



**I. COURSE DESCRIPTION:**

This course provides an in-depth study of network security policy, design, analysis, and implementation of security systems and critically evaluates their performance. This is an advanced security course and a continuation of CSN208. Areas of study include 802.1x access control, advanced wireless security, secured Web servers, and secured email servers. It includes the study of effective strategies for data collection, data preservation, data analysis and reporting of forensic computing investigations. The theory is supported by extensive lab work using a variety of operating systems and security tools.

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

Upon successful completion of this course, the student will demonstrate the ability to:

**1. Advanced Network Security**Potential Elements of the Performance:

- Identify the role of and describe the types of Network Security Policies
- Plan and implement Network Policies for Client logins including Virtual Private Networks (VPN's)
- Install and configure advanced Wireless Security including WPA and WPA2 configurations
- Authenticate Wireless users with protocols such as 802.1x, Radius, EAP and PEAP and EAE SIM
- Encrypt Wireless traffic using IPSec

**2. Secure Web and Email Servers**Potential Elements of the Performance:

- Configure user authentication using Integrated Windows Authentication, Digest Authentication and .NET Passport authentication
- Install and configure a Certificate Server for your Web Server and implement SSL on your Web Server
- Configure URL authentication
- Install, configure and monitor a Mail Server

### 3. **Computer Forensics Environment and Tools**

#### Potential Elements of the Performance:

- Define the role of Computer Forensics including its history
- Define the role of a Computer Forensics Investigator
- Review Computer Forensics Certifications and Training
- Demonstrate knowledge of Computer Crime scenes and situations
- Define the requirements of a Computer Forensics lab
- Review Computer Forensics lab certifications
- Budget plan for a Computer Forensics lab
- Identify duties of laboratory manager and staff
- Demonstrate the use of various Forensics software tools

### 4. **Data Acquisition, Analysis and Validation**

#### Potential Elements of the Performance:

- Demonstrate knowledge of correct procedures to follow in Data Acquisition
- Take a systematic approach to Acquisition, Analysis and Validation
- Contrast the difference between Data Recovery and Computer Forensics
- Determine proprietary formats
- Implement contingency plans for Image Acquisition
- Manage a Data Acquisition situation
- Use Data Acquisition tools
- Compare digital camera formats
- Contrast Bitmap, Raster and Vector images
- Contrast Lossless and Lossy compression
- Recover graphic files
- Repair damaged headers
- Reconstruct file fragments

### 5. **Investigating Crime and Incident Scenes**

#### Potential Elements of the Performance:

- Demonstrate professional conduct as a computer investigator
- Learn the rules of evidence
- Demonstrate knowledge of the various types of computer investigations including employee termination, Attorney-Client, Media leak and Industrial espionage
- Secure the scene
- Gather the evidence
- Plan an investigation
- Determine who is in charge
- Determine the tools you will require for the job

- Prepare the Investigating team
- Research background information to the crime scene
- Document findings
- Define the processing of Law Enforcement Crime Scenes
- Investigate E-Mail criminal Incidents
- Explore the roles of Client and Server in E-Mail Investigations
- Example E-Mail messages
- View E-Mail headers
- Review and examine E-mail logs
- Use specialized E-mail forensics tools

#### 6. **Prepare Forensics Reports**

##### Potential Elements of the Performance:

- Understand the importance of reports
- Determine the types of reports in Computer Forensics
- Define the legal processes of Computer Forensics
- Demonstrate knowledge of Corporate Investigations
- Critique the case
- Document and prepare evidence for Court
- Learn Court terminology and the Trial process
- Determine the guidelines to testifying
- Prepare Forensics evidence for Testimony

### III. **TOPICS:**

1. Advanced Network Security
2. Secure Web and E-Mail Servers
3. Computer Forensics Environment and Tools
4. Data Acquisition, Analysis and Validation
5. Investigating Crime and Incident Scenes
6. Prepare Forensics Reports

### IV. **REQUIRED RESOURCES/TEXTS/MATERIALS:**

Textbook: ***Guide to Computer Forensics and Investigations (3<sup>rd</sup> Edition)***

ISBN: 1-4180-6733-4

Authors: Nelson, Phillips, Enfinger and Stuart

Publisher: Course Technology

**V. EVALUATION PROCESS/GRADING SYSTEM:**

Tests ( 3 @ 15% each )	45 %
LMS Quizzes	20 %
Participation and Attendance	10 %
Lab Assignments	25 %

**Note:** This evaluation scheme is subject to change if circumstances warrant. Any changes will be discussed with students and reported in writing before implementation.

