Cyber Security Infrastructure

Degree Type
Associate in Science

The Department of Information Systems Technology offers coursework in a Cyber Security Infrastructure Program. The Cyber Security Program will provide students the skills to become knowledgeable and skilled in a layered approach to computer systems security. The education process will train students for entry-level positions as network security technicians, data security analysts, and systems security administrators. The program provides students an introduction to the latest security technologies and best practices. Students will examine issues related to network security hardware, security awareness and education, security planning and defense, network security organization and the legal and ethical issues associated with information systems security. Students also will complete multiple projects throughout the 2-year program to solidify new knowledge and skills. Students completing this degree program will be able to use the curriculum fundamentals learned to prepare for the CCNA, CCNAS, Network+, and Security+ industry certification exams. This program is designed for students to enter the Cyber Security field at an entry level position.

Program Outcomes

Students will be able to:

- Plan, configure, and implement network router and switch configurations based on security "best practice."
- Monitor the security infrastructure to analyze network problems and traffic flow.
- SNMP, Syslog, Radius, Snort IDS.
- Identify and remediate network security vulnerabilities and threats.
- Understand the need for a Business Continuity Plan (BCP) and Disaster Recovery Plan (DRP) and the relationship between the two.
- Design, monitor and enforce an organizational security policy.
- Install, configure, and monitor a firewall.
- Introductory programming skills in either Java or C++ and Python.

Health, Safety, and Internship Considerations

The college must ensure that stakeholders at internship and service-learning sites are not adversely affected by students during learning experiences. Therefore, students participating in internship and field experiences must demonstrate the emotional stability required to exercise sound judgment, accept direction and guidance from a supervisor or faculty member, and establish rapport and maintain sensitive interpersonal relationships with employees, customers, and clients. Participation in an internship requires the student to follow the college's immunization policy. Please see the Academic Policies section of this catalog, under XVI. Immunization Policy. Depending upon the site, the student may be required to possess and maintain professional liability insurance. Please see the Student Services section of this catalog, under Insurance for purchase options available through the College.

Technical Standards

Students who enroll in the program should comprehend the English language, both oral and written, and have sufficient keyboarding skills to produce electronic documents in a timely manner. They should be able to sit or stand at a desk or workstation and stay on task for extended periods of time. They should be detail-oriented, able to read small print, and perform basic mathematical operations with emphasis on Binary Boolean Algebra. Successful employees in the field demonstrate the emotional stability required to exercise sound judgment, accept direction and guidance from a supervisor, establish rapport and maintain sensitive interpersonal relationships with employees, customers, and clients.

Transfer Credit Policy

In addition to Great Bay transfer credit policies, all Information Systems Technology transfer credits will be evaluated by the IST Program Coordinator or his/her designee.

General Education Core Classes

Item #	Title	Theory Hours	Lab Hours	Credits
	ENGL110G/111G	4	0	4-5
	BIOL101 or BIOL106	3	2	4
	Social Science Elective*	3	0	3-4
PHIL240G	Ethics	3	0	3
	MATH150/152G or MATH170G	4	0	4
	MATH170G or MATH 225G	4	0	4

Math Track 1 will include Math150/152G and Math170G
Math Track 2 will include Math170G and Math2xxG

Cyber Security Major Courses

Up to 18 credits at the 100 levels
At least 21 credits at the 200 levels

Item #	Title	Theory Hours	Lab Hours	Credits
CIS177G	Introduction to Python	2	2	3
IST122G	Introduction to Networks	2	2	3
IST123G	Switching, Routing, and Wireless Essentials (SRWE)	2	2	3
IST142G	Virtualization Essentials	2	2	3
CIS146G	Linux I	2	2	3
	CIS148G or CIS158G	2	2	3
IST222G	Enterprise Networking, Security, and Automation (ENSA)	2	2	3
IST262G	Advanced Network Security	2	2	3
IST263G	Information Assurance/Information Risk Management	2	2	3
IST264G	Configuration Security Appliance	2	2	3
IST265G	CCNA Cybersecurity Operations	2	2	3
IST275G	Network Protocols and Services	2	2	3
IST266G	Security+	2	2	3

First Year

Fall Semester

Item #	Title	Theory Hours	Lab Hours	Credits
	ENGL110G/111G	4	0	4-5
	MATH150/152G or MATH 170	4	0	4-5
IST122G	Introduction to Networks	2	2	3
IST123G	Switching, Routing, and Wireless Essentials (SRWE)	2	2	3
	Sub-Total Credits	**12**	**4-6**	**14-16**

Spring Semester

Item #	Title	Theory Hours	Lab Hours	Credits
	MATH170G or MATH 225G	4	0	4
IST142G	Virtualization Essentials	2	2	3
IST222G	Enterprise Networking, Security, and Automation (ENSA)	2	2	3
CIS146G	Linux I	2	2	3
CIS177G	Introduction to Python	2	2	3
	Sub-Total Credits	**12**	**8**	**16**

Summer Semester

Item #	Title	Theory Hours	Lab Hours	Credits
IST266G	Security+	2	2	3
	Sub-Total Credits	**2**	**2**	**3**

Second Year

Fall Semester

Item #	Title	Theory Hours	Lab Hours	Credits
	Social Science Elective*	3	0	3-4
IST263G	Information Assurance/Information Risk Management	2	2	3
	CIS148G or CIS158G	2	2	3
IST264G	Configuration Security Appliance	2	2	3
	Sub-Total Credits	**9-10**	**6**	**12-13**

Spring Semester

Item #	Title	Theory Hours	Lab Hours	Credits
	BIOL101 or BIOL106	3	2	4
IST265G	CCNA Cybersecurity Operations	2	2	3
PHIL240G	Ethics	3	0	3
IST262G	Advanced Network Security	2	2	3
	Sub-Total Credits	**10**	**6**	**13**

Summer Semester

Item #	Title	Theory Hours	Lab Hours	Credits
IST275G	Network Protocols and Services	2	2	3
	Sub-Total Credits	**2**	**2**	**3**
	Total Credits			**61-64**