Blockchain Developer Certification
Version 3

EXAM BLUEPRINT

EC-Council
Official Curricula

EC-Council BDC Blockchain Developer Certification

Blockchain Developer Certification (BDC)

(Version 3)

Exam Blueprint

Domain	Sub Domain	Description	Number of Questions	Weightage (%)
1. Blockchain Foundations and Security	Introduction to Blockchain Technology	▪ Fundamental Concepts and Working Principles of Blockchain Technology ▪ Distributed Ledger Technology (DLT) ▪ Blockchain Ecosystem and Use Cases ▪ Role of AI in Blockchain ▪ Legal, Regulatory, and Compliance Frameworks, Standards, and Laws	5	16%
	Fundamentals of Cryptography and Security	▪ Core Cryptographic Principles ▪ Symmetric Cryptography and Key Algorithms ▪ Asymmetric Cryptography and Key Algorithms ▪ Cryptographic Hash Functions and their Uses ▪ Key Applications of Cryptography ▪ Advanced Cryptographic Mechanisms ▪ AI Applications and Security in Cryptography	8	

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	Blockchain Architecture and Components	▪ Core Concepts of Blockchain Architecture ▪ Node Infrastructure and Types ▪ Data and Transaction Flow in Blockchain ▪ Network Communication and Protocol Layers ▪ Governance, Upgrades, and Forks ▪ Blockchain Scaling Solutions ▪ AI-Enhanced Blockchain Architecture	7	
2. Core Blockchain Protocols and Mechanisms	Bitcoin Blockchain Fundamentals	▪ Key Concepts of Bitcoin ▪ Explain Bitcoin Blockchain Architecture ▪ Bitcoin Ecosystem and its Use Cases ▪ Bitcoin Network and its Transactions ▪ Bitcoin Mining, Forking, and Scalability Solutions ▪ AI Integration in Bitcoin	7	18%
	Consensus Mechanisms and Protocols	▪ Foundations of Consensus in Distributed Ledger Systems ▪ Proof of Work (PoW) and its Variations ▪ Proof of Stake (PoS) and Derivative Protocols ▪ Byzantine Fault Tolerant (BFT) Mechanisms ▪ Alternative and Hybrid Consensus Mechanisms ▪ Governance, Security, and Future Trends in Consensus	8	
	Cryptomining, Tokenization, and Digital Assets	▪ Fundamentals of Cryptomining ▪ Mining Ecosystem and Techniques ▪ Fundamentals of Tokenization ▪ Types of Tokens and Digital Assets ▪ Token Issuance, Token Economics, and Market Dynamics ▪ Use Cases and Future Trends in Tokenization	8	

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3. Smart Contracts and dApp Development	Ethereum and Smart Contracts	▪ Ethereum's Purpose, Ecosystem, and Evolution ▪ Role and Functioning of the Ethereum Virtual Machine ▪ Ethereum's Transactions, Validation, and Upgrades ▪ AI-Powered Analytics and Simulation in Ethereum ▪ Key Concepts of Ethereum Smart Contracts ▪ Core Solidity Concepts for Contract Development ▪ Key Ethereum Standards and Proposal Processes	10	30%
	Smart Contract Development	▪ Development Environment and Toolchain Setup ▪ Solidity Advanced Language Constructs ▪ Contract Lifecycle: Design, Development, and Deployment ▪ Testing, Debugging, and Auditing Contracts	11	
	Blockchain Development Tools, Platforms, and Frameworks	▪ Blockchain Development Tools and their Role in the Ecosystem ▪ Common Blockchain Development Frameworks ▪ Blockchain IDEs, Plugins, and Tools Used for Smart Contract Development ▪ Blockchain Network Management Tools ▪ Tools Used to Interact with Blockchain Networks ▪ Blockchain Deployment and Monitoring Tools ▪ Tools Used for Developing Decentralized Applications ▪ Tools Used for Testing and Debugging Blockchain Applications ▪ CI/CD Tools Used in Blockchain Development Workflows ▪ Security Tools Used in Blockchain Development ▪ AI-Enabled Tools Used in Blockchain Development	7	

