

PROGRAM (NEW 2026)

CIP O*NET code 15-1255.07 as the anchor for blockchain roles.

US CIP- 11.1005 Information Technology Project Management

Blockchain Web3 Technician Certificate (BLCW3.CERT)

Total Credits: 16

The Blockchain Web3 Technician Certificate prepares students for applied technical roles supporting blockchain-enabled systems and decentralized applications. Students develop smart contracts, apply programming logic to integrate Web3 applications, and use advanced computer technologies to manage workflows and documentation. Coursework emphasizes implementation, technical communication, and portfolio development, culminating in a capstone project that requires justification, deployment, and presentation of a blockchain-based solution aligned with workforce and industry needs.

PLO 1: Analyze blockchain concepts, architectures, cryptography, and trust mechanisms.

PLO 2: Develop, implement, and secure smart contracts using appropriate programming practices.

PLO 3: Integrate Web3 applications with blockchain networks to support decentralized functionality.

PLO 4: Evaluate blockchain and Web3 use cases considering usability, ethics, and professional practice.

PLO 5: Design, implement, document, and present a professional, portfolio-ready blockchain/Web3 solution.

Required Courses

Credits	Course	Title
3	BLC110	Blockchain Fundamentals & Cryptography
3	BLC120	Smart Contracts & Solidity
3	BLC130	Web3 Applications
3	CIS201	Computer Applications in Business
4	BLC255	Blockchain/Web3 Capstone
16		

Blockchain Web3 Technician Certificate Program Learning Outcomes Alignment Matrix	BLC110	BLC120	BLC130	CIS201	BLC255
Legend: I = Introduced, R = Reinforced / Assessed, M = Mastery / Capstone demonstration					
PLO 1: Analyze blockchain concepts, architectures, cryptography, and trust mechanisms.	I	R	R	R	M
PLO 2: Develop, implement, and secure smart contracts using appropriate programming practices.		I	R		M
PLO 3: Integrate Web3 applications with blockchain networks to support decentralized functionality.			I	R	M
PLO 4: Evaluate blockchain and Web3 use cases considering usability, ethics, and professional practice.	I	R	R	R	M
PLO 5: Design, implement, document, and present a professional, portfolio-ready blockchain/Web3 solution.			R	R	M

CURRICULUM MAP

Option 1

Blockchain Web 3 Technician Cert	Credits	Fall	
15 week	4	BLC255*	Blockchain/Web3 Capstone
1st 7 week	3	BLC110	Blockchain Fundamentals & Cryptography
2nd 7 week	3	CIS201	Advanced Information Technology
Total Credits	3	BLC120	Smart Contracts & Solidity
16	3	BLC130	Web3 Applications

Modularize BLC255*

Weeks 1–7: Focus on planning, research, project design, flowcharts, and initial documentation (uses BLC110 and CIS201 content).

Weeks 8–14: Integrate smart contract coding, Web3 application development, testing (uses BLC120/BLC130 content).

Week 15: Final submission, presentation, and portfolio compilation.

OR

Option 2

Blockchain Web 3 Technician Cert	Credits	Fall	
15 week			
1st 7 week	3	BLC110	Blockchain Fundamentals & Cryptography
2nd 7 week	3	CIS201	Advanced Information Technology
Total Credits			
6			

Blockchain Web 3 Technician Cert	Credits	Spring	
15 week	4	BLC255*	Blockchain/Web3 Capstone
1st 7 week			
2nd 7 week	3	BLC120	Smart Contracts & Solidity
Total Credits	3	BLC130	Web3 Applications
10			

Modularize BLC255*

Weeks 1–7: Focus on planning, research, project design, flowcharts, and initial documentation (uses BLC110 and CIS201 content).

Weeks 8–14: Integrate smart contract coding, Web3 application development, testing (uses BLC120/BLC130 content).

Week 15: Final submission, presentation, and portfolio compilation.

OR

Option 3

Blockchain Web 3 Technician Cert	Credits	Fall	
15 week			

1st 7 week	3	BLC110	Blockchain Fundamentals & Cryptography
2nd 7 week	3	CIS201	Advanced Information Technology
Total Credits	3	BLC120	Smart Contracts & Solidity
12	3	BLC130	Web3 Applications

Blockchain Web 3 Technician Cert	Credits	Spring	
15 week	4	BLC255	Blockchain/Web3 Capstone
1st 7 week			
2nd 7 week			
Total Credits			
4			

COURSE (NEW 2026)

BLC110 – Blockchain Fundamentals & Cryptography (3 credits)

Course Description:

This course introduces the foundational concepts of blockchain technology, including distributed ledgers, cryptography, and consensus mechanisms. Students examine centralized and decentralized systems, model transaction flows using logical reasoning, and evaluate real-world scenarios to determine when blockchain solutions are appropriate. Emphasis is placed on critical thinking, ethical considerations, and professional decision-making to prepare students for further technical study or workforce applications.

Student Learning Statement:

Students will evaluate blockchain concepts, cryptographic and programming logic principles to determine appropriate applications in real-world systems and professional contexts.

Outcomes & Performance Indicators (CBE-Aligned)

- 1. Analyze blockchain concepts and system architecture to explain how decentralized networks operate.**
 - a. Describe blockchain structure, transactions, and nodes using stepwise reasoning.
 - b. Compare centralized and decentralized systems using flowcharts.
- 2. Evaluate cryptographic and trust mechanisms used to secure blockchain systems.**
 - a. Explain hashing, digital signatures, and immutability.
 - b. Identify cybersecurity considerations in blockchain environments.
- 3. Assess blockchain use cases by examining applicability, limitations, and ethical considerations.**
 - a. Evaluate scenarios for blockchain adoption.
 - b. Discuss limitations, risks, and ethical implications.

