Mastering Blockchain Technology & Building on Cardano

From Fundamentals to Real-World Applications

This workshop series, hosted by Coin Ceylon at the University of Kelaniya, provides a comprehensive exploration of blockchain technology. Participants will gain foundational knowledge, technical skills, and practical experience, culminating in certification and internship opportunities.

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Workshop Structure

1 — Workshop 1

Foundations of Blockchain Technology and the Cardano Ecosystem

2 — Workshop 2

Blockchain Technical Basics – UTXO model and Smart Contracts

3 — Workshop 3

Building Applications on the Blockchain

4 — Workshop 4

Governance and Building Real-World Blockchain Applications

The workshop series consists of four bi-weekly 4 hour sessions, each building upon the previous one. Participants will gain foundational and technical expertise, practical experience, and certification / internship opportunities.

Workshop 1: Foundations of Blockchain Technology and the Cardano Ecosystem

1 Blockchain Fundamentals

Distributed Ledgers, Nodes, and Consensus Mechanisms. Introduction to Proof of Work vs. Proof of Stake (deeper dive in Workshop 2).

2 Cardano Ecosystem Overview

Cardano's design philosophy: Scalability, Interoperability, and Sustainability. Layers of Cardano: Settlement Layer (CSL) and Computation Layer (CCL). Governance and community role.

3 Real-World Blockchain Applications

Case studies in identity, supply chain, and decentralized finance (DeFi).

This workshop aims to build a strong foundation in blockchain concepts and introduce Cardano's unique ecosystem. Students will engage in hands-on activities such as viewing and analyzing live blockchain transactions, gaining a comprehensive understanding of blockchain's theoretical and practical aspects, Cardano's ecosystem structure, and its real-world applications.

Workshop 2: Blockchain Technical Basics – UTXO model and Smart Contracts

Blockchain Technical Fundamentals

Public and private keys. UTXO and eUTXO models. Cryptographic hashing. Comparison with Ethereum's account-based model.

Decentralized Wallets

Blockchain wallets: Definition and use cases. Seed keys, custodial vs. non-custodial wallets. Using wallets to interact with Web3 platforms. Staying secure: Risks and best practices.

This workshop introduces students to technical models, wallets, and basic smart contract fundamentals. Students will engage in hands-on activities such as creating wallets, transferring assets, interacting with a Web3 application, and demonstrating security risks and how to protect assets. This will provide them with a deeper understanding of wallet operations, secure asset management, and practical wallet use cases beyond transactions.

Workshop 3: Building Applications on the Blockchain

1

Developing Blockchain Applications

Using Cardano CLI to mint an NFT on the testnet. Introduction to IPFS for decentralized data storage. Setting up a Cardano node and understanding its operations.

2

Building Applications Using Familiar Tools

Bridging Web2 concepts into blockchain development.

This workshop introduces students to blockchain application development using foundational Web2 concepts. Students will gain practical experience in using tools to build simple blockchain applications, preparing them for advanced projects. Hands-on activities include minting an NFT on the Cardano testnet using CLI, storing and retrieving data via IPFS, and configuring and exploring a Cardano node.

Workshop 4: Governance and Building Real-World Blockchain Applications

Real-World Blockchain Use Cases	Applications in supply chain, healthcare, and finance.
Introduction to Smart Contracts	Tools and steps for creating and deploying a basic smart contract on the Cardano testnet.
Cardano's Governance System	Role of Delegated Representatives (Dreps) and On-Chain Constitution. Proposing and voting in governance initiatives.
Certification Preparation and Capstone Projects	Review of workshop content and certification exam preparation. Peer presentations of any projects (dApp, smart contract, or governance proposal).

This workshop provides insights into Cardano's governance, real-world applications, and smart contract development. Students will understand Cardano’s governance mechanisms and demonstrate their learning by building and presenting practical blockchain solutions. Hands-on activities include simulating a proposal and voting process, and building and deploying a basic smart contract.

Certification Pathway

Certification Exam

Students will be eligible to take the Blockchain Associate Certification, validating their knowledge and skills.

Certification Award

verified by the Cardano Academy, Recognized by Coin Ceylon, the certification bolsters student credentials in the blockchain ecosystem.

Participation Recognition

A separate Participation recognition certification by Coin Ceylon will also be provided.

Upon successful completion of the workshop series, students will be eligible to take the Blockchain Associate Certification, a valuable credential recognized by the Cardano Academy and Coin Ceylon. This certification will enhance their employability and demonstrate their expertise in the blockchain ecosystem.

Internship Opportunities at Coin Ceylon

Talent Selection

Top-performing students will be offered paid internships with Coin Ceylon.

Intern Roles

Work on real-world Cardano projects. Gain hands-on exposure to blockchain development, governance, and community building. Learn from blockchain professionals and world class leaders in technology.

Coin Ceylon offers paid internship opportunities to top-performing students, providing them with valuable hands-on experience in real-world Cardano projects. Interns will gain exposure to blockchain development, governance, and community building, learning from experienced blockchain professionals and industry leaders.

Additional Benefits for Participants

1 Skill Development

Comprehensive knowledge of blockchain and Cardano-specific tools.

2 Career Advancement

Certification and internship opportunities enhance employability.

3 Network Expansion

Collaborate with blockchain experts and engage with global Cardano initiatives.

In addition to the certification and internship opportunities, participants will benefit from comprehensive skill development, enhanced career advancement prospects, and the opportunity to expand their network by collaborating with blockchain experts and engaging with global Cardano initiatives.

THANK YOU

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