

Information Technology - Cybersecurity Specialist Pathway

You could take this first and get a credential.

Networking Professional

Technical Certificate

15 Credits / 1 Year Full-Time

Potential Careers

Network/Technical Coordinators, Network Administrator/Managers, Network Technician or Support Specialists, Computer Support Specialists

IT - Network Technician

Technical Diploma

19 Credits / Less than 1 Year Part Time

Potential Careers

Computer Technician, Network Technician

Continue your education to obtain an associate degree.

IT - Cybersecurity Specialist

Associate Degree

63 Credits / 2 Years Full Time; 3 Years Part Time

Potential Careers

Network Administrator, , Network Support Specialist, Cyber Security Specialist, Network Security Specialist, Network Specialist, Computer Specialist, SOC Analyst

Range of Yearly Salary

\$47,836-\$87,000

The information below is based on graduates' responses from the following technical colleges within the Wisconsin Technical College System (WTCS) for 10-151-2 IT-Cybersecurity Specialist: Madison Area, Northeast Wisconsin, Waukesha County and Gateway Technical College.

Continue your education to obtain a bachelor's degree.

BEYOND WITC

Bachelor's Degree

Cardinal Stritch University

Lakeland University

UW Milwaukee

UW Oshkosh

UW Stout+

Important Notes on Transferring:

- Check out witc.edu/transfer for details on specific agreements listed

- The colleges listed have developed an Associate Degree to Bachelor Degree Articulation Agreement with WITC

- + These colleges have developed an agreement related directly to the Information Technology (IT) Program

- To learn how your education, or previous college credits, will transfer, talk to a transfer coordinator, at any of the four year colleges listed, to learn how to maximize your credit transfer opportunities

- Transferology, www.transferology.com, or Transfer Evaluation System (TES), may be helpful tools to assist your transfer process.

Information Technology - Cybersecurity Specialist

10-151-2 Associate Degree (two-year)

Financial Aid Eligible

Campuses: Ashland*, New Richmond, Rice Lake, Superior*

Full program available at the New Richmond or Rice Lake campus

*Only first year coursework available at the Ashland or Superior campus



Program Overview

The IT - Cybersecurity Specialist program will give students hands-on experience with networking, operation systems, virtualization and security. Students will build a strong IT base as they install and configure Windows and Linux environments and create networks for a business like environment. Students will study attacks and security practices to protect data as they configure security settings, test and monitoring configurations. Students will be exposed to Router, switches, firewalls, wireless, virtual and IPS devices from multiple vendors, along with commercial and open source software. Students will be immersed in an IT ecosystem and learn how to secure an organization's desktops, servers, networks and applications to support a thriving business.

Special Features

WITC is affiliated with the following industry partners providing students with access to a variety of materials and software: Cisco, CompTIA, Microsoft, Palo Alto and VMware. WITC locations are Cisco academies, and WITC is a CompTIA academy partner. VUE testing centers are available at each location.



The IT - Cybersecurity Specialist program prepares students for a number of certifications related to the field. Students may choose to complete certifications, many through the on campus VUE testing center. Industry certifications students may pursue include CompTIA+, Network+, Linux+, Security+, PenTest+, CSA+, CISCO: CCENT, CCNA Routing and Switching, CCNA Wireless, CCNA Security, CCNA Cyber-Ops, Microsoft Windows, MTA, MCSA, MCSE, VMware, CEH and CISSP.

As a member of the Microsoft, CISCO and VMware academies students in the IT programs receive free access to vendor software and tools.

Students in the IT - Cybersecurity Specialist program have the opportunity to dual major with the IT - Systems Administration Specialist program by completing additional coursework (see page 182 for more information on the IT - Systems Administration Specialist program). Students can fulfill electives by taking classes from either program.

Graduates have the option to transfer coursework to complete a Bachelor's Degree at UW-Stout, UW-Milwaukee, and other institutions with degree completion programs

Admission Requirements

- Complete application form and submit with fee (fee waiver may apply if previously submitted)
- Review and sign Functional Abilities Disclosure
- Complete admissions meeting with a WITC counselor

Program Outcomes

IT - Cybersecurity Specialist graduates will be able to:

- Identify security strategies
- Implement secure infrastructures
- Conduct security testing
- Analyze security data
- Mitigate risk
- Develop security documentation

Employability Essentials

The WITC Employability Essentials to think critically, communicate effectively and be professional will be assessed in all technical diploma and associate degree program students annually.

