ISS 104 Ethical Hacking Programming Techniques

Christopher Bowhuis

KELLOGG COMMUNITY COLLEGE

COURSE INFORMATION

This course will provide students with advanced practical applications of programming to support offensive and defensive Cybersecurity operations. A crosscut of concepts, tools, and techniques will be utilized. Students will use interactive programming activities to create advanced tools to support common Cybersecurity tasks.

Credits: 2

Pre/Corequisites:

- Prerequisite: CP103

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CLASS INFORMATION

Section Number:

Term: Spring   Year: 2025   Start Date: 1/21/2025   End Date: 5/12/2025

Meeting Times: Online

Meeting Location: Online

Delivery Mode: Online

INSTRUCTOR

Christopher Bowhuis

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Office Phone: 269-565-7909

Office Location: OITC 201b

Office Hours:

M/W 8:00am-9:30am ; T/R 10:00am-12:00pm ; F 8:00am-9:00am Virtual

GENERAL EDUCATION LEARNING OUTCOMES

Effective Communication

Criteria

- Graduates will demonstrate effective communication appropriate to audience and purpose.
- - Students will develop content, matching clarity and formality with the audience and purpose.
- - Students will refine the communication using appropriate processes and structural approaches to meet the audience's expectations/needs.
- - Students will document sources both to meet the audience's expectations and to respect the intellectual property of others.

Critical Thinking

Criteria

- Graduates will analyze arguments and evaluate evidence, draw conclusions, make decisions, and solve problems from a variety of perspectives.

Personal & Cultural Engagement

Criteria

- Graduates will engage through exploration of civic, intercultural, and ethical issues, making connections between their knowledge, choices, and actions.
- - Students are able to identify a social problem(s) impacting a defined community.
- - Students are able to evaluate the identified social problem(s) impacting the defined community through the lens of diversity, equity, and inclusion.
- - Students are able to formulate an ethical strategy of addressing the identified social problem impacting their community via civic institutions and/or the democratic process.

PROGRAM/STUDENT LEARNING OUTCOMES

Evaluate the computer network and information security needs of an organization.

Analyze and evaluate the cybersecurity needs of an organization.

COURSE LEARNING OUTCOMES

1. Construct, implement and execute code to observe and detect passwords or access codes entered.

2. Construct, implement and execute code to observe and decode network traffic through various ports and interfaces.

3. Construct, implement and execute code to interact with commonly used internet/web application interfaces.

GRADING INFORMATION

The final grade is computed from the average of tests, completion of assigned problems, and/or special assignments in the following weighted manor:

Quizzes	35%
Lab Assignment	35%
Lab Practical Final Exam	15%
Final Exam	15%
Total Grade	100%

KCC Institutional Grading Chart

Percentage	Grade	GPA
100.00-93.00	A	4.00
92.99-90.00	A-	3.67
89.99-87.00	B+	3.33
86.99-83.00	B	3.00
82.99-80.00	B-	2.67
79.99-77.00	C+	2.33
76.99-73.00	C	2.00
72.99-70.00	C-	1.67
69.99-67.00	D+	1.33
66.99-63.00	D	1.00
62.99-60.00	D-	0.67
59.99-0.00	F	0.00

Additional Grades

X	Audit
I	Incomplete
W	Withdrawal
P	Pass (grade of a C or higher)
N	No Credit

*These grades are not computed in either the semester or cumulative grade point averages.

**Contact Financial Aid for more information on financial impact.

INSTITUTIONAL GUIDELINES AND POLICIES

Academic Support Services

Kellogg Community College is committed to your academic success. If for any reason you are struggling with a class, speak to your Professor immediately. They are the best resource. Additional resources, including tutoring are available at the Center for Student Success.

Students enter each class with various skill sets and learn course material at different paces. As such, faculty have the option of requiring individual students to seek tutoring assistance in the Center for Student Success based on academic performance. These early interventions will be tailored to the needs of each student.

Academic Integrity Policies

Ethical conduct is the obligation of every member of the KCC community. Breaches of academic integrity constitute serious breaches of ethical conduct. Academic integrity requires that all academic work be wholly the product of an identified individual or individuals. This policy demonstrates KCC's concern for academic integrity and guarantees a fair procedure for handling these concerns. For more information regarding KCC's Academic Integrity Policy is found in the KCC College Catalog or KCC Operating Policies & Procedures under Instruction - Students.

American with Disabilities Act and Section 504

Kellogg Community College does not discriminate in the admission or treatment of students on the basis of disability. KCC is committed to compliance with the American Disabilities Act and Section 504 of the Rehabilitation Act. See Student Handbook for information about student services.

Attendance

Regular attendance is an essential part of the educational experience and a requirement for an adequate evaluation of each student's academic progress. Excessive absence is reported to the Academic Advising department. An Advisor will reach out to students to discuss options for success. Continued absenteeism may lead to administration action. Faculty are required to report to the Financial Aid office students who have never attended class. Federal aid may be reduced if a student does not begin attendance in all classes. This includes online courses. For more information, please refer to the KCC Student Handbook.

Code of Conduct

Kellogg Community College students are expected to model the skills and behaviors of working professionals. This includes exhibiting behaviors which support respect and courtesy in the class environment. For more information regarding KCC's Student Code of Conduct, please refer to the KCC Student Handbook.

Disability Services

 While ensuring the academic integrity of its programs, Kellogg Community College is dedicated to providing the reasonable accommodations needed to ensure equal access to educational opportunities for individuals with verified disabilities. Disability services are provided to students who self-disclose a disability to the Center for Student Success and provide appropriate documentation. The Center for Student Success may be reached at 269.965.4150.

