

Ethereum Training - Blockchain Development Bootcamp

Course Overview

This is a 3-day class



This 3 day instructor-led course is designed for programmers and developers who want to take a comprehensive deep dive in writing smart contracts and building applications that interact with them. This course provides detailed overviews of Ethereum, smart contracts, and the development language, Solidity. The student will be exposed to Ethereum's adaptable feature set which allows the developer to design decentralized applications for countless applications. Students will also participate in hands-on programming lab sessions to learn, develop, and advance their skills in Ethereum development. The Ethereum Development Training Course is designed for those seeking an in-depth understanding and development experience of the Ethereum Blockchain platform. Students will participate in approximately 50% programming lab time providing practical experience, enhancing their knowledge and existing skill set.

Who Should Attend

Programmers
Application Developers
System Architects
Network Architects
Network Security Architects
IT Professionals w/programming experience

Course Objectives

Those who attend the Ethereum Development course and pass the exam certification will have a demonstrated knowledge of:

- An excellent overall understanding of the Ethereum architecture and Solidity language.
- All functional components (including smart contracts) required to develop an Ethereum Blockchain.
- The understanding of how to instantiate an Ethereum application on the network.
- An in-depth understanding of how transactions are created and implemented on an Ethereum network.

Course Outline

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1 WHAT IS BLOCKCHAIN AND SMART CONTRACTS?

What is Blockchain and how does it work?

Bitcoin vs Ethereum

Smart Contract

How you can use Smart Contracts?

Advantages of Smart Contracts

Solidity

LAB TASK

Types of Variables in Solidity

Public and Private Code

Public Variables and Functions

Private Variables and Functions

Internal Functions

External Functions

Smart Contract Constructors

Constant Variables

Setting Variables

LAB CHALLENGE

2 SMART CONTRACTS WITH WEB3.JS

LAB

Installing & Running the Ethereum TestRPC

Installing Web3.js

Changing the Environment in Remix

Creating the UI

Using Web3.js to Connect & Interact with the Smart Contract

SOLUTION

LAB CHALLENGE

3 SMART CONTRACT EVENTS WITH WEB3.JS

AIM

LAB

The Current Contract

Defining the Smart Contract Event

Updating the UI

LAB CHALLENGE

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4 FUNCTIONS, MAPPINGS AND STRUCTS

THEORY

Functions

Mappings

Structs

LAB

The Smart Contract

Creating a Modifier

Using the Modifier

Web3 UI's Modifier Handling

LAB

Creating a Struct

Creating the Mapping

Map Addition

Get from the Mapping

The Full Contract

Count from Map

LAB CHALLENGE

5 INHERITANCE AND DEPLOYMENT

THEORY

Object-oriented programming

Inheritance

LAB

Current Contract

Creating a Base Contract

Changing from Strings to bytes

Continuing the Project

Installing MetaMask

Deploy Contract to the Ropsten Test Network

LAB

Update the HTML Form

Update the JavaScript

Using the App

LAB CHALLENGE

6 EMBARK FRAMEWORK AND IT'S DEPLOYMENT

Blockchain (Ethereum)

Decentralized Storage (IPFS)

Decentralized Communication

Web Technologies

LAB

Installing Embark Framework

Hello World with Embark Framework

First Contract Deployment with Embark Framework

7 SOLIDITY SMART CONTRACTS TESTING

THEORY

What is Software Testing?

LAB

LAB CHALLENGE

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8 CONTRACTS MANAGEMENT WITH FACTORIES

THEORY

Factory

LAB

LAB CHALLENGE

9 IPFS FILES HOSTING

THEORY

IPFS

FILES HOSTING

LAB

1. Get your hosting server

2. Install IPFS on the Server

LAB CHALLENGE

10 END TO END DEVELOPMENT OF DAPP

AIM

LAB

Setup the Project

Program the Smart Contract

Create the Front-end of the application

Deploy the App with IPFS

LAB CHALLENGE