CYBERSECURITY FOUNDATIONS - MINOR

College of Arts and Sciences
Department of Computer Science
www.kent.edu/cs

About This Program

The Cybersecurity Foundations minor provides students with a comprehensive understanding of cybersecurity concepts and practices. With the increasing demand for cybersecurity professionals across industries, this minor is a great way to supplement your degree and enhance your career prospects. Read more...

Contact Information

- **Feodor F. Dragan** and **Augustine Samba** | ugradinfo@cs.kent.edu | 330-672-9120
- Speak with an Advisor
  - Kent Campus
  - Stark Campus

Program Delivery

- **Delivery:**
  - In person
- **Location:**
  - Kent Campus
  - Stark Campus

Admission Requirements

Admission to a minor is open to students declared in a bachelor's degree, the A.A.B. or A.A.S. degree or the A.T.S. degree (not Individualized Program major). Students declared only in the A.A. or A.S. degree or the A.T.S. degree in Individualized Program may not declare a minor. Students may not pursue a minor and a major in the same discipline.

Program Requirements

Minor Requirements

Code	Title	Credit Hours
Minor Prerequisites		
MATH 11010	ALGEBRA FOR CALCULUS (KMCR)	
Minor Requirements		
C++ or Python Foundation Track, choose from the following:		11-12
C++ Track		
CS 13001	COMPUTER SCIENCE I: PROGRAMMING AND PROBLEM SOLVING	
or CS 13011 & CS 13012	COMPUTER SCIENCE IA: PROCEDURAL PROGRAMMING and COMPUTER SCIENCE IB: OBJECT ORIENTED PROGRAMMING	
CS 23001	COMPUTER SCIENCE II: DATA STRUCTURES AND ABSTRACTION	
CS 23022	DISCRETE STRUCTURES FOR COMPUTER SCIENCE	
Python Track		
CS 10051	COMPUTER SCIENCE PRINCIPLES (KMCR)	
CS 10062	PROGRAMMING FOR PROBLEM SOLVING IN SCIENCES	
CS 20062	ADVANCED PROGRAMMING WITH PYTHON	
Minor Electives, choose from the following: [1]		9
CRIM 46803	INFORMATION AND CYBER SECURITY	
CS 32301	HUMAN INTERFACE COMPUTING	
CS 33211	OPERATING SYSTEMS	
CS 35101	COMPUTER ORGANIZATION	
CS 35201	COMPUTER COMMUNICATION NETWORKS	
CS 43203	SYSTEMS PROGRAMMING	
CS 43401	SECURE PROGRAMMING	
CS 45203	COMPUTER NETWORK SECURITY	
CS 47205	INFORMATION SECURITY	
CS 47206	DATA SECURITY AND PRIVACY	
CS 47207	DIGITAL FORENSICS	
CS 47221	INTRODUCTION TO CRYPTOLOGY	
Minimum Total Credit Hours:		**20**

[1] The following minor electives are recommended for students interested in the below focus areas:
- Connection security and component security: CS 33211, CS 35101, CS 35201, CS 45203, CS 47221
- Data security: CS 32301, CS 47205, CS 47206, CS 47207, CS 47221
- Human security and societal security: CRIM 46803, CS 32301, CS 47206, CS 47207
- Software security: CS 33211, CS 35101, CS 43203, CS 43401, CS 47207
- System security: CS 32301, CS 33211, CS 35101, CS 43203, CS 47221

Graduation Requirements

Minimum Minor GPA	Minimum Overall GPA
2.000	2.000

- Minimum 6 credit hours in the minor must be upper-division coursework (30000 and 40000 level).
- Minimum 6 credit hours in the minor must be outside of the course requirements for any major or other minor the student is pursuing.
- Minimum 50 percent of the total credit hours for the minor must be taken at Kent State (in residence).

Program Learning Outcomes

Graduates of this program will be able to:

1. Understand the essential facts, concepts, principles and theories related to computer science and cybersecurity.
2. Understand Python or C++ programming basics and data structures in Python or C++.
3. Understand the security, privacy and cryptographic techniques and protocols used in computing and information encryption and processing.
4. Understand the development of software with security and potential vulnerabilities in mind, the security aspects of systems that are composed of components and connections and use software.

5. Apply hands-on experience in programming projects for secure scientific data processing.
6. Collaborate with other team members in groups to complete secure scientific data processing projects.

Full Description

The Cybersecurity Foundations minor provides a foundation in computer science and cybersecurity for students in any field — from the natural sciences to social sciences, technology and business — allowing students to work with substantial computing and data-oriented cyber systems. The minor enables students to competitively manage the computing and cybersecurity aspects of their professions and prepares them to meet the cybersecurity needs of industry and government.

Courses in the Cybersecurity Foundations minor provide a thorough understanding of security, privacy and cryptographic techniques and protocols used in computing, communication and data encryption and processing. Students learn programming, data structures and algorithms through either C++ or Python programming language. Python is appropriate for all students, while C++ is more appropriate for students in the natural sciences majors. After these foundational courses, students select electives in such areas as data security, software security, connection security, component security, system security, human security and societal security.