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1 MASTER OF SCIENCE IN INFORMATION SECURITY POLICY AND MANAGEMENT (MSISPM) CURRICULUM

Information contained in the MSISPM handbook contains program specific requirements. It is the responsibility of each student to be familiar with the contents in this document as well as Carnegie Mellon University and Heinz College policies and guidelines. The following resources are available to assist you in understanding community expectations:

- The Heinz College Handbook: College-Wide Student Handbook
- Academic Integrity Website: http://www.cmu.edu/academic-integrity

1.1 MSISPM Program Requirements

Students will complete the MSISPM program in four semesters, full-time, at the Pittsburgh, PA campus, taking 48 units per semester. The MSISPM curriculum is structured with required courses, security electives, and general electives.

In order to successfully complete the MSISPM program, students must complete the following:

- 192 units of course credit;
- all required courses (unless you exempt them);
- required summer internship (minimum 10 weeks or 280 hours)
- 30 units of security elective courses;
- 30 units of general elective courses if pursuing the capstone project option or 18 units of general electives if you choose the thesis option; and
- all other standards for graduation, including meeting a minimum grade point average of 3.0.

1.2 Required Courses

The following is a sample schedule with all the required courses students must complete in four academic semesters.

First Semester: (Fall)
90-812 Introduction to Programming with Python\(^1\) 6 units
94-700 Organizational Design & Implementation 6 units
95-710 Economic Analysis 6 units
95-717 Writing for Information Systems Management\(^2\) 6 units
95-752 Introduction to Information Security Management 12 units

\(^1\) Students may choose to take 95-888 (Data Focused Python)
\(^2\) Students may take 94-701 (Business English)
95-760 Decision Making Under Uncertainty  
95-796 Statistics for IT Managers

**Second Semester: (Spring)**

94-806 Privacy in the Digital Age\(^3\)  
95-718 Professional Speaking\(^4\)  
95-719 Accounting and Finance Foundations\(^5\)  
95-723 Managing Disruptive Technologies  
95-748 Software and Security  
95-758 Network and Internet Security  
xx-xxx Security Electives

**Third Semester: (Fall)**

95-744 Cybersecurity Policy and Governance I  
95-743 Cybersecurity Policy and Governance II  
xx-xxx Security Electives  
xx-xxx General Electives

**Fourth Semester: (Spring)**

95-720\(^6\) Capstone Project / Thesis  
95-755 Information Security Risk Management I  
95-749 Cryptography  
xx-xxx General Electives  
xx-xxx Security Electives

During orientation week, in-coming students are provided an opportunity to take up to 3 exemption exams to demonstrate proficiency in a topic that is considered core to the MSISPM program. Upon passing an exam, a student will be granted an exemption from the class(es). A student will be required to select an alternate security or general elective course to replace the exempted course (and corresponding number of units) to reach the 192 units required for graduation. Exemption exams available to MSISPM students:

- 95-710 Economic Analysis (Does not require pre-registration)
- 95-796 Statistics for IT Managers (Does not require pre-registration)
- 95-719 Accounting and Finance Foundations (Requires pre-registration)

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\(^3\) Students may choose to take a more technical class, 95-818 (Privacy Policy, Technology, and Law) or 95-878 (Engineering Privacy in Software)

\(^4\) Students must complete 95-717 and 95-718 prior to the summer internship.

\(^5\) Students are to take 95-719 in the spring semester. Fall offerings are reserved for other MISM programs.

\(^6\) Capstone requirement is satisfied by the Information Security Project or Master Thesis.
1.3 Elective Courses

Students in the MSISPM Program are required to take at least 30 units of security elective courses and at least 30 units of general electives (18 if pursuing the Thesis option). A number of courses offered by the MSISPM Program and the Heinz College will satisfy this requirement. Some of the courses are listed below. In addition, the School of Computer Science, and other Carnegie Mellon departments offer courses that may satisfy general electives requirement. Check with your advisor before registering for a course from another academic department if you wish that serve as an elective. Only graduate-level courses, those with a course number greater than 700, will satisfy the security and general elective requirements.

