The Computer Security and Investigations program is designed to provide you with the necessary knowledge and skills to take a leadership role in the protection and security of information technology.

Program Highlights
The Computer Security and Investigations program is designed to provide you with the necessary knowledge and skills to take a leadership role in the protection and security of information technology. Your classes are regularly reviewed and improved to be the most current subjects demanded by the industry, such as:

» Advanced Ethical Hacking
» Incident Response
» Vulnerability, Threat and Risk Analysis
» Information Security
» Advanced Computer Forensics
» Internet and Hacking Investigations
» Open Source Intelligence
» CISCO Network Design and Management
» Network Security

In addition to these cutting-edge subjects, you will also learn how to assess technical risk, develop systems and processes, to manage the risks associated with information technology, and be capable of providing technical assistance to prevent, investigate, and protect individuals and organizations from cyber-crime. Your studies will be from a security management and hands on technical perspective, with emphasis placed on the skills required to implement information technology security, and the investigative skills necessary to respond appropriately to breaches of security.

You will have the added benefit of courses in law and justice, taking advantage of Fleming College's reputation and
experience in these fields, in addition to obtaining the technical training you need to function as a cyber security consultant. In this three-year program, the final sixth semester is an applied project or field placement in partnership with business and, industry, or government department.

Why Choose Fleming
Fleming has a well-known track record of producing talented graduates in the area of Cyber Security; you will acquire the best we have to offer and develop both technical skills and a security mindset, a winning combination that will put you on the road to success as an in-demand computer security specialist.

There are no other programs like this in Ontario. The CSI program will provide you with the knowledge and skills to prepare you for industry certification in the Cyber Security, Computer Forensics, Incident Response and Secure Networking disciplines. As you progress through the program you will gain the skills required for you to become industry certified in a number of areas, including:

» CCNA – Cisco Certified Network Architect
» CCE – Certified Computer Examiner
» Security+
» Network+
» A+
» Linux+
» MCSA - Microsoft Certified Solutions Associate
» CISSP – Certified Information Systems Security Professional (student level qualification)
» CEH - Certified Ethical Hacker

Work Experience
In your final semester, you will work on an intensive team project or field placement. Each student will contribute specialized knowledge, learned in their program of study, to the solution of a real world technological problem posed by a sponsoring business or organization. Recent projects include:

» Field placements in Security Operations Centres (SOCs) as security analysts, conducting analysis and protection against cyber threats in real time
» Field placements within financial and forensic firms, working real cases
» Field placements within corporate security departments and information security service providers
» Field Placements within cyber security units of various government agencies
» Security and penetration testing engagements with industry organizations
» Forensic analysis and creation of standards for a security corporation
» Development and field deployment of a computer network Intrusion Detection System for a managed security service company to support large commercial clients

This applied project or field placement will enhance problem-solving skills, applied industry knowledge, and the ability to work as part of a team. You’ll also learn critical workplace skills such as time management, how to map a critical path, and presentation skills. Since you may be working on sophisticated developmental or research-based work, sponsors will often use the project as a testing ground and recruitment opportunity.
Is this You?

» excellent oral and written communication skills
» good problem solving skills
» creative and analytical thinking skills
» strong interest in computers and technology
» able to keep a cool head in a crisis
» research and investigative skills and interest
» desire to learn and be challenged
» strong time management skills

Career Opportunities
Career opportunities are available in both public and private sector organizations. Job titles include:

» Information Technology Security Analyst
» Security Operations Centre Analyst
» Information Security Analyst
» Computer Security Consultant
» Penetration Tester
» Cyber Investigator
» Data Security Specialist
» Network Security Specialist
» Blue Team Analyst
» Computer Forensics Examiner

Starting salaries for many IT security positions are in the range of $54,000 to $70,000. Industry surveys identify that IT security professionals are in strong demand, and professionals with the security skills you will acquire, consistently earn higher than average incomes among IT professionals.

Advanced Standing
Do you have another college diploma, or have you completed other technology courses at another college or university? You may be eligible for advanced standing entry to the Computer Security and Investigations program. With this fast track option, you can quickly complete the program and become qualified to enter the field of computer security. Contact the program coordinator to find out how you can take advantage of this opportunity.
Minimum Admission Requirements
Students applying to Computer Security and Investigations must meet the following requirements:

- OSSD including Gr 12 C English and Gr 12 C Math

OSSD with majority of courses at College (C) or Open (O) unless otherwise stated. Grade 12 C courses will be accepted where Gr 11 C course requirements are listed. Where College level courses are listed, U and M courses will be accepted.

Mature Students
If you are 19 years of age or older before classes start, and you do not possess an OSSD, you can write the Canadian Adult Achievement Test to assess your eligibility for admission. Additional testing or academic upgrading may be necessary to meet specific course requirements for this program.

Vocational Learning Outcomes

- Conduct "threat risk" analysis of an organization's IT assets to determine vulnerabilities and develop appropriate countermeasures.
- Develop and justify information security policies and procedures for a corporation or institution to mitigate the risk and meet operational requirements.
- Manage and facilitate the implementation of information security policies and procedures.
- Conduct analysis of the effectiveness and appropriateness of information security policies, procedures and technology in a changing environment.
- Report and investigate information security breaches and crimes using the appropriate internal and external resources.
- 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.
- Develop, implement and manage information security emergency plans, disaster recovery plans and business recovery plans.
- Document, prepare and assist in the presentation of evidence in court cases in compliance with criminal law, rules of evidence and the Charter of Rights and Freedom.
- Assess information gathering skills used in basic investigative techniques.
- Work in a manner consistent with all relevant law and legislation and professional, organizational and ethical standards.
- Distinguish criminal, civil and administrative components of the justice.
- Make decisions and take courses of action that reflect sound ethical and moral standards of conduct.
- Develop life long learning habits through the pursuit of interdisciplinary areas of study related to social and cultural understanding, civil life, personal understanding, science and technology, and arts in society.
## Courses and Descriptions

### SEMESTER 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Code</th>
<th>Hours</th>
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<tr>
<td>Communications I</td>
<td>COMM 201</td>
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<tr>
<td>Computer Hardware</td>
<td>COMP 191</td>
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<tr>
<td>Introduction to Canadian Justice</td>
<td>LAWS 326</td>
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<tr>
<td>Introduction to Cyber Trends and Digital Evidence</td>
<td>COMP 482</td>
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<tr>
<td>Mathematics for Computing I</td>
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<tr>
<td>Software Fundamentals</td>
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### SEMESTER 2

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<td>Concepts of Information Security and Risk Management</td>
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<tr>
<td>Criminology</td>
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<td>Cyber Law</td>
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<tr>
<td>Introduction to Networks</td>
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<tr>
<td>Operating Systems I</td>
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<tr>
<td>PERL</td>
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<tr>
<td>Emergency Management &amp; Operational Security</td>
<td>COMP 38</td>
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<tr>
<td>Internet Investigations</td>
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<td>Managing Technical Projects</td>
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<td>Operating Systems II</td>
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<tr>
<td>Routing and Switching Essentials</td>
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### SEMESTER 4

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<td>Criminal Procedures</td>
<td>LAWS 17</td>
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<td>Digital Investigation</td>
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<td>Info Management &amp; Cryptography</td>
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<td>Intro to Pentesting &amp; Intrusion Analysis</td>
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<td>Scaling Networks</td>
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