

## Master of Science in Information, Network, and Computer Security (MS-INCS)

### Program overview

The internationally acclaimed Master of Science in Information, Network, and Computer Security (MS-INCS) program, which has been offered at the New York and other campuses of New York Institute of Technology for almost a decade, is now also available at NYIT–Vancouver, following the same curriculum as the non-thesis option in New York.

Occupations in which MS-INCS graduates are in great demand include:

- Information Systems Managers
- Computer and Network Managers
- Computer Engineers and Scientists
- Information Systems Analysts and Consultants, and
- Security Analysts

The program is ideally suited for students with engineering, computer science and related backgrounds who intend to play a leading role in the implementation as well as the management of computer and network security systems. MS-INCS is an applied degree and can be completed in less than two years. The program is supported by the New York based Network and Information Security Laboratory funded by the Office of Naval Research. This laboratory is available to students from NYIT-Vancouver campus.

### Program structure

The MS-INCS core curriculum is comprised of 30 credits, including 8 required courses (24 credits), one 3-credit supervised project, and one 3-credit elective.

Curriculum Requirements	
<b>CSCI 620 Operating System Security</b>	3
<b>CSCI 651 Algorithm Concepts</b>	3
<b>INCS-618 Computer Security Risk Management and Legal Issues</b>	3
<b>INCS 615 Network Security and Perimeter Protection</b>	3
<b>INCS 741 Cryptography</b>	3
<b>INCS 712 Computer Forensics</b>	3
<b>INCS 775 Data Center Security</b>	3
<b>INCS 745 Intrusion Detection and Hacker Exploits</b>	3
<b>INCS 870 Project I</b>	3
<b>Elective</b>	3
<b>TOTAL CREDITS</b>	<b>30</b>

## Semesters/Terms

The MS-INCS is a two-year program, if taken full-time. NYIT-Vancouver has three semesters per year; Fall (September to December), Spring (January to April) and Summer (May to August). Each semester consists of 15 weeks. Although the program can be completed by very strong students in three semesters (12 months), the typical full-time student will complete in four semesters of study plus a one-semester break to work in the field or travel (20 months).

## Admission requirements

- Applicants must have earned a four-year bachelor degree (or its equivalent) in computer science, information technology, engineering or a related field from an appropriately accredited college or university.
- Applicants must have earned a Cumulative Grade Point Average (CGPA) of at least 2.85 (out of 4.0) or equivalent.
- Applicants are expected to submit their score from the Graduate Record Examination (GRE).
- Applicants who do not satisfy the above criteria may be admitted at the dean's discretion. Scores on other diagnostic tests may be requested to assist in the evaluation of the applicant's credentials.
- Applicants who hold a degree or diploma which is equivalent to three years of undergraduate study in Canada or the U.S. in computer science, engineering, or a related area, may be eligible to be admitted into a bridge program jointly with one of our local partner institutions.
- English proficiency must be met by submitting either a TOEFL score of 85 IBT or IELTS score of 6.5 overall, or the equivalent. Graduates from North American institutions and other English speaking countries may be exempt from English proficiency testing.

## Prerequisite and Waivable Courses

Students who are admitted to the program with insufficient background in mathematics or computer science may be required to take one or more of the following undergraduate prerequisite courses:

### Computer Programming I

Basic skills in problem solving and object-oriented programming using a high level language such as Java or C++. Topics include algorithm development, simple data types, expressions and statements, program flow control structures, objects, methods and arrays.

### Computer Programming II

Basic skills in problem solving and object-oriented programming using a high level language such as Java or C++. Topics include algorithm development, simple data types, expressions and statements, program flow control structures, objects, methods and arrays.

### Computer Organization and Architecture

Introduction to the organization and architecture of modern computers, including a variety of concepts from the stored-program concept and the machine cycle, to the representation of code and data. The basic components of a computer and their functionality are analyzed including processor data path, pipelines, I/O devices, memory hierarchy, and interconnection networks. The instruction set architecture and its importance in reducing the gap between hardware and software is also covered, as well as the evaluation of computer performance

### Data Structures

The classic data structures, such as stacks, queues, linked lists, binary trees, etc. are studied. Sorting and searching are stressed. Computational analysis is also studied.

### Operating Systems

The design and implementation of an operating system,, including process states and synchronization, memory management strategies, processor scheduling, multiprocessing, parallel processing, hardware organization, disk scheduling and file management.

**Calculus I**

Functions, limits, derivatives of algebraic functions, introduction to derivatives of trigonometric functions. Application of derivatives to physics problems, related rates, maximum-minimum word problems and curve sketching. Introduction to indefinite integrals. The conic sections.

**Calculus II**

Riemann sums, the definite integral, the fundamental theorem of the calculus. Area, volumes of solids of revolution, arc length, work. Exponential and logarithmic functions. Inverse trigonometric functions. Formal integration techniques. L'Hopital's rule, improper integrals. Polar coordinates.

**Linear Algebra**

Matrices and systems of linear equations, vector spaces, change of base matrices, linear transformations, determinants, eigen-values and eigen-vectors, canonical forms.

Note that credits earned in these prerequisite courses for the master's program in information, network, and computer security will not be counted toward the 30 credits required for the degree.

**Credit transfer**

Up to six transfer credits from an accredited North American graduate program may be granted to students in this program for appropriate courses with a grade of B or equivalent.

**Accreditation/approvals**

New York Institute of Technology is accredited by *The Middle States Commission on Higher Education* in the U.S. The School of Engineering and Computing Sciences is accredited in the U.S. by the *Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology, Inc. (ABET)*. In British Columbia, Canada, the program is approved by the *Ministry of Advanced Education* (<http://www.aved.gov.bc.ca/privatepsed/institutions.htm>).

**Tuition Estimates**

Application fee = USD 50 (non-refundable)

Tuition per credit = USD 870

Total tuition USD 26,100\*

(8 required courses + 1 elective and 1 project)

\*Amount does not include other college fees or the tuition fee for any pre-requisite or bridge courses that may be required. Such courses, if required, will be taken from one of NYIT's partner institutions in Vancouver and tuition fees for those courses will be paid to that partner institution.

**Full time status for international students**

International students must maintain their fulltime status by taking a minimum of fifteen credits each year.

**Next Intake**

March 3, 2014.

**Application information**

To apply for the program, you must submit the following:

- An application form completed and signed.
- A non-refundable application fee of US\$50.
- Transcripts for all four years of bachelor degree.
- Bachelor degree completion certificate.
- Any transcripts or certificates received beyond the bachelor degree program.
- Proof of English proficiency (required IELTS or TOEFL score).
- Official Graduate Record Examination (GRE) results.

Please submit all required documents to the address below:

New York Institute of Technology-Vancouver Campus

701 West Georgia Street, 17th Floor

Vancouver, BC, Canada V7Y 1K8

Phone: 0987799502 (Taiwan)

13267037072 (China)

61200744 (Hong Kong)

Email: [piecltd@gmail.com](mailto:piecltd@gmail.com)

<http://iemba.us/nyit/>