

INFORMATION SECURITY AND FORENSICS BS

PROGRAM OVERVIEW FOR EMPLOYERS

The BS in Information Security and Forensics is designed to produce graduates who will be experts in the identification of computer security vulnerabilities and the detection of computer security exploits. They will also be skilled in recognizing and repelling such attacks. Of equal importance for these students is an understanding of the forensic requirements of proving that an attack occurred and where it originated. They will have the knowledge needed to diagnose the extent of the attack so that damage can be repaired and the extent of any information loss assessed. Their coursework includes a complement of core courses which gives the students a firm foundation in networking, systems and network administration and security. This is followed by advanced study where the students select either the computer security track or the network security track. This allows the student to gain in depth knowledge in their areas of interest. Although security issues are addressed throughout our curriculum students in the ISF program address security issues and technologies in great depth.

Degree(s) Awarded

Bachelor of Science

Enrollment

Approximately 135 students are enrolled in the Information Security and Forensics degree program.

Cooperative Education Component

BS students are required to complete at least three co-op work assignments. Co-op students are able to work 3 or 6 months.

Salary Information (Avg/Range)

Co-op:	\$15.46	\$8.25 - \$25.68
BS:	\$60,000	\$48,000-\$70,000

Equipment & Facilities

Over 300 computers for student use are distributed over five specialty labs. These labs include: the Networking Lab, the Systems Administration Lab, the Projects/Trouble Shooting Lab, the VoIP Lab, and the Systems/Network Security and Forensics Lab. Each of these facilities is fully equipped with high-end Windows and Linux based PC platform computers. The labs have a full array of networking equipment from a variety of vendors such as Cisco, Extreme Networks, and Nortel including hubs, over 100 switches, and more than 80 routers. In addition, the labs are also equipped with wireless access points (802.11a,b,g), layer 3 switches, as well as network simulation, network data capture and virtualization software. To complement these labs, the department provides twelve "Roll-Around" racks equipped with twenty-four Extreme layer three switches and sixteen Cisco layer two switches and image servers which allow the students to save their work in progress as well as select from a wide variety of operating systems.

The security lab includes a full assortment of Cisco and Checkpoint firewalls, IDS, Cisco VPN bundles, Cisco layer 3 switches, Cisco routers, Encase forensics software, and various other pieces of security related software.

There are 14 other computing labs in the college to assist students in other areas of the curriculum. These labs include programming studios, database labs, multimedia labs, audio labs, as well as general purpose computing labs.

Accreditation

RIT has been designated a National Center of Academic Excellence in Information Assurance Education by the National Security Agency.

Student Skills & Capabilities

End of the Second Academic Year:

Basic computer and network security awareness as well as exposure to security policy and legal issues and the use of cryptography and authentication in providing security. Basic LAN construction with some trouble shooting. Simple router configuration. Understanding and deploying infrastructure protocols, including TCP/IP, PPP, RIP, STA, and Ethernet. Cable plant construction, verification and debugging. Scripting in Perl. Desktop support. Object-oriented application development using C++. Direct experience in a variety of computing environments on multiple platforms, including Windows, MacOS, and Linux. Basic system administration functions, including account creation and management.

During the Third and Fourth Academic Year:

Intermediate to advanced administration, including wired and wireless networks. Major infrastructure services, such as DHCP, DNS, LDAP, NFS, Samba, Active Directory. Intermediate and advanced security technologies, auditing, and forensics. Enduser requirements gathering, solution design, and deployment.

Information Security and Forensics

Course Sequence BS degree

First and Second Years:

First Year Enrichment
Three course sequence in C++ Programming
Cyber Self Defense
Computer System Fundamentals
Network Fundamentals
Introduction to Unix
Scripting in Perl
Introduction to Routing and Switching
System Administration I
Ethics
Cryptography and Authentication
Information Security Policy
Algebra & Trigonometry, Discrete Math I, II
Data Analysis
Science Electives
Liberal Arts Core

Third and Fourth Years:

Network Services
Applications of Wireless Data Networking
Needs Assessment
Introduction to Computer Malware
Computer System Security or Network Security Advanced
Track Courses I - IV
Free Electives
General Education Electives
Liberal Arts Concentration
Cooperative Education (3 Quarters Required)

Summer quarter after the 2nd year is recommended for the first co-op block. In addition to co-op, the first two years of this plan includes all of the required math and science courses, most of the nine-course Liberal Arts core, and most of the Information Security and Forensics core courses. Many alterations to this plan are possible. For example, some of the Liberal Arts core might be postponed in favor of electives. These electives could include courses from one or more tracks that a student might want to sample before co-op. A typical quarter, then, will consist of one Information Security and Forensics core course, one Liberal Arts course, one math or science course, and a fourth course that depends on the quarter. The plan above is the generic default for the typical student. Since no one is really typical, students' schedules will likely look a little different. After returning from the first co-op experience, the student will take the remaining Information Security and Forensics core courses and select an Advanced Track. In addition, the student will select a Liberal Arts concentration or minor and will begin taking professional electives and general education electives. ISF students will do their remaining co-ops the summer after their 3rd year and during one academic quarter of their 3rd year allowing them the flexibility to co-op for two three-month co-ops or one six-month co-op to complete their co-op requirement.

Employers of Information Security and Forensics Co-op and Graduating Students:

Aetna US Healthcare, Ayco a Goldman Sachs Co., Baldwin Richardson Foods Co., BCC Software Inc., Boeing Co., Booz Allen Hamilton, CACI International Inc., Cisco Systems, Dell SecureWorks, E3 Technology, EarthLink, Eastman Kodak Co-WWIS Global Functions, EMC Corp., Federal Aviation Administration, Federal Reserve Bank of San Francisco, Geting Sourcing LLC, Griffiss Institute, Harris-RF Communications, Harris Interactive, HBO, IBM Corp., Info Directions, JPMorganChase, Lenel Systems Int'l., Lockheed Martin, M&T Bank, MANDIANT Corp., MFS Investment Mgmt., Microsoft Corp., MIT Lincoln Laboratory, Mitre Corp., Nat'l Park Service, Nat'l Security Agency, New York Police Dept., Oceana Inc., PAETEC, Paychex, Perimeter E-Security, Ponte Technologies, Progressive Expert Consulting, Progressive Insurance, SAIC, Sandia Nat'l Labs, Sherwin-Williams, Spectracom Corp., Sumitomo Mitsui Banking Corp., The United Illuminating Co., U.S. Nuclear Regulatory Commission, Unisys Technical Services, Vanguard, Veramark Technologies Inc., Wegmans Food Markets, Wyman-Gordon .

Contact Us:

We appreciate your interest in hiring RIT co-ops, graduating students or alumni. We will make every effort to ensure your recruiting endeavor is a success. Call our office and ask to speak with Michelle Magee, the program coordinator who works with the Information Security and Forensics program. For your convenience, you can access information and services through our web site at <http://www.rit.edu/recruit>.

Michelle A. Magee

Program Coordinator

Office of Cooperative Education and Career Services

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