FLEMING

Course Outline

Course Title:	Concepts of Information Security and Risk Management

Course Number:	COMP497	**Approval Date:**	2025/1/5
Course Hours:	45 hours	**Academic Year:**	2024
Academic School:	School of Business and Information Technology		

Faculty:	Adelia Neal - Adelia.Neal@flemingcollege.ca
Program Co-ordinator or Equivalent:	Mamdouh Mina - Mamdouh.Mina@flemingcollege.ca
Dean (or Chair):	Allison MacGregor - Allison.MacGregor@flemingcollege.ca

Course Description

Organizations today face the huge task of protecting and securing their sensitive data and information technology operations at many levels. Each year thousands of new vulnerabilities are discovered and Billions of dollars are lost through malicious activity against corporate, government and private technological entities. In this course, Learners will be introduced to the core concepts of information security and protection; examine current threats and vulnerabilities and learn techniques to assess and manage risk in an information technology based environment. Using a common criteria methodology, Learners will analyze/demonstrate common system flaws, malware and control methods; and software for threat assessment and security controls will be explored. Learners will become familiar with the roles and responsibilities of an IT Security professional in relation to the management of risk and the conduct of related threat assessments. Emphasis will be placed on the importance of effectively assessing and making decisions to reduce risk.

Prerequisites: None.

Corequisites: None.

Course Delivery Type

Online Synchronous.

All course hours delivered are online synchronously with specified meeting times. Delivery times are specified on the academic timetable.

Learning Outcomes

Upon successful completion of this course, students will be able to:

1. Use the CVE database and other sources to determine risks and vulnerabilities associated with specific technologies expressed using standard risk management terminology
2. Use standard risk management terminology to describe risks, threats, assets and vulnerabilities.
3. Determine appropriate compliance standards or threat / risk assessment methodologies to guide mitigation of specific threats.
4. Use compliance standards as a basis for the development of security policy
5. Select, assess and implement appropriate security countermeasures for IT assets, such as communication networks, computer hardware and software, to provide protection and support the objectives of the organization.
6. Manage risk in a manner consistent with all relevant law and legislation and professional,organizational and ethical standards.
7. Identify appropriate CSC controls to guide implementation of risk mitigation measures
8. Employ simple technical countermeasures to implement various CSC sub-controls
9. Identify cryptographic countermeasures that can be used to implement specific CSC controls
10. Generate and sign PGP public key pairs and use a keyserver to obtain and publish signed PGP keys.

Learning Resources

Vatious Internet resources

Costs for learning resources can be found on the Campus Store website, using the links below, or by visiting the Campus Store location at your campus.

- Sutherland: https://www.bkstr.com/sfleming-sutherlandstore/home
- Frost: https://www.bkstr.com/sfleming-froststore/home

Assessment Summary

Assessment Task	Percentage
In-class activities	15%
Labs	45%
Tests	40%

Student Success: Policies and Procedures

Mutually, faculty and learners will support and adhere to college Academic Regulations, and Student Rights and Responsibilities. The following policies and guidelines have been developed to support the learning process.

Please click on the link for information about:

- [Academic Integrity (2-201A)](https://department.flemingcollege.ca/hr/attachment/7750/download)
  (https://department.flemingcollege.ca/hr/attachment/7750/download)
- [Accessibility for Persons with Disabilities (3-341)](https://department.flemingcollege.ca/hr/attachment/5619/download)
  (https://department.flemingcollege.ca/hr/attachment/5619/download)
- [Grading and Academic Standing (2-201C)](https://department.flemingcollege.ca/hr/attachment/7752/download)
  (https://department.flemingcollege.ca/hr/attachment/7752/download)
- [Guidelines for Professional Practice: Students and Faculty](https://flemingcollege.ca/PDF/guidelines-for-professional-practice-students-faculty.pdf)
  (https://flemingcollege.ca/PDF/guidelines-for-professional-practice-students-faculty.pdf)
- [Student Rights and Responsibilities (5-506)](https://department.flemingcollege.ca/hr/attachment/269/download)
  (https://department.flemingcollege.ca/hr/attachment/269/download)

If you will need academic accommodations (for example if you have a learning disability, mental health condition such as anxiety or depression or if you had an IEP in high school), please contact the [Accessible Education Services (AES)](https://department.flemingcollege.ca/aes/) department (https://department.flemingcollege.ca/aes/) to meet with a counsellor.

Alternate accessible formats of learning resources and materials will be provided, on request.