The following semester grades will be assigned to students:

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

**VI. SPECIAL NOTES:**Course Outline Amendments:

The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Retention of Course Outlines:

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

Prior Learning Assessment:

Students who wish to apply for advance credit transfer (advanced standing) should obtain an Application for Advance Credit from the program coordinator (or the course coordinator regarding a general education transfer request) or academic assistant. Students will be required to provide an unofficial transcript and course outline related to the course in question. Please refer to the Student Academic Calendar of Events for the deadline date by which application must be made for advance standing.

Credit for prior learning will also be given upon successful completion of a challenge exam or portfolio.

Substitute course information is available in the Registrar's office.

Disability Services:

If you are a student with a disability (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Disability Services office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

Communication:

The College considers **WebCT/LMS** as the primary channel of communication for each course. Regularly checking this software platform is critical, as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of the **Learning Management System** communication tool.

Plagiarism:

Students should refer to the definition of “academic dishonesty” in *Student Code of Conduct*. A professor/instructor may assign a sanction as defined below, or make recommendations to the Academic Chair for disposition of the matter. The professor/instructor may (i) issue a verbal reprimand, (ii) make an assignment of a lower grade with explanation, (iii) require additional academic assignments and issue a lower grade upon completion to the maximum grade “C”, (iv) make an automatic assignment of a failing grade, (v) recommend to the Chair dismissal from the course with the assignment of a failing grade. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Student Portal:

The Sault College portal allows you to view all your student information in one place. **mysaultcollege** gives you personalized access to online resources seven days a week from your home or school computer. Single log-in access allows you to see your personal and financial information, timetable, grades, records of achievement, unofficial transcript, and outstanding obligations, in addition to announcements, news, academic calendar of events, class cancellations, your learning management system (LMS), and much more. Go to <https://my.saultcollege.ca>.

Electronic Devices in the Classroom:

Students who wish to use electronic devices in the classroom will seek permission of the faculty member before proceeding to record instruction. With the exception of issues related to accommodations of disability, the decision to approve or refuse the request is the responsibility of the faculty member. Recorded classroom instruction will be used only for personal use and will not be used for any other purpose. Recorded classroom instruction will be destroyed at the end of the course. To ensure this, the student is required to return all copies of recorded material to the faculty member by the last day of class in the semester. Where the use of an electronic device has been approved, the student agrees that materials recorded are for his/her use only, are not for distribution, and are the sole property of the College.

Attendance:

Absenteeism will affect a student's ability to succeed in this course. Absences due to medical or other unavoidable circumstances should be discussed with the professor. Students are required to be in class on time and attendance will be taken within the first five minutes of class. A missed class will result in a penalty in your marks unless you have discussed your absence with the professor as described above. The penalty depends on course hours and will be applied as follows:

<b>Course Hours</b>	<b>Deduction</b>
5 hrs/week (75 hrs)	1% / hr
4 hrs/week (60 hrs)	1.5% /hr
3 hrs/week (45 hrs)	2% /hr
2 hrs/week (30 hrs)	3%/hr

Absentee reports will be discussed with each student during regular meetings with Faculty Mentors. Final penalties will be reviewed by the professor and will be at the discretion of the professor.

Tuition Default:

Students who have defaulted on the payment of tuition (tuition has not been paid in full, payments were not deferred or payment plan not honoured) as of the first week of November will be removed from placement and clinical activities. This may result in loss of mandatory hours or incomplete course work. Sault College will not be responsible for incomplete hours or outcomes that are not achieved or any other academic requirement not met as of the result of tuition default.

Students are encouraged to communicate with Financial Services with regard to the status of their tuition prior to this deadline to ensure that their financial status does not interfere with academic progress.

Contact Information:

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