

## Blockchain Developer Ethereum

CODICE	DT0237
DURATA	3 gg
PREZZO	1.240,00 €
EXAM	

### DESCRIZIONE

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Il corso è dedicato ai professionisti sia in ambito aziendale che IT che mirano ad avere un ruolo professionale come architetti/sviluppatori blockchain su Ethereum. Prepara alla certificazione Blockchain Developer Ethereum.

### OBIETTIVI RAGGIUNTI

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Al termine del corso i partecipanti saranno in grado di:

- Approfondire i benefici e svantaggi delle tecnologie Blockchain
- Scrivere e leggere Smart Contract sicuri utilizzando il linguaggio Solidity
- Comprendere il concetto di Gas e come viene calcolato il suo costo
- Comprendere come sono strutturate le transazioni
- Comprendere ed evitare bug costosi ed errori di programmazione
- Creare applicazioni che interagiscono con gli Smart Contract
- Web3.js
- Installare, configurare e usare il framework Truffle
- Scrivere test con il framework Truffle
- Comprendere il workflow di sviluppo e deployment
- Utilizzare e creare private network, test network and the public main network

### TARGET

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Professionisti sia in ambito aziendale che IT che mirano ad avere un ruolo professionale come architetti/sviluppatori blockchain su Ethereum

### PREREQUISTI

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- È necessario avere una conoscenza di base di JavaScript e HTML.
- È consigliato avere una conoscenza di base di C ++ o Java, data types, git repositories.

### CONTENUTI

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## Blockchain and smart contract basic

- What is Blockchain and how does it work?
- Centralized vs. Decentralized vs. Distributed
- Blockchain vs. Databases
- Bitcoin vs Ethereum
- What are Smart Contracts?
- How are Smart Contracts used?

## Smart contract programming basics

- Advantages and Drawbacks of Smart Contracts
- High-Level Language vs. Low-Level
- Smart Contracts with Solidity
- Types of Variables in Solidity
- Function/Variable Visibility
- Smart Contract Constructors
- Setter- and Getter-Functions

## Understanding decentralized information and Web3

- Blockchain Access structures and Architectures
- Blockchain Access vs. centralized RESTful API
- Understanding Web3.js API
- Understanding Transactions and Consensus
- Private Keys, Public Keys and Signatures
- Understanding privacy on public Blockchains
- Understanding the architecture of KeyStore's such as MetaMask or MIST

## Basics of Ethereum and the EVM

- Ethereum Denominations
- Understanding EVM and the ABI Interface
- Calls vs. Transactions
- Concurrency and Events
- Use cases of Events
- LAB
  - Install and Use Ganache
  - Work with Web3.js
  - Define Events
  - Listen and React to Events

## Solidity Advanced: Modifiers, Mappings, Structs and Inheritance

- Understanding Functions, Mappings and Structs

- When to use Modifiers
- Libraries vs. Inheritance
- Understand and use Modifiers
- Add Mappings and Structs
- Use Inheritance to increase auditability

## Understanding deployment and costs

- Understand Development and Deployment Cycles
- Understanding Solidity Compilation and Deployment
- Gas and Gas-Costs
- Upgradeability and Data Migration Techniques
- Understand the moving Parts: Compiler, Blockchain, API, KeyStore

## Mining, proof of work vs. Proof of authority

- What is Mining in PoW? Consider [bestes online casino 2021](#).
  - How blocks are generated
  - PoW vs. PoA (vs. PoS)
- Understanding Go-Ethereum or Ganache/TestRPC for local development
- Understanding Private Blockchains vs. Public Blockchains
- LAB
  - Installing and using Ganache
  - Installing and using Go-Ethereum
  - Connecting to Ganache/Go-Ethereum from Remix and Web3.js
  - Interact with the Blockchain from HTML/JS

## Working in teams, testing and versioning

- Understanding what Truffle is
- How Manage Code for Teams
- Understanding Migrations
- Understanding Unit-Testing with Truffle
- LAB
  - Download and Setup Truffle
  - Adapt the standard Truffle-Project
  - Write A Unit Test