Program Standards

The **Ministry of Colleges and Universities** oversees the development and the review of standards for programs of instruction. The **Ministry of Labour Training and Skills Development** oversees the development and the review of standards for programs of instruction for Apprenticeship training in the province of Ontario. Each college is required to ensure that its programs and program delivery are consistent with these standards, and must assist students to achieve these essential outcomes.

This course contributes to Program Standards as defined by the [Ministry of Colleges and Universities](#) (MCU). Program standards apply to all similar programs of instruction offered by colleges across the province. Each program standard for a postsecondary program includes the following elements:

- **Vocational standards** (the vocationally specific learning outcomes which apply to the program of instruction in question);
- **Essential employability skills** (the essential employability skills learning outcomes which apply to all programs of instruction); and
- **General education requirement** (the requirement for general education in postsecondary programs of instruction that contribute to the development of citizens who are conscious of the diversity, complexity and richness of the human experience; and, the society in which they live and work).

Collectively, these elements outline the essential skills and knowledge that a student must reliably demonstrate in order to graduate from the program. For further information on the standards for your program, follow the MCU link (www.tcu.gov.on.ca/pepg/audiences/colleges/progstan/).

Detail Plan

Term: 2025 Winter

Faculty: Adelia Neal - Adelia.Neal@flemingcollege.ca

Program Co-ordinator or Equivalent: Mamdouh Mina - Mamdouh.Mina@flemingcollege.ca

Dean (or Chair): Allison MacGregor - Allison.MacGregor@flemingcollege.ca

Learning Plan

Wks/Hrs Units	Topics, Resources, Learning, Activities	Learning Outcomes	Assessment
Week 1	Course Introduction and Logistics Introduction to Risk Management Fundamentals	1,2	Lab 1
Week 2	Threat Risk Assessment Methods - Standards based and Ad-hoc	3,4,6	Lab 2
Week 3	Introduction to Compliance Models and Standards. The fun part about standards is there's so many to choose from. - The NIST framework - CIS/CSC Program - ISO Standards	1,2,3,6	Lab 3
Week 4	The CIS/CSC Program Overview - History of the 20 - Overview of the standard - Relationship to other standards.	5-8	Lab 4
Week 5	Asset Inventory and Discovery - Hardware asset tracking tools - Software device discovery - Cloud based device management	5-8	Lab 5
Week 6	Course Review	1-8	Work Period
Week 7	Midterm Test	1-8	Midterm test
	Independent Learning Week (No Classes)	N/A	Independent Learning Week (No Classes)
Week 9	Cryptography and Encryption - Fundamentals - Asymmetric Encryption - Symmetric Encryption	9,10	Lab 6
Week 10	Vulnerability Assessment - Risk pictures with CVE and MITRE		Lab 7
Week 11	Malware Defences - Traditional malware (signature and IOCs) - XDR/EDR	5-8	Lab 8
Week 12	Boundary Defences - Traditional firewalls - NextGen firewalling - WebApp and API Firewalls	5-8	Lab 9
Week 13	Secure Configuration Management - Deployment of OSs - Software Deployment	5-8	Lab 10

Wks/Hrs Units	Topics, Resources, Learning, Activities	Learning Outcomes	Assessment
Week 14	Emerging Topics Course Review	1-10	Work Period
Week 15	Final Exam	1-10	Final Exam

Assessment Requirements

Assessment Task	Date/Weeks	Course Learning Outcome	Percentage
Lab Assignments	Weekly	1-10	45%
In-Class Activities	Weekly	1-10	15%
Midterm Test	Week 7/9	1-8	20%
Final Exam	Week 14/15	1-10	20%

All assignments, tests, presentations, or reports are due on their stated due dates unless the student has made specific arrangements with the professor at least two days prior to the due date, or in the case of an emergency, on his/her return to school.

Other than in the above conditions, an assignment, test, presentation, or report not submitted/presented on the due date will receive a mark of zero (0). The specified lab assignments must be completed successfully. Failure to complete these practical applications will result in failure of the assignment.

The failure of any lab assignment or primary assignment may result in failure of the course. Each student may be permitted a single retest, of not more than 2 practical assessments in total. Failure to successfully pass the assessment, after an attempted re-test, indicates that the requisite knowledge to proceed with the course is not present and consequently the student will be removed from the course.

Artificial Intelligence (AI) Statement

NO USE. Use of generative AI tools (like ChatGPT) is not permitted in this course.

It is the responsibility of students to maintain a history of records and supporting documentation to demonstrate their efforts in all academic submissions, even if submission of these is not part of the final academic deliverable.

Turnitin Statement

Students agree that by taking this course all required papers may be subject to submission for textual similarity review to Turnitin.com in support of academic integrity. All submitted papers will be included as source documents in

the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin.com service is subject to the Usage Policy posted on the Turnitin.com site.

