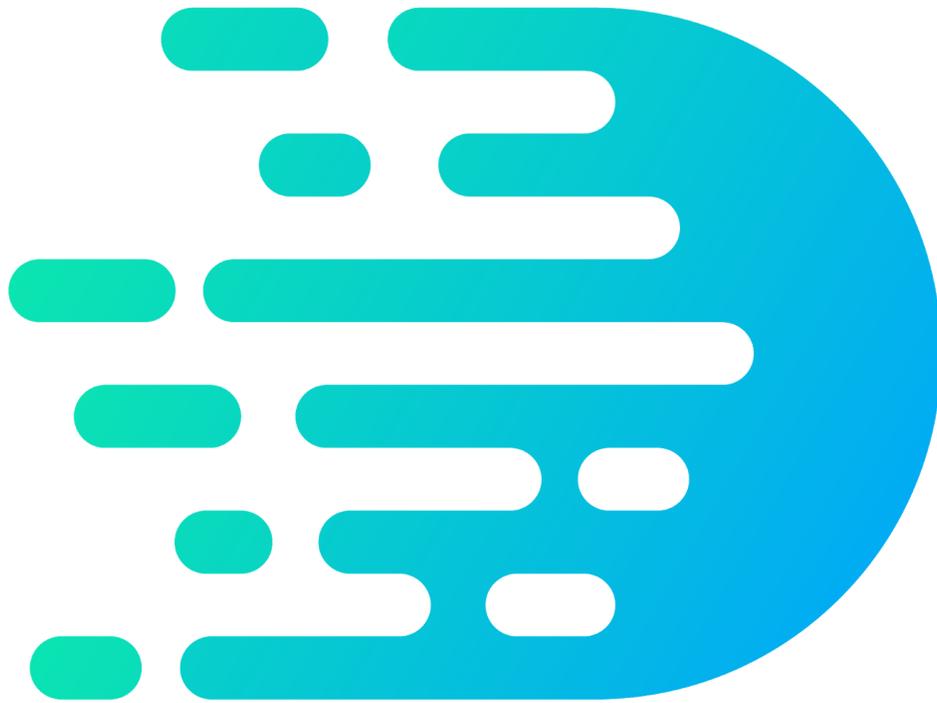# Blockchain Professional Developer Bootcamp

Become a Certified Ethereum & Smart Contract Developer (v3.8.1)

the den

Course syllabus

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The DEN's Blockchain Developer Bootcamp is designed for software engineers and entrepreneurs who want to develop technical expertise in Blockchain, Ethereum, Smart Contract Development, and Decentralized applications (ÐApps). Our industry-standard curriculum has been vetted by notable CTOs and Blockchain developers within our network, ensuring that participants leave our bootcamp with the knowledge and tools required to get hired at Blockchain-focused companies. Our 5-Day in-person program is offered part-time over the weekends, or full-time for one immersive weeklong experience.

Start with the basics, and work your way through hands-on coding sessions, collaborative projects, and a concluding hackathon to master the intricacies of building products for decentralized ecosystems. Interact directly with the Ethereum blockchain, learn how to use IBM's permissioned Blockchain solution Hyperledger Fabric, and walk away with functional projects you can continue to develop and showcase on your resume. Solidify your new experience with a concluding hackathon and put what you've learned to the test.

Upon completion, participants will earn our Blockchain Professional Developer Certification and access to our growing Alumni Support System of Lead Engineers at Blockchain companies, hiring partners, and other influential industry contacts.

Agenda

Foundations of the Ethereum Network Day 1

- Current Smart Contract use cases in the wild: [Crypto-kitties](#) & [fomo3d](#)
- Review of Blockchain technology
- Introduction to Ethereum
- The Ethereum ecosystem, DApps and DAOs
- What is the Mist Wallet and how does it work?
- Wallets, Accounts, & Multi Signature Transactions
- Ethereum transactions from start to finish
- Activity: Deploy your first Smart Contract using Remix
- Metamask & Light clients
- Activity: Connect MIST and Geth to mine Ether
- Understand how to use a TestNet/Private Blockchains
- Inner workings of the Ethereum Virtual Machine
- Solidity Data Types and Variables
- Activity: Handle variables and arguments in a smart contract
- Storage and Memory on the Blockchain
- Events and Logs
- Activity: Events in Smart Contracts
- Token Standards: ERC-20, 231, & 721
- Project: Launch your own ERC-20 Token onto a live testnet Blockchain & transfer tokens between Accounts

