



Master of Science in Information Systems Engineering

You want to learn the most current information on wireless, broadband, and optical networking. You're interested in the software that meets a company's confidentiality needs. In short, you're the perfect candidate for an MS in Information Systems Engineering, a degree program that will move you beyond technical issues into leadership roles. An advanced technical background is required for admission to this program, either through an undergraduate degree or professional training.

Undergraduate Prerequisites – 9 credits

(Credits not applied toward degree requirements)

IT 316 Analysis and Design of Information Systems

IT 317 Fundamentals of Programming in a Web Context*

*Prerequisite: IT 330

IT 307 JAVA Programming*

*Prerequisite: IT 317

Common Core Requirements – 9 credits

MS Core Requirements – 15 credits

Major Requirements - 15 credits

Credits Required for Degree: 39

Major Course Descriptions

IT 643 Telecommunication/Satellite Systems Engineering

This course provides students with a global perspective on telecommunications technologies and worldwide standards. The course covers the basic building blocks and introduces the most current information on new technologies such as wireless, broadband, and optical networking. The emerging field of mobile technology will receive particular attention with respect to competing protocols, services, and providers. The student will create a business/technology network-oriented plan to support a particular organizational strategy.

IT 650 Software Engineering Methodology

Upon completion of the course, students will be able to competently design and implement medium-sized software projects from specifications. Students will learn to apply key principles of software engineering to all software that they author so that it is correct, efficient, modular, reusable, structured, and well

documented. This subject looks at formal methods and approaches to the construction of modern computer software. Topics covered include software tools, object-oriented design, object-oriented programming process and project management issues.

IT 660 Security Systems Engineering

This course focuses on engineering the security tools that can be integrated into the systems software, applications software, and communications software to meet the various levels of confidentiality required by business security requirements. Also emphasized is the engineering of hardware/technology to meet physical data security requirements.

IT 670 Project Verification and Validation*

The purpose of this course is to verify and validate a product. This course will prepare students to plan and execute the project verification and validation process through familiarization with project management, testing tools, metrics, and documentation. Future trends in the use of independent verification and validation of IT projects will also be discussed.

*Prerequisite: IT 650

IT 680 Intrusion Detection and Analysis: Security Beyond the Firewall*

The purpose of this course is to examine enterprise security needs and suggest necessary security procedures. This course introduces students to Internet protocol concepts and Internet protocol behaviors. It also teaches students the fundamentals of network traffic analysis and the use of intrusion detection system tools to recognize normal vs. abnormal network behavior and respond to exploits and scams. Additionally, categories of Internet attacks and network intelligence procedures will be covered. Future trends in network security and intrusion detection will also be explored. The student will experience hands-on illustrations of some of these security defenses.

*Prerequisite: IT 660