1.3.1 (Sample) Security Electives

- 95-702 Distributed Systems 12 units
- 95-736 Advanced Relational Database Management 6 units
- 95-756 Information Security Risk Management II 6 units
- 95-757 Information Security Policy & Management 6 units
- 95-759 Malicious Code Analysis 6 units
- 95-855 Network Situational Awareness 12 units
- 95-883 Ethical Penetration Testing 6 units
- 95-884 Network Defenses 6 units
- 95-889 Applied Threat Analytics 12 Units

1.3.2 (Sample) General Electives

- 94-800 Negotiation 6 units
- 94-801 Acting for Management 6 units
- 94-802 Geographic Information Systems 12 units
- 94-823 Measurement & Analysis Social Media Initiatives 12 units
- 94-832 Business Intelligence & Data Mining SAS 6 units
- 94-840 Lean Entrepreneurship 6 units
- 95-702 Distributed Systems for IS Management 12 units
- 95-703 Database Management 12 units
- 95-705 Telecommunications Management 12 units
- 95-712 Object Oriented Programming in JAVA 12 units
- 95-722 Digital Transformation 6 units
- 95-729 E-Commerce Tech, Analytics, and Bots 6 units
- 95-733 Internet of Things 6 units
- 95-737 NoSQL Database Management 6 units
- 95-771 Data Structures and Algorithms 12 units
- 95-775 IT Business Leadership 6 units
- 95-791 Data Mining 6 units
2 INTERNSHIP REQUIREMENT

MSISPM students are required to pursue an internship, to be completed during the summer between their first and second years. Minimally, the internship is ten weeks (or 280 hours) of full-time employment that has formal supervision, is professional in nature, includes work that is of importance to the organization, and has significant educational value.

Before beginning the internship, students must complete the online Career Services Internship Reporting Form for approval.

The internship will be verified with the students’ supervisors and then approved. Students must notify their Academic Advisor and Heinz Career Services of any significant changes in their internships, such as length, location, hours of work, etc.

Once the internship has been approved, students will be registered for the zero-unit internship course. Students will not receive academic credit for the internship, but it will be reflected on their transcript as a course with P/F grade. If a student plans to exempt the internship, they will need to complete the Petition for Course Exemption form. Near the end of the internship, the Career Services Office will request supervisors to complete a Student Performance Evaluation Form.

At the end of your internship your Career Services Advisor will request that your supervisor complete an evaluation form about your internship performance. You are also required to complete an evaluation survey as well as a self-reflection statement describing how your internship fulfilled the educational goals of the program. If you do not successfully complete an eligible internship along with your survey and self-evaluation, you will not fulfill your internship requirement necessary for graduation.

Students are required to complete 95-717 Writing for Information Systems Management and 95-718 Professional Speaking prior to enrolling in the internship.

F1 Visa Students: You must apply for Curricular Practical Training (CPT) employment authorization for your summer internship. CPT authorization is required regardless of the

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7 A (possible) reason for exemption is when a student is on a sabbatical from an organization to pursue a master’s degree and they will return to that organization after graduation.
internship being paid or unpaid. CPT is only available to F-1 students who have not graduated and who have been enrolled on a full-time basis for one full academic year (i.e. fall and spring.) If your degree program requires you to complete a summer internship, you can qualify for CPT. Processing CPT may take up to 2 weeks and you cannot begin employment until you receive authorization. Guidelines, forms and instructions can be found at the Office of International Education’s website.

2.1 Securing an Internship

Students are responsible for securing a suitable internship. Career Services will provide assistance through counseling, workshops on resume preparation and interview skills, and listings of potential internships. Students can make an appointment to discuss their situation and are encouraged to come to workshops that cover the essential skills for finding the right internship.

3 CAPSTONE PROJECT / THESIS

The MSISPM Project or Thesis is designed to capture the essence of knowledge gained by the students from the coursework and apply it towards research or new application initiatives. The project or thesis should be on a topic in an area of research or application that is interesting and relevant to information security. Research may include working on existing projects, designing new areas of research, or assisting faculty with their current research.