Practice Building Secure Smart Contracts Day 2

- Review: Ethereum Foundation & Basics
- Inheritance
- Inter-Contract Execution
- Project: Contract to Contract Interactions in a Bakery
- Libraries and The Ethereum Package Manager
- Lab: Create your first library
- Lab: Make students create a transfer library for ERC20 and ERC721. They will use this in the next exercise
- Have students deploy contracts that depend on their libraries on ROPSTEN

- Lab: Have students recode ERC721 50 - 100 lines
- Smart Contract Best Practices & Security
- Project: Private Ethereum Blockchain Deployment
- Open Zeppelin
- Proxy Contracts
- Lab: Create a proxy smart contract
- Project: Security Auditing Contracts

Connecting the Blockchain to the Real World   Day 3

- Review: Security & Libraries
- Bit level Security
- Lab: Build the SafeMath Library from scratch
- Development Workflow: Overview, Ganache CLI, & GUI
- Introduction to the Truffle development environment
- Debugging & testing smart contracts
- Lab: Test & Scrutinize your own ERC-20, ERC-231 & ERC-721 contracts
- Smart Contract ABI/JSON
- Instantiate web3 and communicate with a contract from a front-end
- Setting up event-driven interfaces in HTML & JS
- Lab: Deploy smart contracts using Truffle and run tests for your DApp using provided software
- Truffle Wallet integration
- Project: Build an RFID Reader for a real-world application

Smart Contract Pitfalls, Testing, and Debugging   Day 4

- Review: Debugging and Unit Testing on truffle, remix debugger, other testing frameworks
- Writing Tests
- Oracles
- Smart Contract Safety Checklist
- Project: Connect your DApp to a frontend
- Github Repository
- In-depth Q&A with industry professionals

To the Moon   Day 5

- Civic Integration
- Introduction to IPFS
- Upgradable Contracts
- Project: Sports Betting on the Blockchain with Oracles
- Design Patterns
- Exploits and Dangers
- Formal Verification
- LLL
- EEA
- Vyper
- The Ethereum Improvement Protocol
- Build out DApp's

Hackathon & Conclusion   Day 6

- Let the Hacking Begin!

  10:00 am - Morning Opening Session

  10:15 am - Hackathon Part 2 Building For Social Impact

  11:30 am - Lecture: "Smart Contract Optimization"

  1:00 pm - Lunch Break

  1:30 pm - Hackathon Part 2, Smart Contract Optimization

  2:00 pm - Feedback session with experts

  2:30 pm - Results. Announcing winners

  3:00 pm - Closing session

Blockchain Professional Developer Bootcamp
FAQ's

| How would my experience at this bootcamp be valuable for my career?

Blockchain developers currently command salaries of $150,000+

There are approximately 14 job listings for every 1 blockchain developer who can fill the role

Smart Contract development is becoming an increasingly important skill to add to your developer toolset

Companies like Facebook, Google, IBM, JP Morgan, and many more are exploring blockchain technology for future applications

Entrepreneurs and established companies are exploring blockchain based solutions in every major industry

| How is this bootcamp different from other courses?

Our bootcamp is designed to provide developers with the highest quality information and training in the most efficient way possible. That means:

- In-person courses
- Learn directly from industry experts
- Focus on real-world examples and applications
- Personalized attention & small class sizes (limit 15 students)
- Collaborative projects to solidify your knowledge and work in a team
- Certification backed by The DEN and our partners
- Continued access to our Alumni Network, hiring partners, and weekly coding sessions

| What can I do with my new skills upon completion of the bootcamp?

- Code smart contracts in Solidity
- Connect the blockchain to a front end using Web3
- Deploy and test smart contracts in multiple development environments
- Deploy your own private blockchain
- Deploy fully functioning live DApps

- Build out Business models on Hyperledger Fabric
- Get a job in the Blockchain industry as a well-prepared Developer.

| Are there any prerequisites for joining this camp?

Previous development experience is highly recommended, especially in languages like Python, Java, and Javascript. Basic understanding of Blockchains, Ethereum, and smart contracts is recommended. See our intro classes for details.

| How do I apply?

Send in your application at the following link: www.theden.io/apply

| How do I prepare for this bootcamp?

There will be some required setup on your machine before you attend the bootcamp. Because you will need to download the blockchain (100+ GB), we recommend preparing as soon as you sign up. You will receive an email detailing setup shortly after being accepted into our program.

Learn more by visiting us at www.theden.io
Setup an appointment to speak with us further by contacting
(408) 657-0861 or email us at hi@theden.io