BOARD INFINITY

COURSE 2 OF 3 · BLOCKCHAIN TECHNOLOGY APPLIED SPECIALIZATION

Hands-on DApp Design and Development Using Web3 Tools

Full course syllabus - every module, video lesson, reading and assignment, from DApp architecture to deploying and securing your own DApp.

Board Infinity
Instructor · Offered on Coursera

3	24	11	1 week
Modules	Video lessons	Assignments	At 10 hours a week

INSIDE THE COURSE

01	Introduction to Decentralized Applications (DApps)	5 hours to complete
02	Building Your First DApp	4 hours to complete
03	Advanced DApp Development Techniques	3 hours to complete

Enroll on Coursera

https://www.coursera.org/learn/dapp-design-and-development

01 ABOUT THE COURSE

From architecture to a deployed DApp.

Hands-on DApp Design and Development Using Web3 Tools takes you through the complete process of designing, developing and deploying decentralized applications. Across three modules you learn what makes DApps unique and how they are built, create your first DApp with React and Web3, and finish with state management, off-chain data and security.

Everything is delivered through short video lectures, readings and graded quizzes - 24 videos, 9 readings and 11 assignments in all - using tools like Truffle, Hardhat, Web3.js and Ethers.js. The course is at intermediate level; some familiarity with JavaScript helps.

WHO IT'S FOR

Aspiring blockchain developers
Building their first decentralized application end to end.

Web & React developers
Adding Web3 and smart contract integration to their skills.

Software engineers
Moving into Web3 and decentralized architectures.

Product builders
Prototyping DApp ideas with modern Web3 tooling.

WHAT YOU'LL LEARN

01 **Define DApps and their architecture** Module 1
Define the characteristics, components, and architecture of decentralized applications (DApps)

02 **Connect the layers** Modules 1-2
Describe the interaction between the frontend, backend, and blockchain layers in DApp architecture

03 **Use the Web3 toolkit** Modules 1-2
Identify tools and frameworks such as Truffle, Hardhat, Web3.js, and Ethers.js used in DApp development

04 **Design usable DApp interfaces** Module 2
Apply design principles to create intuitive and user-friendly DApp interfaces

02 SYLLABUS

Three modules, one decentralized app.

1 week to complete at 10 hours a week. Flexible schedule - learn at your own pace.

01 Introduction to Decentralized Applications (DApps)

What DApps are, their architecture and the tools to build them

5 hours
9 videos

BY THE END OF THIS MODULE YOU CAN

- Define what DApps are, their characteristics, types and current trends
- Explain DApp architecture: the frontend, backend and blockchain layers
- Describe how DApps interact with smart contracts
- Set up an environment with Truffle, Hardhat, Web3.js and Ethers.js

CONTENTS: 9 videos (66 min) · 4 readings (100 min) · 4 assignments (105 min) · 1 plugin (5 min)

TOPICS: What are DApps · Architecture of DApps · Tools and Technologies for DApp Development · Quick Course Check-In (plugin)

You'll leave with: a clear model of how DApps work, and a development environment ready for building.

02 Building Your First DApp

UI design, smart contract integration and deployment

4 hours
10 videos

BY THE END OF THIS MODULE YOU CAN

- Apply DApp UI/UX design principles
- Integrate Web3 with a React frontend
- Connect smart contracts, manage transactions and read/write blockchain data
- Deploy to a blockchain network, test on testnets and set up CI/CD

CONTENTS: 10 videos (66 min) · 3 readings (90 min) · 4 assignments (105 min)

TOPICS: Designing the User Interface · Smart Contract Interaction with DApp · Deploying and Testing DApp

You'll leave with: your first working DApp - a React frontend connected to smart contracts and deployed to a testnet.

03

Advanced DApp Development Techniques

State management, off-chain data and DApp security

3 hours
5 videos

BY THE END OF THIS MODULE YOU CAN

- ✓ Manage DApp state with Redux and the Context API
- ✓ Handle off-chain data and integrate IPFS with your DApp
- ✓ Identify common DApp vulnerabilities
- ✓ Secure frontend and backend code, and audit and monitor your DApp

CONTENTS 5 videos (29 min) · 2 readings (60 min) · 3 assignments (90 min)

TOPICS State Management in DApps | DApp Security Best Practices

You'll leave with: the techniques to scale and secure a DApp - from Redux state management and IPFS off-chain data to audits and monitoring.

03 TOOLS & SKILLS

The themes that run through the course.

DApp architecture

Core concept

Frontend, backend and blockchain layers, and how they talk to smart contracts.

In this course: Module 1 maps the architecture before you build anything.

Truffle & Hardhat

Dev frameworks

The development environments for compiling, testing and deploying DApps.

In this course: Module 1 sets up your environment with both.

Web3.js, Ethers.js & React

Frontend

Libraries that connect a React interface to the blockchain and smart contracts.

In this course: Module 2 builds and deploys your first DApp with them.

Redux, IPFS & security

Advanced

State management, off-chain storage and protecting your DApp from vulnerabilities.

In this course: Module 3 covers state, off-chain data, audits and monitoring.

SKILLS YOU LEAVE WITH

DApp design

- Application design
- User interface (UI) design
- User experience design
- UI/UX design

Development

- Blockchain
- Front-end web development
- React Redux
- Application frameworks

Ship & secure

- Application deployment
- Application security
- Security controls
- Software development tools

04 CERTIFICATE & CAREER

Finish with a shareable certificate.

Add it to LinkedIn
Add this credential to your LinkedIn profile, resume, or CV.

Share it anywhere
Share it on social media and in your performance review.

Earned, not attended
Awarded on completion of the graded quizzes and assessments in all three modules.

Course 2 of 3
Part of the Blockchain Technology Applied Specialization by Board Infinity.

ROLES THE COURSE PREPARES YOU FOR

- Blockchain Developer
- DApp Developer
- Web3 Frontend Developer
- Smart Contract Developer
- Full-Stack Developer
- Blockchain Solutions Architect

Board Infinity
Instructor · Offered on Coursera

Intermediate level · Taught in English · 7 languages available · Flexible schedule

Ready to build your first DApp?

Enrollment, lessons, grading and the certificate all happen on Coursera.

Enroll on Coursera

Course page:
coursera.org/learn/
dapp-design-and-development

Want a coach alongside the course?

Board Infinity 1:1 coaching is a separate, optional Board Infinity offering - it is not part of the Coursera course.
Details: https://www.boardinfinity.com/career-coaching/

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