

## Program Overview

The Information Technology - Network Specialist program will give students the skills to perform network design, installation, administration, and support for information systems.

Campus:



**Ashland**  
**New Richmond**  
**Rice Lake**  
**Superior**

## Special Features

WITC is affiliated with the following industry partners providing students with access to a variety of materials and software: Cisco, CompTIA, Microsoft, and VMware.



WITC locations are Cisco academies, and WITC is a CompTIA academy partner and does VUE testing.

Students in the IT – Network Specialist program at New Richmond have a common first year with the Industrial Automation, Controls, and Networking program and have the option in the second year to choose to complete the IT – Network Specialist program or the Industrial Automation, Controls, and Networking program (see page 98 for more information on the Industrial Automation, Controls, and Networking program).

Students in the IT – Network Specialist program at Rice Lake have the opportunity to dual major with the IT – Computer Support Specialist program by completing additional coursework (see page 102 for more information on the IT – Computer Support Specialist 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

Students in this program must:

- Complete application form and submit with fee (fee waiver may apply if previously submitted)
- Complete Accuplacer entrance assessment to determine placement (waiver may apply with acceptable alternative test scores and/or postsecondary degree completion)
- Complete admissions interview with a WITC counselor (above requirements should be completed prior to interview)

## Program-Specific Requirement

Students in this program must:

- Complete the SmarterMeasure Learning Readiness Indicator assessment for online learning at: <http://www.witc.edu/online/smartermeasure.htm>.

## Student Profile

Students who enter the program should:

- Be organized and logical
- Enjoy work that requires a high degree of accuracy
- Be able to handle setbacks and remain at a task until a workable solution can be found
- Be able to work under stress

## Preparation for Admission

Students should strive to reach a comfort level in the following courses or skills:

- Algebra
- Geometry
- Keyboarding
- Basic computer skills

Key to the student's success in this program is the ability to work well alone or with others to identify and solve problems.

## Program Outcomes

Employers will expect graduates of the Information Technology - Network Specialist program to be able to:

- Implement local area and wide area network designs
- Configure network devices
- Troubleshoot network connectivity
- Administer client/server domains
- Troubleshoot operating system software
- Support enterprise applications
- Implement hardware and software security
- Support hardware and software needs of an organization's end users

Collegewide outcomes and indicators will also be addressed to develop personal awareness, career effectiveness, and professionalism. See page 5 for a list of collegewide outcomes and indicators.

## Career Outlook

The use of computers and the Internet in business and industry has led to a strong demand for computer network specialists. Job opportunities after graduation include:

- Network Administrator
- Network Support Specialist
- Computer Support Specialist
- Network Technician
- Network Analyst

## Curriculum

Number	Course Title	Credits
<b>Technical Studies Courses</b>		
10150102	Information Security 1 ▲	3
10150109	Wireless LANs ▲	3
10150111	Cisco Networking Fundamentals	3
10150112	Cisco Routing Protocols and Concepts ▲	3
10150113	Cisco Switching and Wireless ▲	3
10150114	Cisco WANs ▲	3
10150117	MS LAN Administration - Infrastructure ▲	3
10150118	MS LAN Administration - Active Directory ▲	3
10150121	Hardware/Software Installation ▲	2
10150122	Web Server ▲	2
10150123	Exchange Server ▲	2
10150138	IT Essentials	3
10150142	Networking Case Studies ▲	2
10154102	Operating Systems 1	2
10154103	Operating Systems 2	3
10154109	PC Troubleshooting/Upgrading ▲	3
10605167	Electricity 1▲ or	2
10150148	Network+ ▲	
10890105	Job Quest	1
		46
<b>General Studies Courses †</b>		
10801195	Written Communication ▲	3
10801196	Oral/Interpersonal Communication	3
10801197	Technical Reporting ▲	3
10804113	College Technical Mathematics 1A ▲ or	3
10804133	Mathematics and Logic ▲	
10809166	Introduction to Ethics: Theory and Application or	3
10809172	Race, Ethnic, and Diversity Studies	
10809195	Economics	3
10809198	Introduction to Psychology	3
		21
	ELECTIVES	2
	PROGRAM REQUIREMENTS	69

▲ Requires a prerequisite and/or corequisite that must be completed with a grade point of 2.0 or better.  
† See page 40 for General Studies course descriptions.