Career Outlook

Typical positions available after graduation include:

- Network Administrator
- Network Support Specialist
- Cyber Security Specialist
- Network Security Specialist
- Network Specialist
- Computer Specialist
- SOC Analyst

Curriculum

Number	Course Title	Credits (cr.)
Technical Studies Courses		
10150102	Information Security *	3 cr.
10150109	Wireless Networking and Security*	3 cr.
10150111	Cisco CCNA 1 Introduction to Networks	3 cr.
10150112	Cisco CCNA 3 Scaling Networks *	3 cr.
10150113	Cisco CCNA 2 Routing and Switching Essentials *	3 cr.
10150114	Cisco CCNA 4 Connecting Networks *	3 cr.
10150117	Server Administration 1*	3 cr.
10150139	IT Essentials and Security	2 cr.
10150161	Network and Security Case Studies *	1 cr.
10150170	Coding with Python	2 cr.
10151101	Firewall and VPN Management*	3 cr.
10151102	Digital Forensics and Incident Response*	2 cr.
10151103	Penetration Testing*	3 cr.
10151104	Intrusion Detection and Prevention*	3 cr.
10151105	Logging and Analysis*	3 cr.
10151106	Networking Security Capstone*	2 cr.
10154103	Linux Operating Systems	3 cr.
10154149	Windows Operating Systems	3 cr.
	Technical Studies Total	48 cr.

General Studies Courses **

10801136	English Composition 1	3 cr.
10801196	Oral/Interpersonal Communication or	
10801198	Speech	3 cr.
10804123	Math with Business Applications or	
10804113	College Technical Mathematics 1A or	
10804133	Mathematics and Logic	3 cr.
10809166	Introduction to Ethics: Theory and Application or	
10809172	Introduction to Diversity Studies or	
10809195	Economics	3 cr.
10809198	Introduction to Psychology	3 cr.
	General Studies Total	15 cr.

PROGRAM REQUIREMENTS 63 cr.

* Requires a prerequisite and/or corequisite that must be completed with a grade point of 2.0 or better.

** See pages 40-42 for course descriptions.

Graduate Employment Information

(WITC Graduate Survey Responses 2017-2018)

The information below is based on graduates' responses from the following technical colleges within the Wisconsin Technical College System (WTCS) for 10-151-2 IT-Cybersecurity Specialist: Madison Area, Northeast Wisconsin, Waukesha County and Gateway Technical College.

Number of graduates	16	Number employed	5	% employed in WITC district	NA
Number of responses	6	Percent employed	100%	Range of yearly salary	\$47,836-\$87,000
Number available for employment	5	Employed in related field	80%	Average yearly salary	\$61,209

career vision

Networking Professional

17-150-5 Technical Certificate

Campuses: New Richmond, Rice Lake, Superior



Overview

This certificate consists of completion of four Cisco courses with a 3.00 or better. You will be proud to have achieved this recognition whether you are a program student or an IT professional.

Special Feature

Friendly, skilled instructors with an emphasis in a hands-on teaching environment will teach the courses. Topics within the certificate will help prepare the student for industry certification in the Cisco Certified Networking Associate (CCNA).

How to Apply:

Complete the online application or contact Student Services. When completing an online application, select the Networking Professional program from the program of choice dropdown list.

Outcomes

The Networking Professional Certificate will prepare you to:

- Configure hardware and software
- Plan and implement routers into TCP/IP network infrastructure
- Plan, implement, and support wired and wireless networks

Career Outlook

Typical positions available after graduation include:

- Network/Technical Coordinators
- Network Administrator/Managers
- Network Technician or Support Specialists
- Computer Support Specialists

Related Program

- Information Technology - Cybersecurity Specialist

Curriculum

Number	Course Title	Credits
10150109	Wireless Networking and Security *	3 cr.
10150111	Cisco CCNA 1 Introduction to Networks *	3 cr.
10150112	Cisco CCNA 3 Scaling Networks *	3 cr.
10150113	Cisco CCNA 2 Routing and Switching Essentials *	3 cr.
10150114	Cisco CCNA 4 Connecting Networks *	<u>3 cr.</u>
TOTAL CERTIFICATE REQUIREMENTS		15 cr.

* Requires a prerequisite and/or corequisite that must be completed with a grade point of 2.0 or better. You must earn a grade point of 3.0 or better in all required courses.