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	Web 3.0 and Decentralized Applications (dApps) Development	▪ Core concepts and Evolution of Web 3.0 ▪ Fundamentals and Significance of Decentralized Applications (dApps) ▪ Key Components of the Web 3.0 Ecosystem ▪ Principles for Building User-Friendly dApp Interfaces ▪ Design and Develop Decentralized Applications Using Modern Tools ▪ Deploy and Manage dApps Effectively ▪ Integration of AI in the Development of dApps ▪ Business and Economic Models Within the Web 3.0 Landscape ▪ Future Trends and Innovations in Web 3.0 and dApps	10	
4. Blockchain Security and Financial Applications	Blockchain Security Best Practices	▪ Blockchain Security and How it Differs from Traditional Security ▪ Attack Surfaces in Blockchain Ecosystems ▪ Best Practices and Frameworks to Secure Blockchain Systems ▪ Network Layer Security Best Practices ▪ Consensus Mechanism Security Best Practices ▪ Smart Contract Security Best Practices ▪ Wallet Security Best Practices ▪ Node and Infrastructure Security Best Practices ▪ dApp and Frontend, Oracle and External Data Security Best Practices ▪ Key Regulatory and Compliance Requirements in Blockchain Systems ▪ Auditing, Testing, and Monitoring in Blockchain Security ▪ Incident Response and Risk Mitigation ▪ AI Integration for Blockchain Security	11	16%

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	Decentralized Finance (DeFi) Development	▪ DeFi Fundamentals, its Evolution, Core Principles, and How it Differs from Traditional Finance ▪ Structure of the DeFi Ecosystem ▪ Core DeFi Protocols and their Financial Functions ▪ Build and Optimize DeFi Smart Contracts ▪ Test and Deploy DeFi Smart Contracts ▪ DeFi Governance and Legal Aspects ▪ Integration of AI Across DeFi Development	8	
5. Enterprise Blockchain and Future Innovations	Hyperledger Fabric Detailed Implementation	▪ Hyperledger Fabric and Its Role in Enterprise ▪ Architecture and Core Components of Hyperledger Fabric ▪ Enterprise Use Cases and Implementation ▪ Setting Up the Hyperledger Fabric Development Environment ▪ Create and Configure a Hyperledger Fabric Network ▪ Development, Deployment, and Lifecycle Management of Chaincode ▪ Deploy and Manage Solidity Smart Contracts on Hyperledger Fabric ▪ Integration of AI in the Development of Hyperledger Fabric ▪ Future Trends in Hyperledger Fabric	6	20%
	R3 Corda Deep Dive	▪ R3 Corda and Its Ecosystem ▪ Core Concepts and Data Structures in Corda ▪ Corda's Architecture and Network Design ▪ Set Up the Corda Development Environment	6	

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		▪ CorDapp Development and Lifecycle ▪ Integration of AI in the Development of R3 Corda ▪ Advanced Features and Future Trends in Corda		
	Enterprise Blockchain and Real-World Applications	▪ Fundamentals of Enterprise Blockchain ▪ Capabilities of Enterprise Blockchain Platforms ▪ Blockchain Solutions to Industry-Specific Use Cases ▪ Implementation Strategies and Best Practices ▪ Blockchain Business Models and ROI ▪ AI Integration in Enterprise Blockchain Systems	6	
	Advanced Blockchain Concepts and Future Innovations	▪ How Architectural and Protocol Innovations Expand Blockchain Capabilities ▪ How Consensus and Scalability Innovations Improve Blockchain Performance ▪ How Privacy and Zero-Knowledge Innovations Enhance Blockchain Security ▪ How Interoperability Innovations Enable Cross-Chain Blockchain Integration ▪ How Blockchain Integrates with Emerging Technologies Such as AI, IoT, and 5G to Support Decentralized Applications ▪ Current Research Trends in Advanced Blockchain Innovations ▪ How AI Tools Accelerate Blockchain Research, Development, and Innovation	7	

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