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### How to get started with programming?

Understand the basics of programming web technologies, how to get started, what mindset to go in with, and what path to follow.


🕒 9 mins🔥 +4,000 XPI



### What even is a blockchain?

Understand the basics of blockchain and its various applications across different industries.


🕒 5 mins🔥 +4,000 XPI



### What is Web3?

Learn about the web3 and how it is different from web2.

🕒 4 mins🔥 +4,000 XPI



### What is Ethereum?

ETHEREUM DEVELOPER DEGREE

Freshman🔥

How to get started with programming?  
What even is a blockchain?  
Build your own cryptocurrency on Ethereum  
Setting up a crypto wallet  
What is Web3?


Sophomore🔥

How does Proof of Stake work?  
Build your own decentralized exchange like Uniswap v1  
A deep dive into Automated Market Maker Decentralized...  
Demystifying the Ethereum Virtual Machine (EVM)  
Digging deeper into Solidity's syntax  
Build an NFT-powered full...

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### What is Ethereum?

Learn about the history of Ethereum and what it offers.


🕒 5 mins🔥 +4,000 XPI



### Setting up a crypto wallet

In this lesson, you will learn about Crypto Wallets and how to download one.


🕒 6 mins🔥 +4,000 XPI



### Introduction to Solidity

In this lesson, you will learn what Solidity is and the basic syntax of the language.

🕒 7 mins🔥 +4,000 XPI



### Build your first dApp on Ethereum

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### Build your first dApp on Ethereum

A simple tutorial on how to create and deploy a Solidity smart contract and interact with it from a frontend website.

### Build your own cryptocurrency on Ethereum

A tutorial on how to create and deploy an ERC-20 Token to build your own cryptocurrency on Ethereum.

### Build your own basic NFT contract on Ethereum

In this tutorial we use Hardhat and OpenZeppelin Contracts to build an NFT contract on Ethereum.

#### ETHEREUM DEVELOPER DEGREE

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### Intro to React and Next.js

Learn about the basics of React, NextJS, backend, routing and much more.

### What is Gas, and why is it needed?

Learn about the gas, how is it calculated, why it exists, and how to pay the minimum gas fees.

### What is mining, and why is it done?

Learn about mining and how to become a miner.

### How does Proof of Work work?

**Sophomore**

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- Digging deeper into Solidity's syntax
- Build an NFT-powered fully on-chain DAO to invest in NF...
- Build an NFT collection with a whitelist using Hardhat and...
- Providers, Signers, ABIs, and Token Approval Flow
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**Junior**

- What is a Layer 2 blockchain?
- Testing smart contracts on a



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## How does Proof of Work work?

In this lesson we go over the Proof of Work consensus algorithm used by Bitcoin and previously also used by Ethereum to understand how it works.

13 mins
+7,000 XP!

## How does Proof of Stake work?

In this lesson we go over the Proof of Stake consensus algorithm used by Ethereum and many other blockchains and explore how it actually works.

13 mins
+7,000 XP!

## Demystifying the Ethereum Virtual Machine (EVM)

Let's dig into the Ethereum Virtual Machine (EVM) and understand how it works.

7 mins
+7,000 XP!

Sophomore

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## Digging deeper into Solidity's syntax

A step up from An Introduction to Solidity - to learn about mappings, enums, structs, and more!

13 mins
+7,000 XP!

## Providers, Signers, ABIs, and Token Approval Flow

Understand the four things that keep showing up repeatedly - providers, signers, ABIs, and Token Approval Flow

9 mins
+7,000 XP!

## Build an NFT collection with a whitelist using Hardhat and Solidity

In this lesson, we we build an NFT collection that uses a whitelist that lets your early supporters get guaranteed access to the NFT collection while everyone else must pay to mint.

13 mins
+7,000 XP!

Build an NFT-powered fully on-chain DAO to invest

Sophomore

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13 mins

+7,000 XPI

### Build an NFT-powered fully on-chain DAO to invest in NFT collections as a group

In this lesson we build a fully on-chain NFT-powered DAO where members can come together to invest in other NFT collections as a collective and vote on buying/selling NFTs from their treasury.

28 mins

+7,000 XPI

16 mins

+10,000 XPI

### A deep dive into Automated Market Maker Decentralized Exchanges (Uniswap v1)

In this lesson, we take a deep dive into understanding how AMM's like Uniswap work - and really get into the mathematics of building your own DEX.

16 mins

+10,000 XPI

1 mins

+10,000 XPI

### Build your own decentralized exchange like Uniswap v1

In this lesson, we build our own decentralized exchange from scratch that works similar to Uniswap v1.