Course Descriptions

(See pages 40-42 for General Studies course descriptions)

10150102

Information Security - Credits: 3

This course will cover hardware, software, and the physical environment related to IT security. The processes of defense, prevention, detection, and response will be studied. Typical types of attacks will be studied and potential solutions or defenses will be explored. Networking and operating system experience is required along with a code of ethics. This course covers topics related to the CompTIA Security+ exam. PREREQUISITE: 10154103 Linux Operating Systems.

10150109

Wireless Networking and Security - Credits: 3

In this course students will study the fundamentals of radio frequency (RF) and 802.11 technologies. They will be installing configuring, monitoring, securing and troubleshooting wireless devices. These skills will be applied to autonomous systems and wireless LAN controllers (WLC) to support business requirement. Site surveys will be conducted. Testing of secured implementations, identifying rogue devices and identify wireless attacks will be studied. This course will cover materials found on the Cisco Wireless Network Fundamentals (WIFUND) exam for the CCNA Wireless certification. PREREQUISITE: 10150113 Cisco CCNA 2 Routing and Switching Essentials.

10150111

Cisco CCNA 1 Introduction to Networks - Credits: 3

Cisco CCNA 1 Introduction to Networks (ITN) covers networking architecture, structure, and functions. The course introduces IPv4 and IPv6 addressing structure and design, the fundamentals of Ethernet concepts, media, and operations, the OSI and TCP/IP models and associated protocols to set a strong networking foundation. Wireshark is used to examine protocols on the network. Students configure and troubleshoot routers (IOS), switches and clients for a basic network.

10150112

Cisco CCNA 3 Scaling Networks - Credits: 3

Cisco CCNA 3 Scaling Networks (ScaN) covers the architecture, components, and operations of routers and switches in larger and more complex networks. Students learn how to configure routers and switches for advanced functionality. By the end of this course, students will be able to configure and troubleshoot: VLANs spanning multiple switches: VTP, DTP and EtherChannel STP protocols: Rapid Spanning Tree Protocol (RSTP), Per VLAN Spanning Tree Plus Protocol (PVST+), Rapid Per VLAN Spanning Tree Plus Protocol (RPVST+), first hop redundancy protocols (HSRP) single and multi-area OSPF, Enhanced Interior Gateway Routing Protocol (EIGRP) for IPv4 or IPv6 networks. PREREQUISITE: 10150113 Cisco CCNA 2 Routing and Switching Essentials.

10150113

Cisco CCNA 2 Routing and Switching Essentials - Credits: 3

Cisco CCNA 2 Routing and Switching Essentials (RSE) covers the architecture, components, and operations of routers and switches in a small network. Students learn how to configure, device management, switch ports, security, VLANs, Static and Dynamic routing, DHCP (v4 and v6), NAT and ACLs on routers and switches. At the completion of this course student may achieve a discount voucher for the CCENT certification exam. PREREQUISITE: 10150111 Cisco CCNA1 Introduction to Networks.

10150114

Cisco CCNA 4 Connecting Networks - Credits: 3

Cisco CCNA 4 Connecting Networks (CN), This course discusses the WAN technologies and network services required by converged applications in a complex network. The course enables students to understand the selection criteria of network devices and WAN technologies to meet network requirements. Students learn how to configure and troubleshoot network devices and resolve common issues with data link protocols. Configure, verify and troubleshoot: HDLC, PPP, PPPoE, virtual private networks (VPNs), eBGP in a single-homed, IPv4 and IPv6 ACLs, SNMP monitoring, SPAN, QoS, and describe

Cloud Computing, IOT and Network Programmability in an enterprise network architecture. At the completion of this course student may achieve a discount voucher for the CCNA Routing and Switching certification exam. PREREQUISITE: 10150112 Cisco CCNA 3 Scaling Networks.

10150117

Server Administration 1 - Credits: 3

This course provides students with the fundamental technologies needed to administer a Windows domain. Students will learn how to manage domain resources including users, workstations, servers and shared folders using Active Directory, role management, Server Manager and RSAT. Student will learn how to secure these domain resources using Group Policy, NTFS and file share permissions. Student will also learn how to use the Domain Naming System (DNS), an integral part of Windows domain environments. PREREQUISITE: 10154149 Windows Operating Systems.