If students choose to opt out of using the software, they must inform their faculty member at the time of the assignment, of their refusal and meet with the faculty to discuss their options. For further information on the use of Turnitin, please refer to the [Operating Procedure 2-201F](https://department.flemingcollege.ca/hr/attachment/10233/download)
(https://department.flemingcollege.ca/hr/attachment/10233/download)

Exemption Contact

Mamdouh Mina, Program Coordinator. Email: mamdouh.mina@flemingcollege.ca

Prior Learning and Assessment and Recognition (PLAR)

PLAR uses tools to help learners reflect on, identify, articulate, and demonstrate past learning which has been acquired through study, work and other life experiences and which is not recognized through formal transfer of credit mechanisms. PLAR options include authentic assessment activities designed by faculty that may include challenge exams, portfolio presentations, interviews, and written assignments. Learners may also be encouraged and supported to design an individual documentation package that would meet the learning requirements of the course. Any student who wishes to have any prior learning acquired through life and work experience assessed, so as to translate it into a college credit, may initiate the process by applying through the Registrar's office. For more information please click on the following link: http://flemingcollege.ca/admissions/prior-learning-assessment-and-recognition

Course Specific Policies and Procedures

It is the responsibility of the student to retain this course outline for future reference. Course outlines may be required to support applications for advanced standing and credit transfer to other educational institutions, portfolio development, PLAR and accreditation with professional associations.

Synchronous sessions may be recorded. As a result, your image, voice, name, personal views and opinions, and course work may be collected under legal authority of section 2 of the Ontario Colleges of Applied Arts and Technology Act, 2002. This information will be used for the purpose of supporting student learning. Any questions about this collection can be directed to the Privacy and Policy Officer at freedomofinformation@flemingcollege.ca or by mail to 599 Brealey Drive, Peterborough, ON K9J 7B1.

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ACADEMIC RESPONSIBILITIES

Mutually, faculty and learners will support and adhere to college Academic Regulations and Student Rights and Responsibilities, Harassment & Discrimination. In addition, the following guidelines have been developed to support the learning process.

1. To gain the most possible benefit from this skill developing course, students need to attend classes. Learning takes place when you become engaged in the learning process. Your instructor will be recording attendance data and will report absences, late arrivals and early departures to your program co-ordinator.

2. All tests and lab assignments have scheduled due/completion dates. Meeting these due dates is key to your success in this course: your instructor's feedback will add to your learning.

3. Therefore, you must write all tests with the class on the tests' assigned dates. As well, you must complete all lab assignments by the scheduled due date during the schedule lab time.

4. You will receive a grade of zero for any test not written or lab assignment not completed within the designated time frame.

5. Your instructor may consider a makeup for missed assignments or tests for valid reasons only. Any requests for a makeup must be accompanied by legitimate and verifiable supporting documentation - no exceptions. These situations will be discussed on an individual basis.

6. You, the student, are responsible for making these arrangements; your learning and success in this course is a shared goal.

7. Final grades in this course are assigned based on the level of achievement that corresponds to the assessment components as cited in the course outline. It is important to note that faculty member(s) will not offer additional evaluation activities (**NO CREDIT RECOVERY**) beyond those cited in the course outline.

8. The professor, faculty team in consultation with the program co-ordinator and academic chair reserves the right to modify the course content, sequence based on industry trends, interests, and time constraints in this course.

9. It is the responsibility of the student to exercise proper care and back-up procedures for electronic data files. Corrupted or lost disk files will not constitute a valid excuse for late or non-submission of work.

10. E-mail is a standard mode of communication. You have a responsibility to read your e-mail regularly. You are also required to check D2L regularly for course updates.

LATE ASSIGNMENT POLICY

You must submit/present all written/oral assignments, tests, presentations or reports on their assigned dates.

Any written/oral assignments, tests, presentations or reports not submitted/presented on the due date will receive a mark of zero (0).

Your professor will make special arrangements for valid, documented, and verifiable reasons only, as mentioned above. No exceptions.

Please note: You are not permitted to request an extension the day an assignment is due. Requests for extensions the day an assignment is due will not be granted.

ACADEMIC INTEGRITY

Fleming College opposes any form of academic dishonesty, such as plagiarism, submission of work for which credit has already been received; cheating, impersonation; falsification or fabrication of data; the acquisition of confidential material, e.g., examination papers; misrepresentation of facts; altering transcripts or other official documents. Please see Academic Regulations Policy for more information on Academic Integrity.