ISTM - INFORMATION SYSTEMS AND TECHNOLOGY MANAGEMENT

ISTM100A Preparation For An Education in I.T. and Cybersecurity 1 ★
Credit 1 Fall

Registration Requirement: Co-Requisite: ISTM183C or ISTM183A or ISTM183B or Instructor consent.
This course is part of a three-course series that prepares students to meet the demanding nature of pursuing an education in the fields of information technology and cybersecurity. This series focuses on essential concepts and skills needed for academic success throughout the cybersecurity (ISTM) and computer information systems (CIS) programs. Students are given explicit support in their ISTM and CIS courses, while learning effective study, reading, and notetaking skills as it pertains to their technology related coursework. In ISTM100A students are introduced to college services and resources, college policies and procedures, time management concepts, different learning strategies, and are introduced to peer groups.

ISTM100B Preparation For An Education in I.T. and Cybersecurity 2 ★
Credit 1 Winter

Registration Requirement: Co-Requisite: ISTM183C OR ISTM183A OR ISTM183B OR instructor consent.
This course is part of a three-course series prepares students to meet the demanding nature of pursuing an education in the fields of information technology and cybersecurity. This series focuses on essential concepts and skills needed for academic success throughout the cybersecurity (ISTM) and computer information systems (CIS) programs. In ISTM100B students are reintroduced to concepts presented in ISTM100A along with test-taking skills and strategies needed to prepare for industry-level certification exams required in the field of information technology and cybersecurity. Also introduced are various troubleshooting tips and techniques used in the technology industry.

ISTM100C Preparation For An Education in I.T. and Cybersecurity 3 ★
Credit 1 Spring

Registration Requirement: Co-Requisite: ISTM183C OR ISTM183A OR ISTM183B OR instructor consent.
This course is part of a three-course series to prepare students to meet the demanding nature of pursuing an education in the fields of information technology and cybersecurity. This series focuses on essential concepts and skills needed for academic success throughout the cybersecurity (ISTM) and computer information systems (CIS) programs. In ISTM100C students are reintroduced to concepts presented in both ISTM100A and ISTM100B. Students also form meaningful and structured academic peer groups in preparation for cybersecurity competitions.

ISTM133P Introduction to Python ★
Credits 4 Summer/Fall/Winter

Registration Requirement: RD090 and WR090, or IECC201R and IECC201W; and MTH020; each with a grade of "C" or better, or placement above stated course levels.
An introduction to Python programming for majors and non-majors. Emphasizes the importance of program design as part of the software development life cycle. Provides examples of well-designed software projects and introduces the student to effective design techniques. Students are expected to design small programming projects and implement the designs in the Python programming language. Structured program construction techniques, object orientation, data validation and user interface issues are explored as part of introduction to a high-level scripting language.

ISTM140L Preparation for Linux ★
Credits 4 Winter/Spring

Registration Requirement: RD090 and WR090, or IECC201R and IECC201W; and MTH020; each with a grade of "C" or better, or placement above stated course levels. Participation in this class is recommended before starting second-year cyber security training.
This course introduces students to the fundamentals concepts of the Linux operating system. This course serves two purposes: to introduce students to the Linux environment and build functional skills around command-line interfaces, and introduces students to Linux server and system administration concepts. The current version of this class focuses on Red Hat Enterprise Linux 8 (and preparation for the RHSCA exam). However, the skills developed in this course can be transferred to other Linux distributions as well.
Additional Course Fee: $35.00

ISTM151N Preparation for Network+
Credits 4 Fall/Spring

Registration Requirement: None. Basic computer literacy is recommended.
This class prepares students for the current version of the CompTIA Network+ certification exam. Training in this class is designed toward acquiring basic understanding and skills necessary to provide general networking support for a technician working in a general business environment. Students will leave with basic understanding of how networks are built and operate, and will have some experience with basic network analysis tools. Students are exposed to the concept of potential vulnerabilities in a network. Most contents of this class align with the CAE Core Knowledge Unit 'Basic Networking'.

ISTM171 Introduction to Cloud and Virtualization Technologies ★
Credits 3 Spring

Registration Requirement: RD090, WR090, and MTH020 with a "C" grade or better.
This course will introduce students to the foundational principals of cloud and virtualization technology. Students will get access to real cloud computing platforms, and build and manage cloud infrastructure. Students will also learn the foundational of virtualization technologies, and the infrastructure of virtualized systems. This course will help to prepare students for industry certifications involving cloud and virtualization technologies.

