

Certificate Program on BlockChain Application and Coding

Objective:

The Internet is entering its second era, unveiling new possibilities and making a promise of “trust without trust”. Blockchain- the internet of Value is the new platform being used to reshape the world of business. It provides a novel solution to the age-old human problem of trust. It allows us to trust the outputs of the system without trusting any actor within it.

Blockchain Short Term Experiential Program is designed to help the candidates dive into Blockchain Programming and achieve a complete understanding of Blockchain. Starting from core concepts of Blockchain/Ethereum and extending to coding in Remix - Solidity IDE and writing smart contracts. After taking this course you will be able to: write your own contract and implement various use cases.

Requirements:

- Basic knowledge of Object Oriented Programming, Java, C, C++, Linux etc.
- A Linux laptop (preferable 4GB RAM or higher) with basic hardware/software configuration.
- The Following Free Software must be downloaded prior to the program:
 1. Remix - Solidity IDE: <https://remix.ethereum.org/>
 2. Geth: <https://geth.ethereum.org/downloads/>
 3. Node JS : <https://nodejs.org/en/download/>
 4. Truffle : http://truffleframework.com/docs/getting_started/installation
 5. Metamask Chrome Extension: <https://metamask.io/>

Target Audience:

- Software Architects
- Programmers
- Students

Curriculum:

Day 1 (Before Break): Key Concepts To understand Blockchain	
Introduction to blockchain	Private & Public Key
Hash Function	Ether & Gas
Blockchain data structure	Mining
Merkle Tree	

Day 1 (After Break) & Day 2 (Before Break): Ethereum Blockchain – Geth	
Introduction to Geth. Clone & Compile Geth	Create & execute transaction to deploy the contract

Create & initialize Geth and Start Geth	View transaction before and after mining
Create Account, Start & Stop Mining & Private Key File	Call function using instance
Store Contract in a variable, compile the contract & view the compile code	Call function using .sendTransaction
ABI definition & Create object for contract deployment	

Day 2 (After Break) & Day 3 (Before Break): Solidity	
Introduction to Smart Contract	State Variables & Control Structure
Writing your first Smart Contract	Comment a statement
Create function inside Smart Contract	Boolean, Integer & Float Variables
Deploy Smart Contract	Fixed Size Byte
Call Function	String
	Address Variables
	Function returning multiple value
	If, Else, While, Do, For, Break, Continue, Return
Data Location	Structure
Storage	Enums & Events
Memory	Constructor Function
Call Data	Modifier Function
	Handling Ether in Solidity

Day 3 (After Break): Truffle	
Introduction to Truffle	Compiling, building & Migrating contracts using Truffle
Installing Truffle	Create connection between JS module and smart contract
Truffle data Structure	

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