

## CN8816: Network Security

### Calendar Description

This course covers the basic concepts in network security. It first introduces the security features within an enterprise network. These include device-level security and the use of firewall. The course then studies the techniques of providing privacy, data integrity, and authentication using encryption, message digest, and digital signature and certification.

The course also concentrates on IPsec and the use of IPsec to setup secure Virtual Private networks (VPNs). Other topics include email security and Intrusion Detection.

Lect: 6 hrs.per week/Labs: 5

Prerequisites: CN8813

Course Weight: 1.00

### References

(I) "Network Security Principles and Practices", by Saadat Malik, Cisco Press, ISBN: 1587050250.

(II) "Fundamentals of Network Security", Cisco Press, ISBN: 1-58713-122-6.

(III) "Network Security Essentials", Second Edition by William Stallings

(IV) Cisco documents

(V) Official documents of Internet specifications

### Schedule of Topics

Week	Topic
1	Device Security/ASA Introduction
2	ASA Features/Cryptography(1)
3	Cryptography(2)/Authentication Protocols(1) + Midterm Exam
4	Authentication Protocols(2)/VPN(1)
5	VPN(2)/VPN(3)
6	IDS/Wireless Security

## Submission of Work

Lab Assignments	Submitted to
<ul style="list-style-type: none"><li>• ASA</li><li>• HTTPS Web Server</li><li>• Authentication and Authorization</li><li>• IPSec VPN IKEv2 Site-to-Site</li><li>• FlexVPN</li></ul>	Turnitin

Students who do not want their work submitted to this plagiarism detection service must, by the end of the second week of class, consult with the instructor to make alternate arrangements.

## Technology Requirements

Personal Computer with i7 processor and 8G RAMs.

## Course Evaluation

Components	Marks
Lab Participation and Report	20%
Midterm examination (January 21)	30%
Final examination(February 23)	50%

## Missed Classes and/or Evaluations

Students are required to inform their instructors of any situation which arises during the semester which may have an adverse effect upon their academic performance, and must request any considerations and accommodations according to the relevant policies and well in advance. Failure to do so will jeopardize any academic appeals.

- *Medical certificates* – If a student misses the deadline for submitting an assignment, or the date of an exam or other evaluation component because of illness, he or she must submit a Ryerson Student Medical Certificate AND an Academic Consideration form within 3 working days of the missed date. Both documents are available at [www.ryerson.ca/senate/forms/medical.pdf](http://www.ryerson.ca/senate/forms/medical.pdf). If you are a full-time or part-time degree student, then you submit your forms to your own program department or school. If you are a certificate or non-certificate student, then you submit your forms to the staff at the front desk of the Chang School.
- *Religious observance* – If a student needs accommodation because of religious observance, he or she must submit a Request for Accommodation of Student Religious, Aboriginal and Spiritual Observance AND an Academic Consideration form within the first 2 weeks of the class or, for a final examination, within 2 weeks of the posting of the examination schedule. If the required absence occurs within the first 2 weeks of classes, or the dates are not known well in advance as they are linked to other conditions, these forms should be submitted with as much lead time as possible in advance of the required absence. Both documents are available at <http://www.ryerson.ca/senate/forms/reobservforminstr.pdf>. If you are a full-time or part-time degree student, then you submit the forms to your own program department or

school. If you are a certificate or non-certificate student, then you submit the forms to the staff at the front desk of the Chang School.

- *Students with disabilities* – In order to facilitate the academic success and access of students with disabilities, they should register with the Access Centre <http://www.ryerson.ca/student-services/accesscentre/index.html>. Before the first graded work is due, students should also inform their instructor through an “Accommodation Form for Professors” that they are registered with the Access Centre and what accommodations are required.

### **Academic Integrity and Plagiarism**

Ryerson’s Policy 60 (the *Student Code of Academic Conduct*) applies to all students at the University. The policy and its procedures are triggered in the event that there is a suspicion that a student has engaged in a form of academic misconduct.

Forms of academic misconduct include plagiarism, cheating, supplying false information to the University, and other acts. The most common form of academic misconduct is plagiarism. Plagiarism is a serious academic offence and penalties can be severe. In any academic exercise, plagiarism occurs when one offers as one’s own work the words, data, ideas, arguments, calculations, designs or productions of another without appropriate attribution or when one allows one’s work to be copied.

All academic work must be submitted using the citation style approved by the instructor. The most common citation style is APA. Students may refer to the Ryerson Library for APA style guide references: <http://library.ryerson.ca/guides/toolbox/style/>

It is assumed that all examinations and work submitted for evaluation and course credit will be the product of individual effort, except in the case of group projects arranged for and approved by the course instructor. Submitting the same work to more than one course, without instructor approval, is also considered a form of plagiarism.

Students are advised that suspicions of academic misconduct may be referred to the Academic Integrity Office (AIO). Students who are charged with academic misconduct will have a Disciplinary Notation (DN) placed on their academic record (not on their transcript) and will be assigned one or more of the following penalties:

- A grade reduction for the plagiarized work
- A zero for the plagiarized work
- An F in the course
- More serious penalties up to and including expulsion from the University

For more detailed information on these issues, please refer to the full online text for the *Student Code of Academic Conduct* at <http://www.ryerson.ca/senate/policies/pol60-F2014.pdf> and the Academic Integrity Website at [www.ryerson.ca/ai](http://www.ryerson.ca/ai).

### **Important Resources Available at Ryerson**

Use the services of the University when you are having problems writing, editing or researching papers, or when you need help with course material:

- **The Library** (LIB 2<sup>nd</sup> floor) provides research workshops and individual assistance. Inquire at the Reference Desk or at [www.ryerson.ca/library/info/workshops.html](http://www.ryerson.ca/library/info/workshops.html)
- **The Writing Centre** (LIB 272- B) offers one-on-one tutorial help with writing and workshops [www.ryerson.ca/writingcentre/workshops.htm](http://www.ryerson.ca/writingcentre/workshops.htm)
- **Learning Success** (VIC B-15) offers individual sessions and workshops covering various aspects of researching, writing, and studying. You must book these directly through their website <http://www.ryerson.ca/student services/learningsuccess/>
- **English Language Support** (VIC B-17) offers workshops to improve overall communication skills [www.ryerson.ca/student services/els/](http://www.ryerson.ca/student services/els/)
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**There is one general site where you may see and register for all of the workshops offered by all of these areas:** <http://www.ryerson.ca/academicintegrity/workshops.html>