# Course Descriptions

(See page 40 for General Studies course descriptions)

## 10150102

### Information Security 1 - 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 Operating Systems 2.

## 10150109

### Wireless LANs - Credits: 3

Wireless LANs is an introductory course that will focus on the design, planning, implementation, operation and troubleshooting of wireless networks. It covers a comprehensive overview of technologies, security, and design best practices with particular emphasis on hands-on skills. PREREQUISITE: 10150113 Cisco Switching and Wireless.

## 10150111

### Cisco Networking Fundamentals - Credits: 3

This course introduces the components, functions, and design of communication networks including the Internet. It uses the OSI and TCP/IP network models to examine the services provided by different layers of the model. The course examines the protocols used by the application, transport, network, datalink, and physical layers of the OSI model. TCP, IP, and Ethernet will be examined in detail. Learning will be reinforced by the creation and configuration of TCP/IP networks. Network addressing will be covered in detail as well.

## 10150112

### Cisco Routing Protocols and Concepts - Credits: 3

In this course, students will learn how routers make path determination based on information configured with static routes and learned from dynamic routing protocols. This course will provide a detailed description of the router lookup process. It will explain the operation of the RIPv1, RIPv2, EIGRP, and OSPF routing protocols. Students will learn to configure static routes and dynamic routing protocols, as well as troubleshoot problems and analyze network designs. Students will use both in-class routing equipment as well as the routing simulation software, Packet Tracer. PREREQUISITES: 10150111 Cisco Networking Fundamentals.

## 10150113

### Cisco Switching and Wireless - Credits: 3

This course helps students develop an in-depth understanding of how switches operate and are implemented in the LAN environment for small and large networks. Beginning with a foundational overview of Ethernet, this course provides detailed explanations of LAN switch operation, VLAN implementation, Rapid Spanning Tree Protocol (RSTP), VLAN Trunking Protocol (VTP), Inter-VLAN routing, and wireless network operations. Students analyze, configure, verify, and troubleshoot VLANs, RSTP, VTP, and wireless networks. Campus network design and Layer 3 switching concepts are introduced. PREREQUISITE: 10150111 Cisco Networking Fundamentals.

## 10150114

### Cisco WANs - Credits: 3

This course explains the principles of traffic control and access control lists (ACLs) and provides an overview of the services and protocols at the data link layer for wide-area access. Students learn about user access technologies and devices and discover how to implement and configure Point-to-Point Protocol (PPP), Point-to-Point Protocol over Ethernet (PPPoE), DSL, and Frame Relay. WAN security concepts, tunneling, and VPN basics are introduced. The course concludes with a discussion of the special network services required by converged applications and

an introduction to quality of service (QoS). Cisco Networking Academy Program. PREREQUISITES: 10150112 Cisco Routing Protocols and Concepts and 10150113 Cisco Switching and Wireless and COREQUISITES: 10150123 Exchange Server, 10150122 Web Server, 10150109 Wireless LANs, and 10150118 Microsoft LAN Administration - Active Directory.

## 10150117

### MS LAN Administration - Infrastructure - Credits: 3

This course provides students with training in the configuration of services in a Microsoft Server environment. Students will learn how to setup and troubleshoot DHCP, DNS, printing, file sharing, and remote access services. Microsoft file permissions will be examined and Active Directory will be introduced. Other topics include Windows Firewall, Network Access Protection, and IPv6. PREREQUISITE: 10154102 Operating Systems 1.

## 10150118

### MS LAN Administration - Active Directory - Credits: 3

This course provides the students with the concepts and techniques necessary to implement, secure and administer Microsoft's Active Directory Services. Students will learn how to use administrative tools, integrate DNS and Active Directory, manage user and group accounts, configure system policies, and configure multiple active directory sites. PREREQUISITE: 10154102 Operating Systems 1.