ISTM183A Preparation for A+ Essentials
Credits 3 Fall/Winter

Registration Requirement: RD090 and WR090, or IECC201R and IECC201W; and MTH020; each with a grade of "C" or better, or placement above stated course levels.
Students in this class receive training in the material appropriate to prepare for the CompTIA A+ Essential certification. Topics in this class include PC system components, storage devices, mobile computers, printer installation and configuration, operating systems features and interfaces, troubleshooting theory and preventative maintenance, as well as other topics leading to computer competency. Students are strongly encouraged to complete ISTM183A before enrolling in ISTM183B. However; co-enrollment or reverse ordering is permitted.

ISTM183B Preparation for A+ Practical Application ★
Credits 3 Winter/Spring

Registration Requirement: ISTM183A; or CompTIA Essentials Certification (220-901).
Students in this class will receive training in the material appropriate to prepare for the CompTIA A+ Practical Application certification (presently 220-902). Topics in this class include basic networking, networking security fundamentals, basic network installation, operational procedures, installation and maintenance of various computer components, resolving printer problems, system structures and commands, system security and fundamental CyberSecurity concepts. Students are strongly encouraged to complete ISTM183A before enrolling in ISTM183B. However; co-enrollment or reverse ordering is permitted.

ISTM183C Fundamentals of CyberSecurity
Credits 3 Fall/Winter

Registration Requirement: RD090 and WR090, or IECC201R and IECC201W; and MTH020; each with a grade of "C" or better, or placement above stated course levels.
This course focuses on introducing students to the critical concepts and principals that surround cyber security. The primary purpose of this course functions as a survey of major topics in the cybersecurity field, but also introduces a range of interrelated industry vocabulary, tools, frameworks, and methodologies. This class should be taken prior to any 200-level security courses.
Additional Course Fee: $35.00

ISTM189 Wireless Security ★
Credits 3 Fall

Registration Requirement: RD090, WR090, and MTH020 with a "C" or better. CIS151 preferred, but not required.
This course focuses on securing wireless networks through encryption, analysis, and performance-based metrics. Students will be able to configure and troubleshoot wireless network systems with specific configuration needs determined by the activity.
Additional Course Fee: $35.00

ISTM197IIT Internet Infrastructure and Technologies ★
Credits 3 Summer/Spring

Registration Requirement: RD090 and WR090, or IECC201R and IECC201W, with a grade of "C" or higher; and MTH020 or higher; or placement above stated levels. Recommended requisite: Programming language experience recommended but not required.
The purpose of this course is to introduce students to the fundamental infrastructure that powers the Internet. It focuses on both the physical and logical infrastructure that the Internet relies on. Students examine major programming languages used to develop web applications and, by the end of the course, are able to develop small web applications. Various protocols that powers the Internet, as well as other peripheral technologies that impact the overall experience of using and maintaining the Internet are covered. This is a not a web development course, rather, it focuses on the underlying infrastructure that powers the internet.

ISTM233P Python for Cyber Security ★
Credits 4 Winter/Spring

Registration Requirement: ISTM133P, CIS122 (if less than 5 years old), or instructor consent.
This class introduces students to intermediate Python programming skills utilizing a variety of cyber security related activities and techniques. Utilizing Python programs and libraries in a virtualized "sandbox" environment, students will create Python programs to scan network vulnerabilities, perform cryptography, perform password cracking, and more. Students participating in this class must sign an MHCC "White Hat Agreement".

ISTM235MA Mobile Apps 1: Introduction to iOS Mobile Applications Development
Credits 3 Winter

This class forwards the student into the creation of several intermediate level mobile applications and a class project of their own design. Topics in this class include working with lists, creating assets, and creating simple games. Students will design and create their own project using Apple oriented design techniques. Finished projects will be presented to the class. Much of the curriculum for this training is provided by Apple Corporation designed for Career Technical preparation.
Additional Course Fee: $20.00

ISTM235MB Mobile Apps 2: Intermediate iOS Mobile Applications Development
Credits 3 Spring

Registration Requirement: Completion of ISTM235MA with a grade of "C" or better; OR, demonstrated prior programming skills or experience using Swift.
This class forwards the student into the creation of several intermediate level mobile applications and a class project of their own design. Topics in this class include working with lists, creating assets, and creating simple games. Students will design and create their own project using Apple oriented design techniques. Finished projects will be presented to the class. Much of the curriculum for this training is provided by Apple Corporation designed for Career Technical preparation.
Additional Course Fee: $20.00