1 mins

+10,000 XPI

Sophomore 🧑

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16 mins

+10,000 XPI

### What is a Layer 2 blockchain?

Understand the different types of Layer 2 blockchains that exist and their pros and cons

16 mins

+10,000 XPI

8 mins

+10,000 XPI

### What is ENS and how to integrate into your DApp

Learn about what is Ethereum Name Service(ENS) and how to integrate ENS(.eth) domains into your DApp

8 mins

+10,000 XPI

6 mins

+10,000 XPI

### Testing smart contracts on a local blockchain node using Hardhat

Learn how to test your smart contracts locally (100x faster than testnets)

6 mins

+10,000 XPI

6 mins

+10,000 XPI

### Introduction to IPFS: The InterPlanetary File System

Learn how to use IPFS to store and retrieve data

6 mins

+10,000 XPI

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### Introduction to IPFS: The InterPlanetary File System

In this lesson, we take a dive into IPFS and understand what makes it so special and why you should care about it.

13 mins
+10,000 XPI

### Build your own NFT collection with metadata stored on IPFS

Learn how to build your own NFT collection and store metadata on IPFS.

17 mins
+10,000 XPI

### User-owner data profiles using Ceramic Network

Learn about building sovereign user-owned data profiles using Ceramic Network.

16 mins
+10,000 XPI

### Secure on-chain randomness using Chainlink VRFs

#### Junior

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### User-owner data profiles using Ceramic Network

### Secure on-chain randomness using Chainlink VRFs

Learn about Chainlink VRF and how to use it to build on-chain game using it.

16 mins
+10,000 XPI

### Indexing data using The Graph's Indexer

Learn what are The Graph's Indexer and how to use it to index the lottery game data.

23 mins
+10,000 XPI

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### How to create Merkle Trees for airdrops

Let's learn about merkle trees and how they can be used to create airdrops in a gas-efficient way.


🕒 15 mins ⚡ +15,000 XPI



### How Ethereum nodes store data and executes smart contracts

Let's learn about how Ethereum nodes store data and how smart contracts run in EVM.


🕒 11 mins ⚡ +15,000 XPI



### Borrow millions without collateral from Aave using Flash Loans

Let's learn how to borrow a loan worth millions in crypto without paying a single cent using Aave Flash Loans.

🕒 16 mins ⚡ +15,000 XPI



### The bug which cost Ethereum \$60 million dollars:

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### The bug which cost Ethereum \$60 million dollars: Re-entrancy

Let's learn about the Re-Entrancy attack that cost \$60 million


🕒 9 mins ⚡ +15,000 XPI



### Access private data in smart contracts

Let's learn about how to read the private data in smart contracts


🕒 6 mins ⚡ +15,000 XPI



### Run code from other contracts inside your own using delegatecall

Let's learn about delegatecall attacks, where one contract can change data in another contract.

🕒 12 mins ⚡ +15,000 XPI



### Generating random numbers on-chain

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🕒 12 mins

🏆 +15,000 XPI



## Generating random numbers on-chain

Let's learn about how to use oracles to generate random numbers on-chain

🕒 6 mins

🏆 +15,000 XPI



## Executing a denial of service on a smart contract

Let's learn about how to perform a DoS attack on the smart contract to make it inaccessible.

🕒 6 mins

🏆 +15,000 XPI



## NEVER use tx.origin again

Let's learn about tx.origin and why not to use to determine the sender of a transaction.

🕒 5 mins

🏆 +15,000 XPI



## Identifying genuine-looking contracts which are

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### Identifying genuine-looking contracts which are actually malicious

Let's learn how to detect legit-looking contracts which are malicious in nature.

🕒 5 mins
🏆 +15,000 XPI

### Optimize gas in your Solidity code

Let's learn how to optimize smart contracts to build the cheapest transactions possible.

🕒 9 mins
🏆 +15,000 XPI

### Using metatransaction to pay for your users' gas

Let's learn about meta transactions and how to pay for someone else's transactions gas fees.

🕒 19 mins
🏆 +15,000 XPI

### Build your own MEV searcher using Flashbots

Let's learn about how to create and use Flashbots

🕒 10 mins
🏆 +15,000 XPI

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### Using metatransaction to pay for your users' gas

Let's learn about meta transactions and how to pay for someone else's transactions gas fees.

🕒 19 mins
🏆 +15,000 XPI

### Build your own MEV searcher using Flashbots

Let's learn about how to create and use Flashbots

🕒 10 mins
🏆 +15,000 XPI

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