COURSE (NEW 2026)

BLC120 – Smart Contracts & Solidity (3 credits)

Course Description:

Introduces smart contract development with Solidity (the industry-standard Ethereum smart contract language) to implement business logic, including function, and events. Students learn to implement secure contracts that serve as the backend logic for decentralized applications (dApps), applying programming logic, testing, and debugging practices. Emphasis is on secure coding practices, logical reasoning, and testing. Students apply logical reasoning and flow modeling, implement and test secure contracts, and develop foundational programming skills for blockchain applications and workforce roles.

Pre-req: BLC110

Student Learning Statement:

Students will develop, test, and deploy smart contracts in Solidity to support decentralized applications, applying programming logic and secure coding principles.

Outcomes & Performance Indicators (CBE-Aligned)

- 1. Develop smart contracts using Solidity to implement business logic for dApps.**
 - a. Create Solidity smart contracts using variables, functions, and control structures.
 - b. Apply logical conditions using flowcharts/ pseudocode to support contract execution.
- 2. Implement and test smart contracts within a blockchain development environment**
 - a. Deploy smart contracts to a local or test blockchain network.
 - b. Test and debug contract behavior using development tools.
- 3. Apply secure coding practices to identify and reduce smart contract vulnerabilities.**
 - a. Identify common smart contract security risks
 - b. Apply best practices to improve contract reliability and security.

COURSE (NEW 2026)

BLC130 – Web3 Applications (3 credits)

Course Description:

Students develop Web3 applications that integrate with smart contracts and blockchain networks. Students learn wallet connectivity, decentralized data workflows, and front-end integration. Emphasis is on building functional applications, usability, and preparing students for applied blockchain roles in professional environments.

Pre-req: BLC110, BLC120

Student Learning Statement:

Students will develop Web3 applications that integrate with smart contracts and blockchain networks, ensuring usability and professional workflow alignment.

Outcomes & Performance Indicators (CBE-Aligned)

- 1. Analyze Web3 tools and application architecture used to connect front-end systems with blockchain networks.**
 - a. Identify common Web3 tools, libraries, and frameworks.
 - b. Explain how wallets and blockchain networks interact with applications.
- 2. Integrate Web3 applications with smart contracts to enable decentralized functionality.**
 - a. Connect front-end interfaces to deployed smart contracts.
 - b. Test application functionality and data flow.
- 3. Assess usability and workflow in Web3 applications to support effective user interaction.**
 - a. Evaluate user experience considerations for decentralized applications.
 - b. Document application workflows and interaction processes.

COURSE (NEW 2026)

BLC255 – Blockchain/Web3 Capstone (4 credits)

Course Description:

Capstone project requiring students to design, implement, justify, and present a blockchain or Web3 solution to a real-world industry use-case. Students integrate smart contracts, Web3 applications, and professional documentation into a portfolio-ready project. Emphasis is on solution justification, system integration, ethical considerations, and professional presentation to demonstrate mastery of technical, analytical, and workforce-ready competencies.

Pre-req: BLC110, BLC120, BLC130

Student Learning Statement:

Students will synthesize blockchain and Web3 knowledge to design, implement, and present a professional, portfolio-ready solution demonstrating technical mastery and workplace readiness.

Outcomes & Performance Indicators (CBE-Aligned)

- 1. Design and justify a blockchain or Web3 solution that addresses a real-world problem.**
 - a. Define an industry-use case problem suitable for a blockchain or Web3 solution.
 - b. Justify technology selection based on trust, security, and ethical considerations.
- 2. Plan and create the technical design for an integrated blockchain and Web3 system.**
 - a. Design smart contract logic and system architecture.
 - b. Develop a project plan outlining implementation steps and timeline.
- 3. Implement and integrate smart contracts and Web3 components into a functional solution.**
 - a. Deploy smart contracts and integrate Web3 application components.
 - b. Test, debug, and refine system functionality.
- 4. Synthesize learning into a professional, portfolio-ready blockchain or Web3 project.**
 - a. Produce technical documentation and portfolio artifacts.
 - b. Present project outcomes and reflect on learning, workflow, and professional practice.

COURSE (REVISED 2026)

ECM/CIS 201 - Advanced Computer Technologies (3 credits)

OVERVIEW

The course enhances electronic communication skills and computer concepts essential to electronic business (e-business) strategies. Topics include connecting base business operations with convergence and mobile technologies, as well as emphasis on cross-platform and web sharing of files, data, and business transactions.

STUDENT LEARNING STATEMENT

Students will apply electronic communication, collaboration, and digital tools to support e-business strategies and assess the impact of Web3, blockchain, and social media on business operations and transactions.

COURSE OUTCOMES & PERFORMANCE INDICATORS

- 1. Produce effective web-based collaborative files and professional communications**
 - a. Evaluate and apply file conversion software to ensure reliable cross-platform file sharing
 - b. Utilize convergence and mobile technologies (e.g., Google Workspace) to support business collaboration
 - c. Conduct professional business meetings using web conferencing applications
- 2. Develop and assess social communication strategies and digital brand presence**
 - a. Apply social communication methods, advanced internet searches, and mobile technologies to support business operations
 - b. Critique business and personal web profiles for effectiveness, consistency, and brand alignment
 - c. Analyze the risks and benefits of social media marketing in an e-business context
- 3. Demonstrate effective digital communication and e-business practices, integrating Web3 and blockchain technologies.**
 - a. Apply Web 2.0 tools for digital communication, engagement, and online transactions
 - b. Evaluate e-business strategies, including social media impact and revenue models
 - c. Analyze how Web3 and blockchain affect trust, ownership, and digital transactions