ISTM283A Fundamentals of Disaster Recovery and Business Continuity ★

Credits 3 Winter

Students in this class receive instruction and lab assignments on Incident Response (IR), Disaster Recovery (DR) and Business Continuity (BC) which are directed to the creation of fundamental protocols necessary for the recovery and continuity of a business in the event of a severe cyber failure, disaster or attack. Students will be exposed to various laws applicable to cyber security breeches and how to maintain compliance to said laws. Students will be exposed to basic risk assessment techniques appropriate for designing a cyber security policy and procedures manual. Some outcomes of this class map to NIST/CAE Knowledge Units Cybersecurity Foundations (CSF), and IT Systems Components (ISC).

ISTM283B Firewall Implementation

Credits 3 Winter

Registration Requirement: Recommended: ISTM183C, AND; ISTM151N OR CIS151; OR Instructor Approval

This course provides the student with a general understanding of how to install, configure, and manage firewalls for defense of enterprise network architecture. Students will: learn the theory and configuration steps for setting up the security, networking, threat prevention, logging, and reporting features of next generation firewall technologies; learn the nature and scope of today's cybersecurity challenges, strategies for network defense, as well as detailed information about next-generation cybersecurity solutions; deploy a variety of security methodologies as well as technologies and concepts used for implementing a secure network environment. Components of this class map to CAE KUs Network Defense and Cybersecurity Foundations.

Additional Course Fee: $35.00

ISTM283CC Cyber Competition

Credits 3 Fall

Registration Requirement: RD090 and WR090, or IECC201R and IECC201W; and MTH020; each with a grade of "C" or better, or placement above stated course levels.

This course introduces students to capture-the-flag (CTF) cyber competitions, and teaches students who to pull their knowledge from other courses to solve cyber-related puzzles. This course will demand that students test their knowledge of various security domains, their problem solving skills, and learn a range of ethical hacking and reverse engineering tools to overcome the presented challenges. The current iteration of this course will have students competing in the National Cyber League (NCL) during the fall season. For student success, students should have taken ISTM140L, CIS122, and ISTM183C.

Additional Course Fee: $60.00

ISTM283CO1 Cyber Operations 1

Credits 3 Winter

Registration Requirement: Corequisite: CIS153

Cyber Ops 1 introduces the core security concepts and skills needed to monitor, detect, analyze and respond to cybersecurity issues facing an organization. This course will emphasize the practical application of skills needed to maintain and ensure security operational readiness of secure networked systems. The skills developed in the curriculum prepares students for a career as Security Op Center analyst or Incident Responder.

Additional Course Fee: $35.00

ISTM283CO2 Cyber Operations 2

Credits 3 Spring

Registration Requirement: ISTM283CO1

Cyber Ops 2 takes the student deeper into the practical application of skills needed to maintain and ensure security operational readiness of secure networked systems. The skills developed in the curriculum prepares students for a national cyber competition.

Additional Course Fee: $35.00

ISTM283F Practical Digital Forensics

Credits 3 Spring

Registration Requirement: RD090 and WR090, or IECC201R and IECC201W; and MTH020; each with a grade of "C" or better, or placement above stated course levels.

This intermediate level course presents digital forensics instruction from a systems security perspective using a variety of software. Students participating in this class will use a variety of digital forensics tools; and are exposed to drive image making, working with various PC and Mobile device hardware, and investigations of files and documents. Investigative techniques practiced in this class are performed in a secure environment.

Additional Course Fee: $35.00

ISTM284E Ethical Hacking

Credits 3 Winter

Registration Requirement: ISTM183C and ISTM140L or equivalent knowledge. Instructor approval required to override these .

This class demonstrates the ethical use of various "white hat" cyber penetration testing tools and techniques consistent with Ethical Hacking training. Network tools and techniques take place in an enclosed "sandbox" environment. Students are exposed to various computer hacking skills and analyze various protective measures and their effectiveness.

Additional Course Fee: $35.00

ISTM285E Advanced Ethical Hacking

Credits 3 Spring

Registration Requirement: ISTM284E and MTH060 with a "C" grade or higher.

This advanced course will build upon students understanding of ethical hacking and penetration testing concepts. Students will understand and know how to look for weaknesses and vulnerabilities in target systems and use the same knowledge and tools as a malicious hacker, but in a lawful and legitimate manner to assess the security posture of a target system(s). Objectives of this class will directly related to DoD recognized certification exams.

