshwara
University (SVU)

Course Brochure

Course duration: 2 Months, Open for : All years, all streams

Certification: Eckovation and SVU

What will you learn?

- Various Blockchain Development Platforms
- Complete Knowhow of Ethereum Platform
- Building and launching Apps on Ethereum
- Convert ideas in Blockchain into reality - with complete architectural understanding

Why to choose Blockchain and Cryptocurrency Certification program of Eckovation



**Industry Oriented
Curriculum**



**Most Trusted
Online Platform by 10+ Lakh
Learners Worldwide**



**Real-Time
Doubt Solving**



**24*7 Availability
with Lifetime Content
Access**



**Capstone Project under
Expert Guidance**



**Guaranteed Internship
after Course Completion**

Description

With the buzzwords regarding the cryptocurrencies like Bitcoin, Ethereum, Ripple, Bitcoin cash in the modern day technology, it is very necessary to understand the underlying architecture for all of this. The core that serves these cryptocurrencies is blockchain. It is a decentralised, trustless and distributed ledger technology which got its popularity with Bitcoin global cryptocurrency platform. With ethereum, empowering reprogrammable money through smart contracts, blockchain systems are ready to take off to a whole new world all together. The following statements show the growing importance of Blockchain in the industry:

India's Largest Bank SBI Goes Big on Blockchain

\$1 Trillion Industry Being Brought Onto Blockchain

This course will be very helpful for all who are beginning to learn this technology and who wants to understand both sides of it - the system and its business.

Following will be the flow of the course.

- 1 . Introduction to cryptocurrency.
- 2 . Getting to know about popular currencies like bitcoin, ether.
- 3 . Introduction to blockchain.
- 4 . Know about various popular use cases of blockchain and the businesses associated with it.
- 5 . Introduction to ethereum platform.
- 6 . Set up a private blockchain system using ethereum platform.
- 7 . Implement your own cryptocurrency and test sample transactions.
- 8 . Introduction to reprogrammable money and Smart contracts.
- 9 . Implement a sample smart contract onto the private blockchain system.
10. Carry out transactions using the smart contract.
11. Use cases of smart contracts for the business.

At the end of the course, you will have worked on setting up your cryptocurrency and implemented a smart contract on your private blockchain system. You will be well equipped with all the tools required to implement blockchain technology according to any business requirement.

Price: Rs 25,000

Special additional discount of Rs 5000 for all SVU Students.

Details related to Guaranteed Internship:

- i) **Why?** - We believe acquiring a new skill without working on an actual project is wasteful spending of your time and resources. For your holistic learning experience, both course and internship should be combined.
- ii) **Who?** - Internship is guaranteed by Eckovation to **all Eckovation Alumni** - those who complete atleast a course with us.
- iii) **Where?** - Internship will be either with **Eckovation or one of our partner organisations**. You will be able to access internship.eckovation.com once you register for a course with us. Our Internship Portal will feature profiles of our alumni and also list internship opportunities by various organisations where alumni can apply.
- iv) **How many?** - The internship will be related to the skill(s) which you've acquired from Eckovation platform. In case of **multiple skills**, multiple internship opportunities may be provided.
- v) **Nature of internship?** - The internships will be **virtual** in nature, i.e., you will be able to work on the internship project from home.
- vi) **When?** - Internship will start only **after your course completion** in either Summer/December Vacation depending on which comes first. In-semester internships can also be considered on case-by-case basis.
- vii) **Certificate** - A **separate internship certificate** will be provided at the end of internship period.

Curriculum

Cryptocurrencies and Blockchain

- Transformation of Trading Units
- Hash Properties
- Digital Signs
- Storing Keys
- Anonymity and Pseudonymity in Cryptocurrency
- Centralised, Decentralised and Distributed networks
- Public, Private and Consortium Types of Blockchain
- Side Chains
- Database vs Blockchain
- Hands on:
- Installing Node.js
- Create Blockchain
- Blockchain with Genesis Block
- Validity of Blockchain
- Proof of Work - mining in Blockchain
- Add mining reward and mempool
- Check balance of an Address

Blockchain Structure

- Chain of Blocks
- Distributed Blockchain
- Block's Data
- Block's Data Validation
- Block's Component
- Block's header vs Block's height