## 10150121

### Hardware/Software Installation - Credits: 2

This course will prepare students to install hardware and software. You will learn to properly install various types of hardware and software on an IBM-compatible personal computer. This lecture- and lab-based course will use both group and individual activities. PREREQUISITE: 10154102 Operating Systems 1.

## 10150122

### Web Server - Credits: 2

This course will be an introduction to installing, configuring, and administering a Web Server. There will be a review of Internet security and an overview of many Web protocols including FTP, HTTP, NNTP, and SMTP. PREREQUISITE: 10154103 Operating Systems 2.

## 10150123

### Exchange Server - Credits: 2

This course focuses on installing and configuring the Microsoft Exchange Server in a Windows LAN network environment. The student will learn how to plan for proper Exchange Server installation, install and configure the Exchange Server, set up Outlook clients, and establish user mail accounts. PREREQUISITE: 10150118 Microsoft LAN Administration - Active Directory.

## 10150138

### IT Essentials - Credits: 3

IT Essentials covers the fundamentals of computer hardware and software as well as advanced concepts. Students who complete this course will be able to describe the internal components of a computer, assemble a computer system, install an operating system, and troubleshoot using system tools and diagnostic software.

## 10150142

### Networking Case Studies - Credits: 2

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 small business lab simulation by designing and implementing a small business project. PREREQUISITE: 10154109 PC Troubleshooting/Upgrading.

## 10154102

### Operating Systems 1 - Credits: 2

A review of the most common command line operations and study of more advanced commands necessary to configure the Windows 2000 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 9.X operating system.

## 10154103

### Operating Systems 2 - 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.

## 10154109

### PC Troubleshooting/Upgrading - Credits: 3

This course is intended to provide a student with basic technical skills necessary to install and troubleshoot microcomputer hardware components. The student will learn how to identify the type and function of each hardware component as well as perform installation, testing, and replacement. This course utilizes A+ certification materials. PREREQUISITE: 10150121 Hardware/Software Installation.

## 10605167

### Electricity 1 - Credits: 2

Electricity 1 is a lecture/hands-on course designed to introduce students to basic electrical terminology, laws, concepts, instrumentation, and application. Hands-on activities will be stressed to reinforce electrical concepts related to practical applications dealing with computer networks. Topics covered will include electrical safety, terminology and symbols, electrical laws, basic circuits, multimeter use, DC power supplies, and troubleshooting. Critical-thinking skills are emphasized to develop competencies in problem solving and troubleshooting. COREQUISITE: 10804113 College Technical Mathematics 1A.

## 10150148

### Network+ - Credits: 2

Network+: Earning a CompTIA Network+ certification demonstrates that a candidate can describe the features and functions of networking components, and possesses the knowledge and skills needed to install, configure, and troubleshoot basic networking hardware, protocols, and services. IP addressing techniques and principles will be covered in detail. The exam tests technical ability in the areas of media and topologies, protocols and standards, network implementation, and network support. The new exam also covers new technologies such as wireless networking and gigabit Ethernet. Operating system experience is required, as is a basic knowledge of hardware. Students are required to take the Network+ certification test as part of this course. PREREQUISITE: 10154103 Operating Systems 2.

## 10890105

### Job Quest - Credits: 1

This course is designed to enhance the student's ability to seek, obtain, and retain employment. Assessment of personal characteristics, job-seeking and retention skills, preparation of employment-related documents, and interviewing strategies are included.

## Graduate Employment Information

(WITC Graduate Survey Responses 2009-2010; for most recent data, go to [witic.edu](http://witic.edu))

Number of graduates	20	Number employed	13	% employed in WITC district	44%
Number of responses	17	Percent employed	81%	Range of yearly salary	\$28,000-\$37,440
Number available for employment	16	Employed in related field	9	Average yearly salary	\$32,950

*career vision*