Security Systems (Managing Security Technology) - BS

Farmingdale State College
State University of New York

What is the Bachelor of Science in Security Systems?

The goal of this program is to provide a positive learning and teaching environment in applied science and technology. The program treats the technical aspects of the discipline in order to educate a new breed security director, a manager of technology who integrates crime prevention theory with the design philosophy and hardware and software components of security technology. Criminal justice and security are by their nature information gathering and processing activities and students need to be prepared for a changing work environment where computers will be used extensively. The computer as an integrating technology is emphasized in the program to achieve remarkable effectiveness as well as exceptional efficiency of crime control performance. The Access Control, Computer Forensics, Computer Security, Intrusion Detection, and Security-Imaging Sensor laboratories which house state of-the-art equipment serve as technical resources for the program. The courseware teaches students how to: manage the movement of people in organizations; detect intrusions on the corporate network; deter acts of corporate espionage and sabotage; and prevent theft of company assets. What is different about this program is that it has been shaped as a digital age curriculum. Students do not simply learn about hardware and software but also are taught how to use it to solve protection problems.

Our program offers students a choice of one of two concentrations, 1), a networking concentration; or 2) a transportation security – aviation concentration. These concentrations are supported by courses from Farmingdale's Aviation and Computer Systems Departments.

Typical Employment Opportunities: Corporate Security, Federal Law Enforcement Agencies, Local, Municipal, and State Law Enforcement Agencies

Security Systems (BS) program objectives:

- Graduates will have knowledge of advanced computer-based evidentiary and "discovery" data methods, and will be technically competent to administer procedures for evidence identification, documentation, and chain of custody maintenance.
- Graduates will have knowledge to develop comprehensive computer security programs for organizations.
- Graduates will have knowledge to develop protection programs for organizations using an integrated security systems approach.
- Graduates will have an appreciation and understanding of the necessity for personal integrity, professional ethics, and cultural awareness.

Curriculum Summary

Degree Type: ..... **BS**
Total Required Credits: **125-126**

Admission Requirements
Mathematics: 2 Units of Defined Math
2 Units of Science; Laboratory Bio required

For additional information:
Professor John I. Kostanoski, Chair
Department of Criminal Justice
john.kostanoski@farmingdale.edu
631-420-2538
School of Arts & Sciences
Dean's Office: 631-420-2198
Office of Admissions: 631-420-2200

Admission to Farmingdale State College - State University of New York is based on the qualifications of the applicant without regard to age, sex, marital or military status, race, color, creed, religion, national origin, disability or sexual orientation.

Program of Study

Liberal Arts and Sciences (61-62 credits)

EGL 101 Composition: Rhetoric 3
EGL 102 Composition: Literature 3
Communications Elective (other than EGL 101) 3
Modern Language (Level II or higher) 3
Arts Elective 3
MTH 110 Statistics 3
Math or Science Elective 3
BIO 120 General Biology 4
Natural Science Elective 3-4
Western Civilization/Other World Civilizations 3
American History Elective 3
PSY 101 Introduction to Psychology 3
PSY 235 Abnormal Psychology 3
SOC 122 Introduction to Sociology 3
SOC 223 Social Issues and Institutions (or)
SOC 224 Urban Sociology (or)
SOC 225 Sociology of the Family 3
SOC 229 Minorities in American Society (or)
SOC 231 The Promise and Challenge of Multiculturalism 3
Arts & Sciences electives 12

Please refer to the General Education and Writing-Intensive Requirement Sections of the catalog and consult with your academic advisor to ensure that graduation requirements are satisfied.