ISTM285W Web Application Penetration Testing
Credits 3 Spring

Registration Requirement: RD090 and WR090, or IECC201R and IECC201W; and MTH060; each with a grade of "C" or better, or placement above stated course levels.
This course will focus on understanding common vulnerabilities in modern web applications. Students will learn how to enumerate and scan a web application, discover vulnerabilities, and craft exploits to launch against the application. Students will also learn the basics of how to secure web applications and how to document their findings.

ISTM300 Issues in Cybersecurity ★
Credits 4 Fall

Registration Requirement: Co-requisite: ISTM284E.
This cyber survey class is designed to prepare students with either existing IS, IT, or Cybersecurity AAS degree, or with equivalent IT industry experience, or returning student with advanced degree, to get foundational training on current cyber topics allowing successful entry into the Cybersecurity BAS program. An Associate Degree or better in any field OR at least 2 years experience in Cybersecurity, Information/ Computer Information Systems, Computer Science, Information Technology or equivalent fields is highly recommended.

ISTM310 Cyber Defense Strategies ★
Credits 3 Fall

Registration Requirement: Co-requisite: ISTM284E.
This class establishes common defense strategy concepts and designs. Students will learn the basics of hardening an IT environment, implement monitoring and alerting tools across a network, and also conduct basic threat hunting activities. Students will develop a rudimentary Security Operations Center (SOC) as well as work with a Security Information and Event Management (SIEM) platform. Independent lab work is required. An Associate Degree or better in any field AND at least 2 years experience in Cybersecurity, Information/Computer Information Systems, Computer Science, Information Technology or equivalent fields is highly recommended.

ISTM315 Cyber Offense Strategies ★
Credits 3 Fall

Registration Requirement: Co-requisite: ISTM284E.
This class will extend student's understanding of penetration testing concepts from previous courses and learn how to engage in a more complex set of attack types, tools, and processes. An emphasis will be placed on "Red Team" activities and learning how to attack an active and complex network with a wider attack surface.

ISTM320 Digital Forensics and Incident Response ★
Credits 4 Winter

Registration Requirement: Co-requisite: ISTM284E.
In this course students learn the fundamentals of digital forensics and incident response. They are introduced to digital forensic tools and techniques to analyze data collected from electronic devices (including computers, media, and other digital sources). They will become familiar with proper techniques and tools utilized for securing, handling and preserving digital and multimedia evidence. Students are also introduced to the incident response process. An Associate Degree or better in any field AND at least 2 years experience in Cybersecurity, Information/ Computer Information Systems, Computer Science, Information Technology or equivalent fields is highly recommended.

ISTM321 Mobile Forensics ★
Credits 4 Spring

Registration Requirement: Co-requisite: ISTM284E.
This course introduces students to the fundamentals of mobile forensics. Presented are techniques, tools, and procedures for conducting digital and network forensics of mobile devices. Topics include mobile forensics procedures, related legal issues, mobile platforms, bypassing locks, rooting/jailbreaking process, logical acquisition, physical acquisition, data recovery, analysis, and reporting.

ISTM322 Critical Infrastructure ★
Credits 4 Spring

Registration Requirement: Co-requisite: ISTM300.
This class is an overview of the impact of cybersecurity critical infrastructure. Topics include attack targets, vulnerabilities, and actors. Various methodologies are appraised for mitigation of attacks and reduction of attack profiles. Lab work includes introduction to "ladder logic programming" and other Critical Infrastructure-based techniques. Prior programming experience in any modern language is recommended.

ISTM323 Computer Architecture for Cybersecurity ★
Credits 4 Spring

Registration Requirement: CIS284S and ISTM233P and MTH065.
This course is an introduction to computer architecture, as it applies to cybersecurity professionals. Topics to be covered include: von Neumann architecture, pipelining, multithreading, storage, memory hierarchy, caching, cache analysis, operating systems, parallel systems, and emerging architectures.

ISTM330 Cybersecurity Compliance ★
Credits 4 Winter

Registration Requirement: Co-requisite: ISTM284E.
This cyber management class explores the realm of cyber and legal compliance required for both business and government. Presented from the perspective of a layperson with no prior knowledge of concepts, topics in this class will include: the Health Insurance Portability and Accountability Act (HIPAA), Family Educational Rights and Privacy Act (FERPA), personally identifiable information (PII) concepts, the Payment Card Industry (PCI), and various legal issues involving privacy directed toward how companies can effectively maintain a compliant stance.