10150139

IT Essentials and Security - Credits: 2

The IT Essentials and Security (ITES) course introduces students to the fundamentals of computer hardware and software, mobile devices, security and networking concepts, and the responsibilities of an IT professional. The latest release includes mobile devices, Linux, and client side virtualization, as well as expanded information about Microsoft Windows operating systems, security, networking, and troubleshooting. This course covers materials on the CompTia A+ certification exam.

10150161

Network and Security Case Studies - Credits: 1

The primary focus of this course is to have the students receive exposure and experience with a business information system. To accomplish this goal, students will get involved with industry or complete a business lab simulation by designing and implementing a business project. PREREQUISITE: 10150102 Information Security.

10150170

Coding with Python - Credits: 2

This course introduces Python for network engineering. It begins with basic programming topics such as variables, lists, decisions, loops and I/O. Using this knowledge the course teaches students how to automate the configuration of networking equipment. This course also introduces the "Internet of Things" (IoT) and how to use Python to program IoT devices.

10151101

Firewall and VPN Management - Credits: 3

This course covers the configuration and management of firewall and VPN technologies. Students will be exposed to products from manufacturers like: CISCO, Palo Alto, Sonic Wall and Check Point. In depth hands-on exercises are used to instruct the student in the related technologies including NAT, PAT, ACL construction, application gateways, stateful packet inspection, application layer and URL filtering. Student will configure and test VPN connection for remote access and site-to-site connections. PREREQUISITE: 10150113 Cisco CCNA 2 Routing and Switching Essentials

10151102

Digital Forensics and Incident Response - Credits: 2

This course provides an overview of computer forensics. Operating system structures and file/disk structures (partitions, MBR, GPT) will be covered for Windows, Android and Linux. Imaging of drives and memory will be done using computer forensic hardware and software tools. The details of data acquisition will identify artifacts for the operating system, files system, browsers, and email. File and password recovery will be performed with data carving tools. Students will generate reports to document their activities. Tools used may include FTK, dd, Kali. PREREQUISITE: 10154103 Linux Operating Systems

10151103

Penetration Testing - Credits: 3

This course provides a broad overview of the tools and techniques commonly used for penetration testing. In depth hands-on exercises are used to instruct the student in the proper selection and application for testing tools. Documenting and reporting on the outcome of the test will be analyzed. Student will need to plan a security audit in an environment that simulates a common business or organization. Tools used may include: NMap, Metasploit, Medusa, etc. PREREQUISITE: 10150102 Information Security

10151104

Intrusion Detection and Prevention - Credits: 3

This course provides a broad overview of the tools and techniques commonly used for detecting network sourced attacks. In depth hands-on exercises are used to instruct the student in the proper selection and application of a given tool for the intended task. Also included are basic strategies for documenting and reporting on detected events. The student must demonstrate the ability to plan, design, and implement a network IDS/IPS that fulfills the security needs of a common business or organization. Tools used may include: Security Onion, firepower, Palo Alto, tcpdump, snort, barnyard, etc... PREREQUISITE 10501102 Information Security

10151105

Logging and Analysis - Credits: 3

This course will examine different types of logs to identify issues and threats. Students will become familiar with policies, procedures, event correlation and continuous monitoring programs to help identify incidents. Network traffic will be monitored for anomalies. Tools used may include: Security Onion, SIEM OSSEC, ELK, OSSIM, solar wins, Prelude, splunk. PREREQUISITE 10150102 Information Security

10151106

Networking Security Capstone - Credits: 2

This capture the flag type course will focus on developing a complete network setup and the defending it. This course integrates all the skills students learn in the program and assesses their ability to put into practice their mastery of program outcomes. The student will also be attacking other student setups. Rouge devices may be introduced and topics such as social engineering will be acceptable. Attacks and defense will be the goals of the course! COREQUISITES: 10151104 Intrusion Detection and Prevention, 10151105 Logging and Analysis.

10154103

Linux Operating Systems - Credits: 3

In this course the Linux operating system is examined in-depth with emphasis on features, capabilities, tools, and configurations including an introduction to network configurations. Additional topics will examine other operating systems like MAC OS.

10154149

Windows Operating Systems - Credits: 3

A review of the most common command line operations and study of more advanced commands necessary to configure the Windows operating system for a variety of environments. Topics to be studied include creating directories, batch files, menus, custom configurations, file management, multitasking, windowing, security, and disk management utilities. There will be an introduction to usage, configuration, and tools of the Windows operating system.