



Faculty of Business and Information Technology

Proposal for Revision of the
Master of Information Technology Security (MITS)

The MITS program is a graduate professional program which prepares students to work in the intense, demanding and rapidly changing IT security industry. To ensure that the student acquires the appropriate skills for this industry, the Faculty of Business and IT must provide the theoretical background; hands-on exposure to hardware and software; and the environment of intensity and challenge which these students will face when in the industry.

The MITS curriculum covers the 10 domains required for the CISSP (Certified Information Systems Security Professional) exam which is administered by the International Information Systems Security Certification Consortium, (ISC)². The 10 domain requirements include: Access Control; Application Security; Business Continuity and Disaster Recovery Planning; Cryptography; Information Security and Risk Management; Legal Regulations, Compliance and Investigations; Operations Security; Physical (Environmental) Security; Security Architecture and Design; Telecommunications and Network Security. The rapid change in this industry is reflected by ongoing evolution of the content in the 10 domains of the CISSP, as well as rapid revision to the (ISC)² continuing certification requirements. The MITS program must position itself to incorporate these rapid changes.

With experience from having delivered the MITS program for over 2 years, plus the new Faculty members participating in the program, the MITS team thoroughly reviewed all the courses over the past few months. In keeping with the (ISC)² program, the Faculty believe that aspects from all 10 domains should be reflected in each course in the program. Because the original planning of this program incorporated this concept, current course descriptions are still appropriate. The change is in degree and emphasis within each course to integrate the materials to the extent now considered appropriate. The expansion of the 10 domains within each course has allowed the Faculty to reduce the total number of courses required to cover the relevant content for the program, while at the same time increasing the students' understanding and awareness of the interactions between the domains. Thus, the revised version of this program will enhance the overall learning experience of these students.

MITS 5900G: NEW SEMINAR COURSE

To enable the program to reflect industry changes in an effective manner this proposal recommends the removal of elective courses and the inclusion of a required seminar course (tentatively MITS 5900G). This seminar course will allow the program to be flexible and to manage the rapid evolution in the industry through incorporating new elements, additions and modifications in close to real time. In many cases, these seminars will be lead by professionals in the field again ensuring the immediate, critical issues in the field are incorporated directly into the students' learning. Within 5900G each student will also be required to lead a seminar at the end of the capstone research project.

MITS 5110G: LEGAL ISSUES, ETHICS AND INCIDENT HANDLING

Evolutionary changes in the IT field have lead to additional recommended changes in the MITS required courses. It has become clear that the content of MITS 5100G Law and Ethics of IT Security and MITS 6500G Incident Handling, Recovery, Policies and Risk Management are not clearly separable. Again, issues and concerns change rapidly. Therefore, the proposal is to unite the fundamental theory and concepts in one course MITS 5100G Legal Issues, Ethics and Incident Handling in IT Security. Arising issues and changes will be captured as they occur in the new seminar course, MITS 5900G.

MITS 5400G: SECURE SOFTWARE SYSTEMS

Evolutionary changes in industry operating systems have made the current separation of systems security courses redundant. This is reflected in certification programs in other parts of the IT industry such as CISCO Security. Therefore, this proposal includes changes in MITS 5400G Secure Software Systems and MITS 6200G eCommerce Infrastructure Security to combine them into one course MITS 5400G Secure Software Systems.

12 MONTH PROGRAM

The rapidity of change in this industry, as well as the intensity required to work in this field, is reflected by changes in the certification standards of the (ISC)². Previously, the industry required re-certification every 3 years. Recent changes by the (ISC)² now require that members submit annual evidence of a minimum credential-related continuing professional education, which feeds into the 3 year re-certification process. The MITS program must help students prepare for this dynamic work environment. Thus this proposal recommends changes in the Program Map such that a full-time student would complete the degree in 12 months. A comparison of the proposed program map with the current program map is shown below.