ISTM331 Risk Analysis ★
Credits 4 Winter/Spring

Registration Requirement: Co-requisite: ISTM284E.
This cyber management class takes an in-depth approach to understanding how to perform risk analysis and differentiate various kinds of risk affecting a particular organization. In this manner, all risks can be enumerated and then mitigated appropriately based on the technology and/or resources available to that organization.

ISTM333 Identity and Access Management (IAM) ★
Credits 4 Winter

Registration Requirement: Co-requisite: ISTM284E.
This course introduces the concept of access control to information systems, whether local or remote. Applications, authentication, and accounting for end users and system administrators will be covered. In addition, security controls for access control including tokens, biometrics, and the use of public key infrastructures (PKI) will be covered. The overriding objective is to provide a foundation for access control and identity management methods used to secure networks, data, and information systems in both the public and private sectors and in organizations large and small.

ISTM340 Artificial Intelligence ★
Credits 4 Fall

Registration Requirement: CS161. Co-requisite: CS162.
This course is the first of a 2-course sequence in machine learning (artificial intelligence). Topics to be covered include: terminology and scope of learning systems, mathematics of machine learning, classification of tasks, regression strategies, and evaluation of learning systems.

ISTM345 Assembly Language for Cybersecurity ★
Credits 4 Spring

Registration Requirement: CS161. Co-requisite: CS162.
This course is an introduction to assembly language programming, as it applies to Cybersecurity professionals. Topics to be covered include: C programming, assembly instruction set architectures (x86-64, IA32, and ARM), conditional and repetition structures, functions, and arrays in assembly.

ISTM346 Secure Programming ★
Credits 4 Spring

Registration Requirement: CS161. Co-requisite: CS162.
This course introduces the secure software development process, including designing secure applications, writing secure code that can withstand attacks, and security testing and auditing. The course also focuses on the security issues a developer faces, common security vulnerabilities and flaws, and security threats. The course explains security principles, strategies, coding techniques, and tools that can help make code resistant to attacks. Students will write and analyze code that demonstrates specific security development techniques.

ISTM350 Preparation for Cybersecurity Analyst ★
Credits 4 Fall

Registration Requirement: Co-requisite: ISTM284E.
This course introduces tools and strategies for mitigating cybersecurity risks, recognizing prevalent threats, assessing organizational security, gathering and scrutinizing cybersecurity intelligence, and responding to incidents in real-time. The curriculum aims to equip students with the requisite skills and knowledge to adeptly analyze and address security threats within the context of a contemporary digital landscape.

ISTM380 Cyber Competition Alpha ★
Credits 2 Spring

Registration Requirement: Co-requisite: ISTM284E.
This course is the first in a series of four total cyber competition courses offered for the AB in Cybersecurity program. This course will allow students to compete individually and in teams based on concepts / subject materials presented. Note: Competitions for this course may be with national (National Cyber League, etc.) or local (capture the flag-type or other) events and may include intercollegiate competitions.

ISTM381 Cyber Competition Bravo ★
Credits 2 Spring

Registration Requirement: ISTM380.
This course is the second in a series of four total cyber competition courses offered for the AB in Cybersecurity program. This course will allow students to compete individually and in teams based on concepts / subject materials presented. Note: Competitions for this course may be with national (National Cyber League, etc.) or local (capture the flag-type or other) events and may include intercollegiate competitions.

ISTM431 Information Technology Project Management ★
Credits 3 Winter

Registration Requirement: Co-requisites: ISTM300 and WR227.
This course introduces foundational concepts in project management, with an emphasis on IT projects. Topics and skills include determining a project's scope, specifications and assumptions; identify appropriate methods and processes for initiating, planning, and controlling projects. This course prepares students for (but does not guarantee success on) the CompTIA Project+ exam.

ISTM490 Senior Project ★
Credits 3 Spring

Registration Requirement: ISTM322.
As a bridge from college to career, this capstone experience provides students with the opportunity to apply and expand on the knowledge and skills gained during their academic career. Students participate as teams in a virtual environment where they must defend a network with multiple devices while attempting to compromise the opposing team's network and devices. In this hands-on experience, they must rely on learned skills, industry best practices, and the teammates to be successful. Students work with the faculty member to reflect on and assess performance in this course.

Course fees are subject to change. Additional section fees (web, hybrid, etc.) may apply.

★ Course offered online
Cultural Literacy course