Required Courses in the Major (52 credits)

CRJ 100 Introduction to Criminal Justice 3
CRJ 115 Computer Forensics 3
CRJ 200W Criminal Investigation 3
CRJ 217 Computer Forensics II 3
CRJ 218 Computer Forensics III 3
CRJ 230 Biometrics and Identity Theft 3
CRJ 302 Managing Security Systems 3
CRJ 310 Computer Security I 3
CRJ 311 Computer Security II 3
CRJ 312 Computer Security III 3
CRJ 314 Security Law and Policy 3
CRJ 321 Access Control 3
CRJ 322 Intrusion Detection 3
CRJ 404 Cyber Law & Electronic Espionage 3
CRJ 410 Senior Project 3
CRJ 420 Physical Security I 4
CRJ 421 Physical Security II 3

Network Concentration (12 Credits)

BCS 208 Networking Fundamentals I 3
BCS 209 Networking Fundamentals II 3
BCS 320 LAN Swithcing and Wireless 3
BCS 321 Accessing the WAN 3
OR

Continued

Updated 11/11. Please check the website for the most up-to-date information.

Transportation Security (12 Credits)

AVN 280 Intro to Air Cargo Operations-Basic.....3
AVN 300W Government in Aviation.....3
AVN 400 Aviation Law.....3
AVN 417 Homeland Security in Aviation 3

Total Credits: 125-126

CRJ 100 Introduction to Criminal Justice
Philosophical and historical background of policing throughout the free world; special emphasis is placed on the heritage of British and American policing, the governmental role of law enforcement in society; administration of American justice at all levels of government. The role of technology in law enforcement and crime prevention; history, modes and impact.
(3,0) 3 credits *Fall, Spring, Summer*

CRJ 200W Criminal Investigation
Introduction to criminal investigation, technical methods used at the crime scene; development of clues, identification of suspects, criminal investigation procedures including the theory of an investigation, conduct at crime scenes; collection and preservation of physical evidence, analysis of the elements that constitute all crimes. Includes use of profile analysis and modus operandi databases in criminal investigation.
(3,0) 3 credits *Fall, Spring*

CRJ 201 Criminalistics
The role of the crime laboratory in the law enforcement organization, scope of a criminalistic operation; organizational orientation of the Criminalistics laboratory. Reconstruction of the crime scene through computer animation methods.
(3.0) 3 credits *Spring, Summer*

CRJ 217 Computer Forensics II
Computer Forensics III is a continuation of CRJ 115. This course covers topics such as disk geometry and organization. Master boot sector record and volume record creation and organization, file signatures for data type identification, cyclic redundancy checksum for data integrity validation, and RSA's MD5 hash values for file authentication. Other subjects introduced include the UNIX "grep" search utility, search string techniques and file signature matching, and recovery of files that are intentionally deleted, hidden, or renamed. The course examines advanced computer-based evidentiary and "discovery" data methodologies, and includes a study of evidence identification, documentation, and chain of custody procedures.
Prerequisite(s): CRJ 115
(3,0) 3 credits

CRJ 218 Computer Forensics III
This course examines federal, state, and local computer fraud statutes to provide the student with a legal foundation to approach computer investigations. The course includes lecture elements that provide the student with the skills necessary to conduct successful computer-related investigations, and includes an examination of the processes involved in preparing an affidavit for a search warrant.
Prerequisite(s): CRJ 217
(3,0) 3 credits

CRJ 302 Managing Security Systems
The course introduces students to loss control theory with an analysis of tread models to develop comprehensive protection plans for organizations. This course offers a study of security program types; the concepts of Value-added contributions and cost containment; total quality management and the Baldrige process; benchmarking; security management methods; third party relationships in Security; types of outsourcing relationships; and Security Standards.
(3,0) 3 credits

CRJ 310 Computer Security I
This course focuses on security threats to an organization's data network such as hackers, intruders, industrial espionage and sabotage, fraud and theft. The components of computer security architecture are studied as well as the principles of security networking protocols, encryption, fault tolerance techniques, and file system protection. Additional topics covered include the protection of computer hardware and software.
Prerequisite(s): CRJ 115
(3,0,1) 3 credits *Fall*

