

Course Durations: 30 Hours

Course Mode: Online

## About Company:

EduNextgen extended arm of Product Innovation Academy is a growing entity in education and career transformation, specializing in today's most in-demand skills. A platform with blended learning programs supported by in-trend technology platforms for learning. Engaging organizations for learning development objectives.

## About the Course:

The course Blockchain Certification is designed to introduce you to Blockchain concepts fundamentals and its implementation. This course covers some important concepts of transactions, buying and selling of Bitcoin and Ethereum development platform and some other important concepts and techniques. It will teach you about Hyper ledger projects which designed for traditional businesses trying to improve internal data integrity, collaboration and bring IT cost down in the long run. This course will help you to master the complete all the concepts and techniques of Blockchain Technology.

## Participants will get access to:

- LMS Access
- Assignments
- Quizzes
- Step by Step Tools Setup
- Industry Grade Projects
- Live Support via Mail, Call & Screen Sharing
- Course Completion Certificate

## Why this course:

- This course will cover the fundamentals and advance concepts of Blockchain technology, including the three core layers of a Blockchain and the three types of Blockchains.
- Hands-on Experience
- Project Execution
- Live Support (24x7)

## Batch Schedule:

Weekend: 3 Hours per day (Online), 4 Hours per day (Offline)

Weekday: 2 Hours per day (Online), 2 Hours per day (Offline)

## Course Curriculum

### Module 1: Introduction to Cryptography and Cryptocurrency (3 Hours)

This module will help you to understand what is Blockchain and how it works, Cryptocurrency and its type and about Digital Signature. Below topics are covered in this module:

- Transformation in Trading Units
  - Introduction to Cryptography and Cryptocurrency
  - Hash Code Definition
  - hash Code Working
  - Hash Code Algorithm
  - Digital Signatures
  - Digital Signatures
  - Anonymity and Pseudonymity in Cryptocurrencies
  - Merkle Tree Approach for Blockchains
  - Peer to Peer Networks (Structured and Unstructured)
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### Module 2: Overview of Blockchain (3 Hours)

This module will help you to understand several types of Blockchain, its structure and ecosystem and different types of Algorithm of Cryptography. Below topics are covered in this module:

- Introduction to Blockchain and its Origin
  - Blockchain Definition
  - History of Blockchain Technology
  - Types of Blockchain
  - Benefits of Blockchain
  - Blockchain Ecosystem, Structure and Architecture
  - Why Blockchain is Crucial and its Objectives
  - Blockchain Terminologies
  - Security and Privacy
  - Difference between Traditional Banking Transaction and Blockchain Transaction
  - Distinction between Databases and Blockchain
  - Distributed Ledger
  - Permissioned and Permission less Blockchain
  - Uses of Blockchain Technology in other than Financial Sectors
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### Module 3: Bitcoin and Blockchain Data Structures (3 Hours)

This module will help you to understand about Bitcoin and its network structure and Bitcoin Transaction System. Below topics are covered in this module:

- Introduction to Bitcoin
  - Bitcoin History and its usage
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- Bitcoin Scalability Issues
  - SegWit, Segwit2X, Soft fork v/s hard fork, Bitcoin Cash
  - Blockchain Data Structures
  - Where and how to buy Bitcoins
  - Bitcoin Transactions and How Bitcoin Transactions Work
  - What happens in case of invalid transactions
  - Parameters that invalidate the transactions
  - How to Store Bitcoins?
  - Blockchain Block Structure
  - Scripting language in bitcoin
  - Applications of Bitcoin script
  - Nodes and network of bitcoin
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## Module 4: Bitcoin Mining, Buying and Selling (3 Hours)

This module will help you to understand how Bitcoin mining works and the methods of mining. Below topics are covered in this module:

- Introduction to Bitcoin Mining
  - Bitcoin – Network and Process
  - Bitcoin Cloud Mining
  - Mining Developments – Incentives
  - GPU, ASIC, Genesis Mining, Pool Mining, Worker
  - Bitcoin ATMs
  - Applications of Bitcoin Script
  - Types of Bitcoin Wallets:
    - Hardware Wallets
    - Hot Wallets
    - Web/Online Wallets
    - Paper Wallets
  - Proof of work
  - nonce
  - 51% problem
  - Electricity consumption
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## Module 5: Extending Blockchains and Adoption (2 Hours)

This module will help you to understand about Importance of Blockchain and how Adoption is happening in the market. Below topics are covered in this module:

- Why Extend the Blockchain?
  - Blockchain Objectives
  - Altcoins
  - Colored Coins
  - Side Contracts
  - Initial Adoption
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- Adoption Metrics
  - Blockchain Demographics
  - Geographic Distribution
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## Module 6: Technology of Blockchain - Ethereum Network and Setup (4 Hours)

This module will help you to learn Ethereum, its ecosystem and develop Smart Contracts. Below topics are covered in this module:

- What is Ethereum Network
  - Ethereum History
  - Ethereum Ecosystem
  - Types and Optimization of Ether
  - Ethereum and Smart Contracts
  - DApps and DAOs
  - Understanding Ethereum mining
  - ICO and ERC-20 protocol
  - Ether and Proof of Stake
  - Future of Ethereum
  - Dive into Working with Ethereum's Core Development Tools – Mist
  - Various Blockchain Setup platforms
  - Using Ethereum to Setup Private Blockchain
  - Different phases of Contract Deployment
  - Account Management and Mining
  - Understand the different stages of a Contract Deployment
  - Understanding Decentralization at A Deeper Level
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## Module 7: Introduction to Solidity (3 Hours)

This module will help you to learn Solidity Programming Language and how to work with this. Below topics are covered in this module:

- Solidity Scripting language using Remix IDE
  - Data types, functions and events with scripting examples
  - Contract Structure and Deployment
  - Testing with Remix
  - Redeploying Contracts
  - Behind the Scenes of Deployment
  - Gas and Transactions
  - Getting More Ether
  - Smart Contracts with Solidity
  - Mist Wallet
  - Node.js implementation for deploying smart contracts
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## Module 8: Altcoins (Other Cryptocurrencies/Blockchain Technologies) (1 Hours)

This module will help you to understand Other Cryptocurrencies/Blockchain Technologies. Below topics are covered in this module:

- Bitcoin Cash
  - Litecoin
  - MONERO
  - ZCASH
  - Ripple
  - Blockchain Project - Hyperledger by Linux
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## Module 9: Overview of Web3.JS (3 Hours)

This module will help you to understand how to setup Web3.JS and work with it. Below topics are covered in this module:

- 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
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## Module 10: Prospects of the Blockchain (1 Hours)

This module will help you to understand how Blockchain is Forming Economy of Tomorrow and Understanding different Use Cases. Below topics are covered in this module:

- Blockchain Transforming Business and Professionalism
  - Blockchain and Public Policy
  - Central Banks & Governmental Regulations
  - Legal Issues in Implementation
  - Impact on Human life
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## Module 11: Implement Blockchain using Hyperledger (2 Hours)

This module will help you to understand about Hyperledger Fabric, to develop business networks using Hyperledger Composer and deploying & testing your business network. Below topics are covered in this module:

- Introduction to Hyperledger Fabric
  - Hyperledger Fabric Model
  - Setting up development environment using Composer
  - Developing and testing business networks
  - Various ways to create Hyperledger Fabric Blockchain network
  - Setting up Hyperledger Fabric blockchain using Hyperledger Composer locally
  - Developing business network, deploying & testing business networks
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## Module 12: Creating DApps (2 Hours)

This module will help you to understand how to Creating DApps. Below topics are covered in this module:

- Overview of the different DApps Frameworks (Truffle)
- Installation of Truffle ,Test RPC using Node Package Manager
- Setting up Metamask
- Building SmartContract