

**2005-06 College Catalog
ADDENDUM**



*Information Security Systems
(A25270)*

Information Security Systems (A25270)

Information Systems Security covers a broad expanse of technology concepts. This curriculum provides individuals with the skills required to implement effective and comprehensive information security controls.

Course work includes networking technologies, operating systems administration, information policy, intrusion detection, security administration, attack methodology, and industry best practices to protect data communications.

Graduates should be prepared for employment as security administrators. Additionally, they will acquire the skills that allow them to pursue security certifications.

Degree Awarded

The Associate in Applied Science Degree in Information Systems Security is awarded by the College upon completion of this program.

For More Information

The Information Systems program is in the Information Technology Division. For more information, call the division office at 704.330.6549.

Admissions

- A high school diploma or equivalent is required.
- Placement tests determine placement in English (ENG), mathematics (MAT), and CIS 115.
- Many courses have prerequisites or corequisites; check the Course Descriptions section for details.

Major and Related Course Requirements

Class	Lab	Hours Clinical	Work Exper.	Credits
NET 112 Security Fundamentals & Policies	3	0	0	3
NET 122 Secure Communications	2	2	0	3
NET 222 Security Administration I	2	2	0	3
NET 231 Intrusion Detection	2	2	0	3
NET 232 Security Administration II	2	2	0	3
NET 233 Defense In-Depth	2	2	0	3
NET 275 Attack Methodology	2	2	0	3
NET 110 Data Communications/Networking	2	2	0	3
CIS 175 Network Management I	2	2	0	3
NET 145 Introduction to Linux	2	2	0	3
NET 155 Linux System Administration	2	2	0	3
CIS 110 Introduction to Computers	2	2	0	3
CIS 130 Survey of Operating Systems	2	3	0	3
NET 125 Routing and Switching I	1	4	0	3
NET 126 Routing and Switching II	1	4	0	3
NET 225 Advanced Routing and Switching I	1	4	0	3
NET 226 Advanced Routing and Switching II	1	4	0	3

General Education Core Requirements

ENG 111 Expository Writing	3	0	0	0	3
COM 110 Intro to Communication	3	0	0	0	3
ENG 113 Argument-Based Research	3	0	0	0	3

OR

ENG 114 Professional Research and Reporting	3	0	0	0	3
Select a minimum of three (3) credit hours from the approved list of mathematics courses listed at the end of this section of the catalog.	3	0	0	0	3
Select a minimum of three (3) credit hours from the approved list of social and behavioral science courses listed at the end of this section of the catalog.	3	0	0	0	3
Select a minimum of three (3) credit hours from the approved list of humanities/fine arts courses listed at the end of this section of the catalog.	3	0	0	0	3
Total Credit Hours					69

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Course Descriptions (See Catalog for other listings)

	Lecture	Lab	Credit
CIS 173 Network Theory	2	2	3

Prerequisites: None

Corequisites: None

This course examines Token Ring, Ethernet, and Arcnet networks. Topics include LAN topologies and design; cable characteristics; cable, interface cards, server, and client installation; basic management techniques; linking networks; and troubleshooting LAN problems. Upon completion, students should be able to install both hardware and software for a small client/server LAN and troubleshoot common network problems.

CIS 279 UNIX System Admin.	3	3	4
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Prerequisites: CIS 246

Corequisites: None

This course provides an advanced study of the UNIX operating system for maintaining UNIX systems. Topics include administering user accounts, using back-up utilities, installing and maintaining UNIX file systems, configuring devices, controlling processes, using advanced scripts, and other related topics. Upon completion, students should be able to set up, configure, maintain, and administer a UNIX system.

CIS 282 Network Technology	3	0	3
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Prerequisites: None

Corequisites: None

This course examines concepts of network architecture. Topics include various network types, topologies, transmission methods, media and access control, the OSI model, and the protocols which operate at each level of the model. Upon completion, students should be able to design a network based on the requirements of a company.

NET 120 Network Install/Admin. I	2	2	3
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Prerequisites: NET 110

Corequisites: None

This course covers the installation and administration of network hardware and system software. Topics include network topologies, various network operating systems, server and workstation installation and configuration, printer services, and connectivity options. Upon completion, students should be able to perform basic installation and administration of departmental networks.

NET 122 Secure Communications 2 2 3
 Prerequisites: NET 112 and CIS 173 or CIS 282 or NET 110
 Corequisites: None
 This course provides an overview of current technologies used to provide secure transport of information across networks. Topics include data integrity through encryption, Virtual Private Networks, SSL and SSH. Upon completion, students should be able to implement secure data transmission technologies. *This course is restricted to the Information Systems Security program.*

NET 145 Introduction to Linux 2 2 3
 Prerequisites: None
 Corequisites: None
 This course develops the necessary skills for students to develop both GUI and command line skills for using and customizing a Linux workstation. Topics include Linux file system and access permissions, GNOME Interface, VI editor, X Window System expression pattern matching, I/O redirection, network and printing utilities. Upon completion, student should be able to customize and use Linux systems for command line requirements and desktop productivity roles.

NET 155 Linux System Administration 2 2 3
 Prerequisites: NET 145
 Corequisites: None
 This course introduces the Linux file system, group administration, and system hardware controls. Topics include installation, creation and maintaining file systems, NIS client and DHCP client configuration, NFS, SMB/Samba, Configure X, Gnome, KDE, basic memory, processes, and security. Upon completion, students should be able to perform system administration tasks including installation, configuring and attaching a new Linux workstation to an existing network.

NET 222 Security Administration I 2 2 3
 Prerequisites: NET 112 and CIS 173 or CIS 282 or NET 110
 Corequisites: None
 This course provides an overview of security administration and fundamentals of designing security architectures. Topics include TCP/IP concepts, protocols, network traffic analysis, monitoring, and security best practices. Upon completion, students should be able to identify normal network traffic using network analysis tools and design basic security defenses.

NET 231 Intrusion Detection 2 2 3
 Prerequisites: NET 222
 Corequisites: None
 This course introduces the student to intrusion detection methods in use today. Topics include the types of intrusion detection products and planning and placements of intrusion detection solutions. Upon completion, students should be able to plan and implement intrusion detection solution for networks and host based systems.

NET 232 Security Administration II 2 2 3
 Prerequisites: NET 222
 Corequisites: None
 This course provides the skills necessary to design and implement information security controls. Topics include advanced TCP/IP concepts, network vulnerability analysis, and monitoring. Upon completion, students should be able to distinguish between normal anomalous network traffic, identify common network attack patterns, and implement security solutions.

NET 233 Defense In-Depth 2 2 3
 Prerequisites: NET 222 and CIS 279 or NET 155
 Corequisites: NET 232
 This course introduces students to the concepts of defense in-depth, a security industry best practice. Topics include firewalls, backup systems, redundant systems, disaster recovery, and incident handling. Upon completion, students should be able to plan effective information security defenses, backup systems, and disaster recovery procedures. *This course is restricted to the Information Systems Security program.*

NET 275 Attack Methodology 2 2 3
 Prerequisites: NET 233
 Corequisites: None
 This course provides the student with an in-depth look at common Internet, network, and host-based attack methodologies. Topics include common attack methods such as social engineering, spoofing, denial of service, traffic interception, session hijacking, password cracking, malicious code and web hacking techniques. Upon completion, students should be able to generate anomalous network traffic, identify common network attack patterns, and perform penetration testing. *This course is restricted to the Information Systems Security program.*