Blockchain Ecosystem

- Blockchain Transaction Flow
 - Distributed Ledger
 - Proof of Byzantine Fault Tolerance
 - Main chain and Secondary chain
 - Orphans Blocks and Slate Blocks
 - What is Soft Fork?
 - What is Hard Fork?
 - Understanding Forks
 - Soft Fork Scenarios
 - Hard Fork Scenarios
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Working of Blockchain Technology

- Bitcoin P2P Architecture
- Bitcoin Mining Architecture
- Mechanism of Proof of Work (POW)
- Block reward
- Switch to Longest Blockchain
- Can Miner Cheat?
- Miner with more Hashing Power
- Consensus - Mechanism of POW
- Different type of Consensus
- Difficulty Equation
- Pool Mining

Bitcoin and Blockchain

- Bitcoin and its history
- Bitcoin transactions
- How Bitcoin transactions work
- What happens in case of invalid transactions
- Parameters that invalidate the transactions
- Scripting language in Bitcoin
- Applications of Bitcoin script
- Nodes and network of Bitcoin
- Various roles you can play in Bitcoin ecosystem
- What is Ether?
- How to use Ethereum?
- The Ethereum ecosystem,
- DApps and DAOs
- How Ethereum mining works?
- Types & optimization of Ether

Future of Ethereum Solidity

- Learning Solidity
- Contract Structure
- Function Declarations Testing with Remix
- Redeploying Contracts
- Behind the Scenes of Deployment
- Gas and Transactions
- Getting More Ether Smart Contracts with Solidity
- Contract Deployment
- Mist Wallet

Overview of Web3.JS

- Installation & Running Ethereum Test RPC
- Installing Web3.js
- Changing Environment to Remix
- Creating the UI
- Using Web3.Js to connect and Interact with the Smart Contract

- Introduction to web3.js
- Importing web3.js
- Connecting to nodes
- The API structure
- BigNumber.js
- Unit conversion
- Retrieving gas price, balance, and transaction details
- Sending ether
- Working with contracts
- Retrieving and listening to contract events

Creating DApps

- Overview of the different DApps Frameworks (Truffle)
- Installation of Truffle ,
- Test RPC using Node Package Manager
- Setting up Metamask
- Building Smart Contract (3-4 smart contracts)

Hyperledger

- Introduction to Hyperledger
- Hyperledger Architecture

Consensus

- Consensus & its interaction with architectural layers
- Application programming interface
- Application model
- Network topology
- Exploring Hyperledger frameworks
- Introduction to Hyperledger Fabric
- Hyperledger Fabric model
- Various ways to create Hyperledger Fabric Blockchain network

Hands on:

- Creating and Deploying a business network on Hyperledger Composer
- Playground Testing the business network definition
- Transferring the commodity between the participants

Multichain

- Introduction to MultiChain
- Privacy & permissions in MultiChain
- Mining in MultiChain
- Multiple configurable Blockchains using MultiChain
- Setting up a private Blockchain
- Creating a Blockchain
- Connecting to a Blockchain
- Some commands in interactive mode
- Raw Transactions

- Data Streams

Hands on:

- Creating private Blockchain Connecting to your Blockchain
- Create a new asset and sending it between nodes
- Mining between nodes

Prospects of Blockchain and Use Cases

- How Blockchain is helping our world Blockchain transforming business and professions
- Discussing practical use-cases of Blockchain
- How can we bring Aadhaar Card system onto Blockchain?
- How Blockchain can be used to remove corruption
- Real case scenarios of Blockchain Blockchain in Banking System
- Blockchain in Land Registry
- Blockchain in Capital Market
- Use cases for government Summary of the course

About Instructors

Abhinav Prateek

Wharton MBA, IIT Kanpur B.Tech

Abhinav is a serial entrepreneur, and holds an MBA from Wharton University. He is a graduate from IIT Kanpur.

He has been working with Blockchain technologies since last couple of years.

Abhinav acts as a curriculum advisor and guest faculty for this course.

Niranjan Kumar

BITS Pilani, 8y+ experience

A BITS Pilani graudate, with experience of over 8 years.

Over last couple of years, he has been associated with the top companies like Oracle, and eBay.

He is a proficient softwae architect, with deep experience in building highly scalable systems distributed online systems.

He has in-depth working knowledge of technologies like Machine Learning system, MEAN stack and blockchain and many more