

ITM SECURITY (ITMS)

ITMS 418

Coding Security

This course examines security architecture elements within modern object oriented programming languages that create the framework for secure programming. Analysis of components and services with their inherent strength and weaknesses give rise to common coding security challenges. An exploration of identity management, encryption services and common hacking techniques will enable the student's ability to develop secure code. Homework assignments and projects will reinforce theories taught.

Prerequisite(s): ITMD 411

Lecture: 3 **Lab:** 0 **Credits:** 3

ITMS 428

Database Security

Students will engage in an in-depth examination of topics in data security including security considerations in applications and systems development, encryption methods, cryptography law and security architecture and models.

Prerequisite(s): ITMD 421

Lecture: 3 **Lab:** 0 **Credits:** 3

ITMS 438

Cyber Forensics

This course will address methods to properly conduct a computer and/or network forensics investigation including digital evidence collection and evaluation and legal issues involved in network forensics. Technical issues in acquiring court admissible chains-of-evidence using various forensic tools that reconstruct criminally liable actions at the physical and logical levels are also addressed. Technical topics covered include detailed analysis of hard disks, files systems (including FAT, NTFS, and EXT) and removable storage media; mechanisms for hiding and detecting hidden information; and the hands-on use of powerful forensic analysis tools.

Prerequisite(s): ITMO 356 and ITMS 448

Lecture: 3 **Lab:** 0 **Credits:** 3

ITMS 443

Vulnerability Analysis and Control

This course addresses hands-on ethical hacking, penetration testing, and detection of malicious probes and their prevention. It provides students with in-depth theoretical and practical knowledge of the vulnerabilities of networks of computers including the networks themselves, operating systems, and important applications. Integrated with the lectures are laboratories focusing on the use of open source and freeware tools; students will learn in a closed environment to probe, penetrate, and hack other networks.

Prerequisite(s): ITMO 356 and ITMO 340

Lecture: 3 **Lab:** 0 **Credits:** 3

ITMS 446

Active Cyber Defense

This course covers the duties of cybersecurity analysts who are responsible for monitoring and detecting security incidents in information systems and networks, and for executing a proper response to such incidents. The course introduces tools and tactics to manage cybersecurity risks, identify various types of common threats, evaluate the organization's security, collect and analyze cybersecurity intelligence, and handle incidents as they occur.

Prerequisite(s): ITMO 340 or CS 542 with min. grade of C or CS 544 with min. grade of C or ECE 407 or ECE 408

Lecture: 2 **Lab:** 2 **Credits:** 3

ITMS 448

Cyber Security Technologies

Prepares students for a role as a network security analyst and administrator. Topics include viruses, worms, and other attack mechanisms, vulnerabilities, and countermeasures; network security protocols, encryption, identity and authentication, scanning, firewalls, security tools, and organizations addressing security. A component of this course is a self-contained team project that, if the student wishes, can be extended into a fully operational security system in a subsequent course.

Prerequisite(s): ITMO 340 or ITMO 540 with min. grade of C

Lecture: 2 **Lab:** 2 **Credits:** 3

Satisfies: Communications (C)

ITMS 458

Operating System Security

This course will address theoretical concepts of operating system security, security architectures of current operating systems, and details of security implementation using best practices to configure operating systems to industry security standards. Server configuration, system-level firewalls, file system security, logging, anti-virus and anti-spyware measures and other operating system security strategies will be examined.

Prerequisite(s): ITMO 356

Lecture: 2 **Lab:** 2 **Credits:** 3

ITMS 464

Cloud Computing Security

Students will learn how to effectively secure cloud-based services and infrastructure in an enterprise setting. Areas addressed will include de-sign principles of secure cloud computing, data security, platform and infrastructure security, application security and the Secure Software Development Life Cycle (SDLC) and DevSecOps processes, and security operations. The course will cover legal, risk, and compliance aspects of cloud computing, all in the context of a set of industry-standard learning domains.

Prerequisite(s): ITMO 444

Lecture: 3 **Lab:** 0 **Credits:** 3

ITMS 478

Cyber Security Management

In-depth examination of topics in the management of information technology security including access control systems and methodology, business continuity and disaster recovery planning, legal issues in information system security, ethics, computer operations security, physical security and security architecture & models using current standards and models.

Lecture: 3 Lab: 0 Credits: 3

Satisfies: Communications (C)

ITMS 479

Topics in Information Security

This course will cover a particular topic in Information Security, varying from semester to semester, in which there is particular student or staff interest. This course may be taken more than once but only 9 hours of ITMS 479/579 credit may be applied to a degree.

Credit: Variable

ITMS 483

Digital Evidence

In this course, students learn the fundamental principles and concepts in the conduct of investigations in the digital realm. Students will learn the process and methods of obtaining, preserving and presenting digital information for use as evidence in civil, criminal, or administrative cases. Topics include legal concepts and terminology, ethics, computer crime, investigative procedures, chain of custody, digital evidence controls, processing crime and incident scenes, data acquisition, e-mail Investigations, applicable case law, and appearance as an expert witness in a judicial or administrative proceeding.

Prerequisite(s): ITMS 438

Lecture: 3 Lab: 0 Credits: 3

ITMS 484

Governance, Risk, and Compliance

This course is an in-depth examination of topics in information technology/information security governance, risk, and compliance including information assurance policies, standards, and compliance as well as the examination of security risk analysis and the performance of systems certification and accreditation.

Lecture: 3 Lab: 0 Credits: 3