EDU FABRICA

BLOCKCHAIN

2 DAYS ONLINE WORKSHOP

COURSE STRUCTURE

PREREQUISITE:

System or laptops should be 64bit with minimum 4GB RAM

Fast Internet is must without firewall restrictions (or 4G Mobile network can be used for individual laptops/systems) for practical sessions.

COURSE DURATION

2 Days

BLOCKCHAIN: INTRODUCTION

- What is Blockchain
- Blockchain Technology Mechanisms & Networks
- Blockchain Origins
- Blockchain Objectives
- Blockchain Users And Adoption
- Blockchain Challenges
- Transactions And Blocks
- P2P Systems
- Keys As Identity
- Digital Signatures
- Hashes As Addresses
- Hash Pointers And Data Structures
- Blockchain Transactions

BITCOIN & CRYPTOCURRENCY

- What is Bitcoin
- The Bitcoin Network
- The Bitcoin Mining Process
- Mining Developments
- Bitcoin Wallets
- Decentralization And Hard Forks
- Alternative Blockchains/Altchains
- Ethereum Consensus Mechanisms
- How Smart Contracts Work
- Difference Between Private Consortium and Public Networks
- Ethereum Virtual Machine (EVM)
- Impact Of Blockchain Technology On Cryptocurrency
- Cryptography

ETHEREUM

- What is Ethereum?
- Introduction
- A Short History Lesson
- Interfacing with Ethereum Networks
- Metamask Setup
- Ethereum Accounts
- Receiving Ether
- What's a Transaction?
- Smart Contracts
- Our First Contract
- Contract Structure
- Function Declarations
- Testing with Remix
- Redeploying Contracts
- Behind the Scenes of Deployment
- More on Running Functions Than You Want to Know
- Gas and Transactions
- Mnemonic Phrases
- Getting More Ether

SOLIDITY PROGRAMMING

- Solidity - Language of Smart Contracts
- Installing Solidity & Ethereum Wallet
- Basics of Solidity by Example: Subcoin Smart Contract
- Layout of a Solidity Source File & Structure of Smart Contracts
- General Value Types (Int, Real, String, Bytes, Arrays, Mapping, Enum, address)
- Ether Units, Time Units

ETHEREUM CODING FOR BLOCKCHAIN

- Globally Available Variables & Functions
- Operators: Arithmetic, Logical & Bitwise Operators
- Control Structure (if-else, for, while, Do-While)
- Scoping and Declarations
- Input Parameters and Output Parameters
- Function Calls & Return Types
- Function Modifiers
- Fallback Function
- Abstract Contract
- Creating Contracts via "new" Operator
- Inheriting Smart Contracts
- Importing Smart Contracts & Compiling Contracts
- Events & Logging
- Exceptions
- Deployed Contracts in Remix

PROJECT

- Smart Contract: Development of smart block-based contact for project development
- Crowd Funding Smart Contract
- Voting Ballot Smart Contract for Elections using Blockchain Technology
- Ethereum Wallet – Testing Platforms / Local Platform
- Cryptocurrency: ERC-20 tokens & creating your own crypto currency using solidity for Ethereum.
- Blockchain based Lottery – Picking a Winner from various Blockchain Nodes taking part in a lottery.