Introduction to Blockchain Courses

Introduction to Blockchain and Ethereum

GuruTeam course code: GTBCE

Introduction to Blockchain and Corda

GuruTeam course code: GTBCC

Course Description

In these instructor-led courses, we introduce the fundamentals of blockchain and cryptocurrency technologies. We will discuss when to apply these approaches to existing or greenfield architectures.

Attendees will be able to see the power of the approach by building and working with a simple blockchain from scratch. With this context, we will move on to discuss the Bitcoin network and currency in detail and the design choices that it makes.

Depending upon the course, attendees will then move on to look at one of the core technologies behind modern blockchain development – either Ethereum or Corda.

Ethereum Course

The second half of the course introduces the Ethereum network and its notions of smart contracts, gas and related tech, including the Ethereum Virtual Machine (EVM). We discuss distributed apps and look at some recent high-profile case studies.

The Solidity programming language is introduced from scratch as well as a typical development environment for new smart contracts.

Finally, we show to integrate Ethereum smart contracts with existing applications by using the Web3j library to bridge Java applications with the Ethereum network and blockchain.

Corda Course

The second half of the course introduces the Corda distributed ledger and distributed apps. These are written either in Java or Kotlin, so we briefly introduce this up-and-coming language with a lab-driven approach.

We discuss the Corda ledger, shared facts and CorDapps before turning to the transaction lifecycle and flow. Finally, we look at Corda nodes and operation aspects of running a Corda network and private distributed ledger.

Upcoming course dates:

See SCHEDULE at GuruTeamIRL.com or call Neasa on +353 (0) 1 402 9423.

GuruTeam also offer customised programmes around Blockchain, Ethereum & Corda, which can be designed for your specific projects.

Courses available in Ireland, UK and Europe, both on and offsite.
About the Course Author

Ben Evans

Ben Evans, a well-known O'Reilly author and Java Champion, has been developing in financial technology for almost 15 years.

He spent 5 years at Morgan Stanley, working on project such as Google's IPO and Morgan Stanley's ground-breaking proprietary single dealer platform, Matrix. He worked in low latency FX trading at Deutsche Bank and served as Global Chief Architect for DB's Listed Derivatives division.

Ben has been working with blockchains and related technologies for several years, and has published original research on the implementation of smart contracts. He acted as consulting CTO to Giftcoin during their ICO on the Ethereum network.

He is an observer to the UK Parliament's All-Party Parliamentary Group on Blockchains and Distributed Ledgers and has been invited to give evidence to the House of Lords special interest group in the area.

Target Audience

Experienced programmers in a OO language (ideally Java or Javascript). Also suitable for architects or lead developers who are investigating suitability of blockchains.

Duration

1 Day

Prerequisites

Attendees must already be experienced programmers. Any knowledge of blockchains, cryptography or cryptocurrencies is a notable advantage.

Software Spec

You will be required to bring a laptop to attend this course. Your laptop will need to be preloaded with an IDE (ideally Java 8) and Visual Studio Code, and requires the ability to install new software on the day.

Course Outline Summary

A: BLOCKCHAIN BOOTCAMP  
(Both courses)

1. Fundamental Concepts
   • Hashing
   • Public Key cryptography
   • Hash chaining (e.g. Git)
   • Cryptographic glossary

Lab: Introduction to hashing & SHA-256

2. An introductory blockchain
   • Append-only ledgers
   • Proof of work and difficulty
   • Specification for a simple example – FirstBlockchain

Lab: Build & implement FirstBlockchain
Lab: Try to forge entries in someone else's implementation of FirstBlockchain

B: BITCOIN (Both courses)

1. Bitcoin concepts
   • Full nodes, mining and PoW
   • Addresses, wallets & client tools
   • Exchanges
   • Economics of Bitcoin
   • Criticism
   • Future Directions

Lab: Setting up Ether wallets

C. ETHEREUM (Ethereum course only)

1. Ethereum concepts
   • Fundamentals: Ethereum, EVM, Smart Contracts & Gas
   • Client tools & wallets

Lab: A first Ethereum smart contract

2. Solidity & Web3j
   • Solidity programming

Lab: Setting up Ether wallets

D. R3 CORDA (Corda course only)

1. Core Corda Concepts
   • Introduction to Kotlin

Lab: Introduction to Kotlin
Lab: Build & implement FirstBlockchain
Lab: Try to forge entries in someone else's implementation of FirstBlockchain

2. Corda Smart Contracts
   • Simple smart contracts
   • Transaction Lifecycle
   • Flows

Lab: Writing a Corda smart contract

3. Running a Corda network
   • Corda Nodes
   • Corda Network

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Contact us to learn more...

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