A MSISPM Project will consist of a group of 4 or more students working on a security related problem. Projects are held during the final semester of study and are subject to approval from the Associate Dean and Program Director. Students can work with:

- A Carnegie Mellon faculty member on his/her research interests related to security
- A vendor of security related products sponsored/advised by a faculty member
- Or, an outside firm be it consulting, government or any other organization working on a security related problem sponsored/advised by a faculty member

A MSISPM Thesis will consist of a student working by himself/herself on research related topics with sponsorship from a Carnegie Mellon faculty member. A thesis can be taken during the Fall, Spring, or Summer semesters. It is the responsibility of the student to complete required paperwork, receive approval of thesis topic, and obtain a faculty advisor.

4 NUMBER OF UNITS PER SEMESTER

Students typically take between 48 – 54 units per semester, with a maximum of 54 units per semester. If students are interested in taking an excess of 54 units, then they need to petition the Program Director by completing the Online General Petition Form.

5 SUMMER COURSES
Students who are completing their internship in Pittsburgh during the summer semester are permitted to take one, in-person (non-distance) Heinz College course, either 6 units or 12 units. Prior to enrolling in the course, please obtain approval from the Program Director, and after enrollment, please inform the Program Director to ensure proper crediting of your student bill for the summer tuition. There is no additional cost to take the one course during the summer semester.

6 ACADEMIC POLICIES

6.1 Adding / Dropping Courses

Students may choose to add or drop a course after the beginning of the semester. Please note that the add/drop deadline for mini courses (6 units) is 5 days after the beginning of the semester and 10 days after the beginning of the semester for a full-semester (12 units) course. You must obtain approval from your faculty advisor prior to adding or dropping a core course for the MSISPM program. Additions or dropping of classes after the posted deadlines must be approved by the program director and are generally not permitted except under extenuating circumstances. A General Petition Form (Count course as selective, late add/drop a course, increase in units) is available on the Heinz Website.

6.2 Independent Study

Twelve (12) units of an independent study that will count towards the 192 units required for graduation are permitted, but must be approved by the program director prior to enrolling. It is the responsibility of the student to identify a faculty member to supervise the independent study and submit an Independent Study Contract, available on the Heinz Website.

6.3 Pass / Fail

Twelve (12) units of courses may be taken with a grading option of Pass / Fail that may count towards the 192 units required for graduation. These courses will not impact the QPA of the student and ONLY elective courses are eligible. A separate request is to be made for each course by completing the “Request for P/F” form to be reviewed and approved by the program director. Failure to submit the P/F for will result in the course being taken for a grade rather than P/F. It is suggested that students consider taking P/F courses during their busiest semester.

6.4 Audits

Students are permitted to audit courses and any non-core or elective course is eligible. Courses that are taken with the audit option do not count towards the 192 units required to graduate and require approval from the course instructor. Students must request approval from the program director by completing the “Petition to Audit a Heinz College Course” form. Failure to
obtain approval from the course instructor and program director will result in the course being taken with a grade option. Courses approved for audit will not affect a student’s QPA.

6.5 Receiving an Incomplete

If extenuating circumstances beyond a student’s control prevent them from completing all requirements for a course by the end of the semester, a student may ask the instructor for permission to take an incomplete and complete the work after the semester. Students should submit a signed contract **BEFORE** the end of the semester and must complete the work by the end of the following semester. Failure to do so will result in the student receiving the default grade for the course.

6.6 Course Approval for non-ISM Courses

Students may take courses elsewhere on campus as elective courses (security or general) but may not request that a non-Heinz course replace any of the core-MSISPM courses. Students must obtain approval from the program director prior to registering for the course by completing and submitting the “General Petition Form”. Most, but not all, graduate courses will be approved, provided the course meets the criteria for a security or general elective.

7 CONTACT INFORMATION

<table>
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8 STATEMENT OF ASSURANCE

Carnegie Mellon University does not discriminate in admission, employment, or administration of its programs or activities on the basis of race, color, national origin, sex, handicap or disability, age, sexual orientation, gender identity, religion, creed, ancestry, belief, veteran status, or genetic information. Furthermore, Carnegie Mellon University does not discriminate and is required not to discriminate in violation of federal, state, or local laws or executive orders.

Inquiries concerning the application of and compliance with this statement should be directed to the Vice President for Campus Affairs, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213, telephone 412-268-2056.


The Statement of Assurance can also be found online at: [http://www.cmu.edu/policies/documents/SoA.html](http://www.cmu.edu/policies/documents/SoA.html)