**Proposed MITS 1-Year Program
(August 2008)**

Proposed 1-Year Program	Current 2-Year Program
Fall Semester	
<p>Semester I</p> <p>MITS 5110G Legal Issues, Ethics and Incident Handling in IT Security¹ (formerly Law and Ethics of IT Security)</p> <p>MITS 5200G Advanced Communications Network</p> <p>MITS 5500G Cryptography and Secure Communications</p> <p>MITS 5900G MITS Seminar²</p>	<p>Year 1</p> <p>MITS 5100G Law and Ethics of IT Security</p> <p>MITS 5200G Advanced Communication Networks</p> <p>MITS 5300G Operating Systems Security</p> <p>Year 2</p> <p>MITS 6400G Biometrics/ Access Control and Smart Card Technology</p> <p>MITS 6300G IT Security Capstone Research Project I</p> <p>MITS 6600G IT Security Capstone Research Project II [Restricted Enrolment]</p>
Winter Semester	
<p>Semester II</p> <p>MITS 5400G Secure Software Systems³</p> <p>MITS 6400G Biometrics, Access Control and Smart Card Technology</p> <p>MITS 5300G Operating Systems Security</p> <p>MITS 5900G MITS Seminar²</p> <p>MITS 6300G IT Security Capstone Research Project I</p>	<p>Year 1</p> <p>MITS 5400G Secure Software Systems</p> <p>MITS 5500G Cryptography and Secure Communications</p> <p>MITS 56xxG MITS Elective⁴</p> <p>Year 2</p> <p>MITS 6200G eCommerce Infrastructure Security</p> <p>MITS 6500G Incident Handling, Recovery, Policies and Risk Management</p> <p>MITS 6300G IT Security Capstone Research Project I [Restricted Enrolment]</p> <p>MITS 6600G IT Security Capstone Research Project II</p>
Summer Semester	
<p>Semester III (Spring/Summer)</p> <p>MITS 6100G Attack and Defense [Prerequisite: MITS 5200G]</p> <p>MITS 6600G IT Security Capstone Research Project II [MITS 5900G MITS Seminar Presentation]</p>	<p>Year - 1 & 2</p> <p>MITS 6100G Attack and Defense</p> <p>MITS 6300G IT Security Capstone Research Project I</p> <p>MITS 6300G IT Security Capstone Research Project II</p> <p>Elective [Open only to students who have not taken the MITS Elective]</p>

Notes:

1. MITS 5110G Legal Issues, Ethics and Incident Handling of IT Security now incorporates the content of MITS 6500G Incident Handling, Recovery, Policies and Risk Management. MITS 6500G has been removed from the new program. See attached MITS 5100G CAR Form.
2. MITS 5900G MITS Seminar is a new course to be offered in this proposed 1-year program. See attached New Course Proposal Form and CAR Form.
3. MITS 5400G Secure Software System now incorporates the contents of MITS 6200G e-Commerce Infrastructure Security.
4. There will no elective in the new program.

Proposed new admissions requirements:

1. General admissions requirements as stated in UOIT Calendar Section 17.10.3.
2. A four-year bachelor's degree from an accredited institution with an overall undergraduate GPA of at least a B average (3.0 GPA based on a 4.0 scale). The undergraduate degree is preferred to be in the field of information technology, engineering, science or related fields.
3. Submit two letters of reference from persons having direct knowledge of the applicant's professional and academic competence to succeed in the MITS program.
4. At least one course in advanced programming
5. At least one course in advanced mathematics (e.g. discrete math, linear algebra, calculus, etc.)
6. At least one course or proven work experience in operating systems (Windows or/and Unix/Linux)
7. Work experience in IT related jobs is preferred.
8. Full-time students are advised to start the program in the Fall semester.

	Faculty of Business and Information Technology Course Action Request Form
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Course Number	MITS 5110G
Course Title	Legal Issues, Ethics and Incident Handling in IT Security

A. Course Action Request (check all that applies):

<input type="checkbox"/>	New Course
<input type="checkbox"/>	Change of Prerequisite(s)
<input checked="" type="checkbox"/>	Change of course title
<input type="checkbox"/>	Change of course descriptions
<input type="checkbox"/>	Others:

B. Reason(s) for Action:

MITS 5100G Legal Issues, Ethics and Incident Handling of IT Security has now incorporated the contents of the former MITS 6500G Incident Handling, Recovery, Policies and Risk Management. MITS 6500G has been removed from the new program.

