Master of Science in Information Systems Security Degree Plan

The Master of Science in Information Systems Security is a hands-on program designed specifically to prepare individuals for responsible leadership roles in the technology based and information based workplaces. Designed for working professionals, this two-year program connects theory and experiential learning to equip technology professionals with the skills to assess the security needs of information systems and then to lead and manage the implementation and maintenance of the recommended security solutions.

This PMI recognized program includes key management skills within the project management framework. In addition, this program is coupled with the Center for Information Security Research and Education which allows students the opportunity to engage in state of the art applied research. This program is also recognized under the National Security Agency/Department of Homeland Security Center of Academic Excellence in Information Assurance Education program, specifically: CNS 4011, 4014e and 4016e.

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<th>M.S. Information Systems Security (36 hours)</th>
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<td>Specialization Courses (12 hours) Hours (12)</td>
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<td>CIS 6321: Introduction to Information Security</td>
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<td>CIS 6322: Secure Enterprise Computing</td>
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<td>CIS 6323: Cryptography and Information Security</td>
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<td>CIS 6324: Information Systems Security Risk Analysis</td>
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<td>Required Courses (12 hours) Hours (12)</td>
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<td>TEPM 6301: Project Management Principles</td>
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<td>TEPM 6302: Project Leadership and Team Building</td>
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<td>TEPM 6303: Risk Assessment in Project Management</td>
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<td>TEPM 6304: Quality Improvement in Project Management</td>
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<td>Electives (6 hours) Hours (6)</td>
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<td>Research: Choose Thesis (6 hours) or Project (6 hours) Hours (6)</td>
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<td>Thesis Option (6 hours) CIS 6399 (6 credits)</td>
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<td>Project Option (6 hours) TEPM 6391: Project Management Seminar TEPM 6395: Integration Project</td>
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Course Descriptions for Technology Project Management (TEPM) courses:

6301: Project Management Principles  
Cr. 3. (3-0). Prerequisite: Technical undergraduate degree or consent of graduate faculty advisor. Overview of project management for technology-intensive workplaces. The basic tools of project management, including breakdown structure, scheduling, contracting, earned value analysis, and risk management, are described, as well as the elements that are critical to a technical project’s success.

6302: Project Leadership and Team Building  
Cr. 3. (3-0). Prerequisite: TEPM 6301 or approval of graduate faculty advisor. Dynamics of project leadership from the individual, team, and organizational perspective in achieving improved performance in the information- or technology-based workplace.

6303: Risk Assessment in Project Management  
Cr. 3. (3-0). Prerequisite: TEPM 6301 or consent of graduate faculty advisor. Overview of the basic components of risk as they pertain to technical projects: risk identification, risk impact analysis, risk response planning, mitigating risk, and risk management techniques.

6304: Quality Improvement in Project Management  
Cr. 3. (3-0). Prerequisite: TMTH 3360 or equivalent. Conducting quality management projects in production and service operations. Concepts, methodologies, and statistical analysis tools of quality improvement, including quality theory, standards, design, control, and assurance.

6305: Project Manager Tools  
Cr. 3. (3-0). Pre- or Co-requisite: TEPM 6301 or consent of graduate faculty advisor. Understanding the technology and methodology that supports project management activities.

6306: Project Manager Office (PMO)  
Cr. 3. (3-0). Prerequisite: TEPM 6301 or consent of graduate faculty advisor. Defining needs and requirements to formulate and maintain a PMO, including its purpose, structure, and resources.

6391: Project Management Seminar  
Cr. 3. (3-0). Prerequisite: Permission of the graduate faculty advisor. Students demonstrate their ability to complete a major project that identifies and resolves an important technology or technology leadership issues.

6395: Integration Project  
Cr. 3. (3-0). Prerequisite: TEPM 6391 and permission of the graduate faculty advisor. Students demonstrate their ability to structure and complete an integrative project that draws upon the skills developed in the project management common core courses and the student's specialization. Students report the results of their efforts in written and oral form.

Course Descriptions for Information Systems Security (CIS) courses:

6315: Advanced Information Systems Applications  
Cr. 3. (3-0). Prerequisite: Graduate standing. Advanced concepts and computer-based applications that are integral to office information systems.

6321: Introduction to Information Systems Security  
Cr. 3. (3-0). Prerequisite: Graduate standing. Overview of information systems security issues for technology professionals from an applied perspective.

6322: Secure Enterprise Computing  
Cr. 3. (3-0). Prerequisite: CIS 6321 or consent of graduate faculty advisor. Enterprise security administration for technology professionals through server operating systems architecture and configuration; hands-on experience with UNIX and Windows operating systems.

6323: Cryptography and Information Systems Security  
Cr. 3. (3-0). Prerequisite: CIS 6321 or consent of graduate faculty advisor. Practical issues in cryptography, including examples of current historical cryptography systems; major types of cryptosystems and cryptanalytic techniques, and how they operate; hands-on experience with current cryptographic technology.

6324: Information Systems Security Risk Analysis  
Cr. 3. (3-0). Prerequisite: CIS 6322 or CIS 6323 or consent of graduate faculty advisor. This course focuses on the organizational issues of risk analysis in the legal context of the Internet. Organizational problems involving reliability, safety, security, privacy, and human well-being are addressed.

6337: Digital Forensics  
Cr. 3. (3-0). Prerequisite: CIS 6321 or consent of graduate faculty advisor. Explores the realm of digital forensics, including media analysis, data reconstruction, network forensics and the legal issues surrounding the use of forensic data.

6355: Applications of Expert Systems  
Cr. 3. (3-0). Prerequisite: Graduate standing and consent of instructor. Applications, functions, and impact of expert systems on industry.

6357: Control Systems Security  
Cr. 3. (3-0). Prerequisite: CIS 6321. Application of security principles to industrial control systems and their networks. Hands-on laboratory exercises with SCADA devices.

6358: Secure Software Design  
Cr. 3. (3-0). Prerequisite: CIS 6321. Examines the management of software engineering process with an emphasis on security, including common bugs and tools to prevent them in a secure development process.

6359: Penetration Testing  
Cr. 3. (3-0). Prerequisite: CIS 6321, CIS 6322, CIS 6323. Application of tools, techniques, and procedures to perform penetration testing on networks and applications.

6380: Strategic Planning for Technology  
Cr. 3. (3-0). Prerequisite: Graduate standing and consent of instructor. Review of planning fundamentals, strategies for effective and efficient planning at various organizational levels, issues, challenges, and career planning for supervisors.

6390: Current Issues on Information Systems  
Cr. 3. (3-0). Prerequisite: Graduate standing and consent of instructor. May be repeated for credit with topics vary.

6396: Internship in Information Security  
Cr. 3. (3-0). Prerequisite: At least 12 hours in the MS/ISS program and prior written approval of the graduate faculty advisor. Information Systems Security internship in a public or private organization. May be repeated for credit.

6399: Master’s Thesis  
Cr. 3. (3-0). Prerequisite: Permission of the graduate faculty advisor. May be repeated for a total of six (6) semester hours credit.

REV. 05/13