BLOCKCHAIN ENGINEERING TECHNOLOGY (BLOC)

BLOC 111, BLOCKCHAIN SOLUTIONS USING HYPERLEDGER FABRIC 3 (5)
This course introduces students to the architecture of Hyperledger Fabric technology and its relevant business applications of Blockchain technology. Students will learn evaluation criteria to determine this technology provides benefits to specific business applications. Students will install required software and build basic, fault-tolerant, high-performance, secure business-related applications using Hyperledger Fabric.
General Education: GEO1, GEO2
Typically Offered: Fall and Spring Semesters

BLOC 113, BLOCKCHAIN ARCHITECTURE AND PLATFORMS 1 (3)
This laboratory course provides students hands-on technical applications of blockchains.
General Education: GEO1, GEO2
Typically Offered: Fall Semester

BLOC 114, BASICS OF BLOCKCHAIN 3 (3)
This course covers Blockchain fundamentals, including: Advantages and disadvantages of Blockchain; peer-to-peer networks, distributed ledger technology; permissioned and non-permissioned ledgers; types of Blockchains; hurdles for Blockchain adoption; Blockchain business models; Blockchain platforms, best-fit solution analysis; wallets; Bitcoin and crypto-assets; implications of Forks and cryptocurrencies; cryptocurrency scams and cybercrime; smart contracts; functional Blockchain use cases for business; and ethical issues as related to blockchains.
General Education: GEO1, GEO2
Typically Offered: Fall Semester

BLOC 120, PROGRAMMING ESSENTIALS 5 (7)
This course covers fundamental programming concepts, base knowledge, and practice in five programming languages that are essential to the development of advanced Blockchain and IIoT applications. Those languages are: C, C++, Python, Javascript, Go, and Solidity. The course includes designing, coding, and debugging computer programs. the course provides students the prerequisite knowledge necessary to enroll in future course that cover applications such as Ethereum, Hyper Ledger and Internet of Things Applications (IOTA).
General Education: GEO1, GEO2
Typically Offered: Fall Semester

BLOC 130, BLOCKCHAIN LAWS, REGULATIONS, AND INDUSTRY STANDARDS 3 (3)
This course covers the current laws, regulations, and industry standards that are pertinent to Blockchain and associated applications, globally, in the United States of America, and particularly Ohio. Use case analysis will be used to provide examples of applications of the laws, regulations and industry standards.
General Education: GEO1, GEO2, GEO4
Typically Offered: Fall Semester

BLOC 210, DECENTRALIZED APPLICATIONS DEVELOPMENT (DAPPS) 5 (7)
The course covers blockchain decentralized applications (DApps) including: DApps architectures, models, emerging standards, design and development. Students will write DApps to provide access to the Blockchain's features and services. The course covers the advantages and disadvantages of a variety of Blockchain platforms including open-source platforms such as Ethereum; Multichain; Open chain; Quorum; Chain, and BigChainDB, and commercial platforms such as Hyperledger, Hydra Chain, IOTA.
General Education: GEO1, GEO2
Course Entry Requirement(s): Prerequisite: BLOC 114 and BLOC 120
Typically Offered: Spring Semester

BLOC 220, SMART CONTRACT DEVELOPMENT 4 (6)
This course prepares students to leverage established Blockchain platforms, appropriate programming languages, and technology to code and implement smart contracts, using various consensus methods, to meet the business requirements. Students will use the correct design patters to develop smart contracts, and build real use cases.
General Education: GEO1, GEO2
Course Entry Requirement(s): Prerequisite: BLOC 120
Typically Offered: Fall Semester

BLOC 230, ADVANCED SMART CONTRACT DEVELOPMENT 4 (6)
This course prepares students to write advanced smart contracts on multiple Blockchain platforms. The course covers smart contract-oriented features, functions, events, inheritance, libraries, expressions, control structures, units, and variables of Solidity. Code flaws that lead to security breaches will be covered, and debugging techniques will be introduced. The course covers enterprise use cases for Blockchains smart contracts.
General Education: GEO1, GEO2
Course Entry Requirement(s): Prerequisite: BLOC 220
Typically Offered: Spring Semester

BLOC 247, BLOCKCHAIN CAPSTONE PROJECT AND SPECIAL TOPICS 4 (6)
This capstone course provides students with an integrative experience of concepts and skills covered in their Associate of Applied Science program. The student will research, develop, implement, and present a comprehensive project. This course provides students an opportunity to assess their level of mastery of the stated outcomes in their degree program. Faculty will guide the students in the development of a professional portfolio, and curriculum vitae. Students will participate in a mock job interview that is conducted by a committee of faculty members. Feedback will be provided to enhance the student's job interviewing skills.
General Education: GEO1, GEO2, GEO8
Course Entry Requirement(s): Prerequisite: BLOC 130 and BLOC 220
Typically Offered: Spring Semester

BLOC 248, CERTIFIED BLOCKCHAIN DEVELOPER CERTIFICATION PREPARATION 4 (6)
This course integrates student knowledge and skills learned in the Blockchain Engineering Technology AAS degree to prepare the student for the Certified Blockchain Developer certification. Students will: Write Test and Deploy Secure Solidity Smart Contracts; plan and prepare production-ready applications for the Ethereum Blockchain; use the essential tooling and systems needed to work with the Ethereum ecosystem; run an Ethereum node on development machines.
General Education: GEO1, GEO2, GEO8
Typically Offered: Spring Semester

BLOC 287, WORK-BASED LEARNING I - BLOC 1-3 (1)
This course provides supervised work experience building on experience in Work-Based Learning with approved employer(s) in an area related to the student's program. Emphasis is placed on integrating classroom learning with work experience. Students will be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies. Activities are coordinated and evaluated by college personnel.
General Education: GEO1, GEO2, GEO6, GEO8
Course Entry Requirement(s): Prerequisite: Minimum 2.0 GPA overall and division approval
Typically Offered: Offer as required

BLOC 288, WORK-BASED LEARNING II - BLOC 1-3 (1)
This course provides supervised, paid work experience with approved employer(s) in an area related to the student's program. Emphasis is placed on integrating prior or concurrent classroom learning with work experience through career readiness competencies. Students will be able to evaluate career selection and satisfactorily demonstrate work-related competencies.
General Education: GEO1, GEO2, GEO6, GEO8
Course Entry Requirement(s): Prerequisite: BLOC 287
Typically Offered: Offer as required