C. List the change request (if applicable):

Old	New

Approval:

Curriculum Committee: August 18, 2008

Faculty Council: August 21, 2008

	Faculty of Business and Information Technology Course Action Request Form
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Course Number	MITS 5900G
Course Title	MITS Seminar

A. Course Action Request (check all that applies):

<input checked="" type="checkbox"/>	New Course
<input type="checkbox"/>	Change of Prerequisite(s)
<input type="checkbox"/>	Change of course title
<input type="checkbox"/>	Change of course descriptions
<input type="checkbox"/>	Others:

B. Reason(s) for Action:

This new course is to be offered to all MITS students in the proposed 1-year program.

C. List the change request (if applicable):

Old	New

Approval:

Curriculum Committee: August 18, 2008
 Faculty Council: August 21, 2008

**ACADEMIC COUNCIL
CURRICULUM AND PROGRAM REVIEW COMMITTEE**

NEW COURSE PROPOSAL FORM

Date of Submission: August 18, 2008

Faculty (Indicate if the course is to be cross-listed to another Faculty):

Faculty of Business and Information Technology

Course Number: **MIT5 5900G**

Academic Credit Weight: **3 cr.**

Course Title (the official name of the course as it will appear in the Calendar):

MIT5 Seminar

Brief Course Description:

Students are expected to participate in a series of seminars on current IT security related topics. All students will be required to attend a minimum number of seminars as set forth by the Faculty per semester and to present a seminar on their Capstone research project upon completion. Students are also required to attend the METIS Security Seminar Series (<http://faculty.uoit.ca/vargas/METIS-SSS.html>) as part of the course requirements. This course will carry a Pass/Fail grade.

3 cr. Prerequisites: None

Expanded Course Description:

Students who successfully complete this course will be able to:

- a. understand the research process and engage in in-depth research projects;**
- b. become aware of the various current issues in the field of IT security;**
- c. explore the ever-changing IT security field and be able to adapt to the changes as a life-long learning experience;**
- d. communicate results of a research project to a group of peers, academics and professionals.**

Course Design:

The course website will play an integral role in the delivery of resources for this course: course outline/requirements, seminar schedule, supplementary readings, etc.

Instruction:

1. Planned frequency of offering and number of sections anticipated (every year, alternate years, etc.).
 - a. **To be offered to MITS students.**
 - b. **To be offered every semester.**
2. Number of faculty members currently competent to teach the course:
N/A – The IT Program Director or his/her designate will be the coordinator of this seminar.
3. Instructor(s) likely to teach the course in the coming year.
N/A
4. An indication of the number of contact hours (defined in terms of hours, weeks, etc.) involved, in order to indicate whether an effective length of term is being maintained OR in the absence of scheduled contact hours a detailed breakdown of the estimated time students are likely to spend engaged in learning activities required by the course.
 - a. **14-week (Fall/Winter/Spring semesters)**
 - b. **Various seminar per approval from the coordinator**
5. Sample textbook.
N/A
6. Any resources to be purchased/provided by students.
 - a. **Textbook, reference and resource sources and internet access in preparation of the seminar to be presented by the student.**
 - b. **Use of PowerPoint and other software programs, as required, on laptop computer.**
7. Creator(s) of the proposed course.
Dr. Miguel Vargas Martin and Associate Dean Wilfred Fong
8. Faculty qualifications (academic and experience) to teach the course.
N/A [Seminar presenters will be varied but normally required a postgraduate degree with expertise in IT security.]

Evaluation:

Full attendance of all required seminars culminating with the presentation of the capstone research project.

Bibliography:

N/A

Other Resources:

This course only requires a technology-enhanced classroom with laptop connections, data projector, and internet access. This type of classroom is already existed in our current building. There are no special equipment or lab facilities to support the offering of this course.

Course Rationale:

This is a course to be offered to all MITS students in the proposed 1-year program.

Expected enrollment is 10-15.

Faculty Approval for Cross-Listings:

N/A