

# Blockchain Institute of Technology

## ICO Certification

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Term Start and End Dates:

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### Course Overview

This course will teach students how to properly conduct an ICO. BIT has a project driven philosophy, students will gain fundamental knowledge about blockchains, gain hands on programming experience and verifiable certification of knowledge on the Ethereum blockchain. Learning will occur in the form of in-person/online one-on-one programming sessions. Learning will be assessed and measured through project deliverables.

### Course Learning Objectives

Upon completion of this course students will

1. Understand Ethereum Blockchain and Smart Contracts.
2. Launch an ICO
3. Obtain certification from BIT on the blockchain

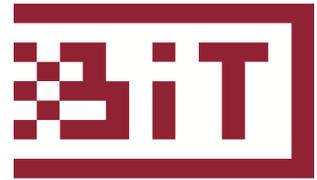
### Course Agenda

#### **Module 1: Blockchain mechanics**

- Overview of peer to peer technologies
- Overview of the state of cryptocurrency and blockchain based projects
- Walkthrough of how the Bitcoin blockchain works
- Consensus algorithm and mining
- Blockchain Demo: <https://anders.com/blockchain/>

#### **Assignment**

- Chapters 1,2,4 Mastering Bitcoin



- Create a block explorer for any blockchain

## Module 2: Ethereum programming environment

- Ethereum overview
  - Project history
  - Ethereum foundation
- EVM
- Gas
- Ethereum Nodes

### Assignment

- <https://github.com/ethereumbook/ethereumbook>

## Module 3: Developer tools

In this module we will go in depth into the technology stack used to host, write, deploy, test and interact with Smart Contracts. Students will download and create simple applications to become familiar with these tools.

- Ganache
- Solidity
- Metamask
- Truffle
- Node.js
- Web3

### Assignment

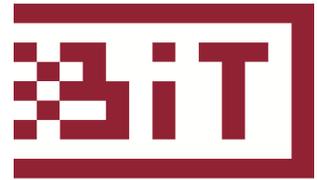
- Download and integrate any npm package into a simple app and publish on Github  
<https://medium.com/@adnanrahic/hello-world-app-with-node-js-and-express-c1eb7cfa8a30>

## Module 4: Development Management

- Github
- CircleCI
- Docker images

### Assignment

- Node Hello World application, with tests integrated on CircleCI and creating a docker image



## Module 5: Smart Contracts

In this module students will bring all the tools they have been learning and create and deploy a smart contract themselves

- Smart Contract Creation
- Test-driven with Truffle - Deployment
- Contract interaction, web3, wallet, qr codes.

### Assignment

- Using test driven development build and deploy smart contract with CircleCI continuous integration to a test net

## Module 6: Initial Coin Offerings

In this module students will learn best practices around an Initial Coin Offerings (ICO) and deploy their very own ICO

- ERC20 Standard
- Open Zeppelin
- Token Foundry
- Publishing source code to Etherscan

### Assignment

- Use open source library to launch a token on the Ethereum mainnet