CRJ 311 Computer Security II
This course is a continuation of CRJ 310, and includes an analysis of the security features of computer operating systems. The course will review the OSI model and describe how systems communicate with one another. Also included in the course is a detailed study of authentication technologies and how they are used to secure an organization's assets and electronic transactions.
Prerequisite(s): CRJ 310
(3,0,1) 3 credits *Spring*

CRJ 312 Computer Security III
The course examines computer software threats which include the birth, life and termination of computer viruses, their modes of operation, detection techniques, virus signatures and virus removal methods as well as other "virus like" threats which are delivered by e-mail and internet/intranet packets.
Prerequisite(s): CRJ 311
(3,0) 3 credits *Fall*

CRJ 321 Access Control
A study of firewall technologies, including packet filtering, proxying, network address translation, and virtual private networks. An analysis of firewall architectures such as screening routers, screened hosts, hosts, screened subnets, perimeter networks, and internal firewalls. An examination of security threats on the internet, including service attacks, eavesdropping, worm programs, and the like. A study of access control hardware devices such as voice signatures, fingerprints, facial geometry, hand geometry, and retinal scanners-iris patterns for servers, workstations, and mobile computers.
Prerequisite(s): CRJ 115
(3,0,1) 3 credits *Spring*

CRJ 322 Intrusion Detection
A study of the architecture, monitoring strategies, and analysis engines of intrusion detection. An examination of host based information sources. An analysis of information transformation processes for intrusion detection such as misuse and anomaly detection. A study of technical issues in intrusion detection such as scalability, interoperability, sensor control, reliability, integration, and user interfaces. An examination of legal matters in intrusion detection such as the rules of evidence with regard to system logs, and monitoring activities with regard to the right of privacy.
Prerequisite(s): CRJ 115
(3,0,1) 3 credits *Fall*

CRJ 404 Cyber Law & Electronic Espionage
A study of the cases and statutes that focus on the legal issues of computer technology. An analysis of proprietary rights, including copyright, patent, trade secret, and trade mark. An examination of the Economic Espionage Act of 1996. An analysis of security risks in electronic commerce. A study of security controls and countermeasures to prevent electronic espionage.
Prerequisite(s): CRJ 322
(3,0) 3 credits *Spring*

CRJ 410 Senior Project
Independent study of a Security Systems or related area of interest to both the student and a faculty member who shall act as project Advisor. The project selected will utilize competencies acquired in previous Security Systems and related courses.
Prerequisite(s): Department approval
(1,6) 3 credits

CRJ 420 Physical Security I
A study of the theory and practice of managing the movement of people in organizational settings. This course examines the operating principles and applications of access control readers, card encoding technologies, locking assemblies, and system functions such as fail-safe, fail-secure, access levels, time zones, limited and unlimited access privileges, and the like. Also, the course focuses on the role of alarm systems in an organization's overall protection plan, from the control of violence in the work place to preventing theft of company property. Sensor technologies as well as controls and signaling systems are analyzed and evaluated with applications in the following areas: perimeter, interior, occupant, and object protection.
Prerequisite(s): CRJ 302
(4,0,1) 4 credits *Fall*

CRJ 421 Physical Security II
A continuation of CRJ 420. Advanced topics include a study of camera and lens types, monitors, video signaling systems, scanners, pan and tilt positioning devices, video motion detectors, camera housings and enclosures, switchers, multiplexers, time-lapse VCRs, digital video recorders, and their interactive role in the design of CCTV systems. Analysis of illumination technologies, including fluorescent, high and low pressure sodium, metal halide, ultraviolet, and infrared light sources. Other topics include the application philosophy as well as the hardware and software components of video surveillance computers, and the analysis of video field and frame compositions with reference to identification issues in criminal cases. An inquiry into the legal and ethical dimensions of surveillance, including Fourth Amendment guidelines, Plain View Doctrine cases, the Expectation of Privacy court cases and directives, and the Exclusionary Rule.
Prerequisite(s): CRJ 420
(3,0,1) 3 credits *Spring*