Drop/Add

The drop/add dates for every course may be found on the KCC Catalog - Class Schedule.

Incomplete Grade and Additional Grading Policies

For information regarding additional grading policies, please refer to the KCC Academic Catalog.

Instructional Policies

 Instructional policies provide informed guidance to college faculty, staff, and students. Becoming familiar with KCC Instructional Policies & Procedures will support individual academic success and will provide students vital resources to resolve problems.

Retain this Syllabus & Syllabus Disclaimer

This syllabus is a record of learning outcomes associated with this course. Many institutions will require a copy of this syllabus to grant transfer credit. It is the student's responsibility to retain a copy for future use.

Information contained in this syllabus was, to the best knowledge of the instructor, considered correct and complete when distributed for use at the beginning of the semester. However, this syllabus should not be considered a contract between Kellogg Community College and any student, nor between the instructor and any student. The instructor reserves the right, acting within the policies and procedures of Kellogg Community College, to make changes in course content or instructional techniques without notice or obligation.

Textbook Statement

There are multiple choices for purchasing textbooks, including the Kellogg Community College bookstore (www.kellogg.edu - follow the on campus link to the bookstore). Please be advised that each student should fully investigate the refund policies of book retail stores, including the Kellogg Community College bookstore, PRIOR to purchasing a book for any course. When purchasing a book from the Kellogg Community College bookstore, students are encouraged not to break a textbook's binding, or open a book in shrink-wrap covering, prior to attending the first course session in order to verify that a correct book has been purchased. Students are advised to keep all receipts from book purchases.

Some KCC courses utilize Inclusive Access (I.A.) textbooks. This does not apply to all course sections. This applies only to course sections using digital access/inclusive access.

If students have already purchased a code for digital access from textbook publishers such as Cengage, Pearson, or McGraw-Hill, they should OPT OUT of the I.A. textbook attached to the course section (for example, a code for Cengage Unlimited). Students will be able to OPT OUT via the Moodle learning management shell associated with the course section. Students have until the drop/add date of the course section to OPT OUT. KCC will issue a refund back to the student account if the student OPTs Out during the allowed time frame. For more information, contact the course instructor.

Use of Technology & Student Email Accounts

The College has a variety of computer systems which are provided for the use of students and are to be used for education, research, academic development, and public service only. You are responsible for seeing that the computing facilities are used in an effective, efficient, ethical, and lawful manner. Computer systems, such as e-mail, are intended for college related activities only. Inappropriate messages and/or materials are not to be sent or stored. For more information, visit the KCC web page at: www.kellogg.edu.

Safe and Successful Campus Environment

KCC is dedicated to providing a safe environment which is conducive to success for all students. When faculty and staff notice that a student is struggling emotionally, intellectually, or behaviorally with classroom expectations, they may notify the appropriate College personnel to intervene; in such cases, students may be contacted by College personnel who will offer support and assistance.

If you have a safety concern(s) about others' behavior in class or on campus, please report those concerns online at Report an Incident. KCC Public Safety is located in the walkway across from the Ohm building or by notifying Public Safety by using one of the yellow emergency call boxes on campus, or calling 269.965.4147.

KCC does not tolerate sexual harassment or sexual misconduct of any kind and is legally obligated to investigate such concerns. Sexual harassment includes sexual assault, dating violence, domestic violence, and stalking. KCC is an equal opportunity educator and employer, and does not discriminate on the basis of national or ethnic origin, ethnicity, race, ancestry, color, sex (sex or gender, affiliation, expression or orientation), marital/family status, age, physical or mental ability or attributes, genetic information, political affiliation, veterans status, religion, or any other characteristic covered by law in its admission policy, education programs, activities, or employment policies. KCC also prohibits relation against any person participating in good faith in any investigation or complaint process internal or external to the institution; for bringing a complaint of harassment or misconduct; for assisting someone with such a complaint; for attempting to stop harassment or misconduct. Students should report concerns at Report an Incident. Learn more at www.kellogg.edu/titleix.

Sense of Belonging

KCC is committed to creating a supportive environment where students, faculty, and staff feel safe and included; have a voice; and can learn, grow, and achieve success without barriers.

Service Learning

Incoming students enrolled in any degree seeking program will be required to complete a service-learning endorsement to qualify for graduation. KCC instructors must be Service-Learning Certified in order to offer it as an option in their course section. If this section is offering service-learning opportunities, the instructor will provide further details about how to pursue service-learning in this course.

STUDENT LEARNING OBJECTIVES

· Programming using Exception Handling with Python

· Programming utilizing networking, and system calls.

· Programming network port scanner

· Programming for a Meta data analyzer

· Programming to interact with a Web application such as Twitter or Google API

KCC - SERVICE LEARNING NOT AVAILABLE

For this section of this course, the Service Learning Option is not available.

SCHEDULE

Date/Session	Notes
2025 sem 1 spring	Tentative and Subject to Change. See course website for most current information. Week 01 - Introduction to Ethical Hacking terminology and Course Structure Week 02 - Introduction to Linux and Kali Linux fundamentals of command line Linux Week 03 - Review of Python coding and advanced use of processing Data and Strings Week 04 - Investigative use of Kali Linux Live Environment Week 05 - Penetration Testing with Python Scripts Week 06 - Password Cracking using Python Week 07 - Forensic Investigations using Python Week 08 - Network Traffic Analysis using Python coding Week 09 - Creating Wireless Mayhem Week 10 - Programming Web Reconnaissance Week 11 - Brief Introduction to Databases Week 12 - Hacking access to Databases Week 13 - Preparing for Lab Practical Final Exam Week 14 - Completion of Written Final Exam Week 15 - Completion of Lab Practical Final Exam Week 16 - Open Lab