



# IT - Network Specialist

Associate of Applied Science Degree

Program Number: 10-150-2

2009 - 2010

The Network Specialist Associate of Applied Science Degree prepares students for a career in computer network support and integrated technology in order to meet business demands for information sharing. Students receive training in network design, installation, troubleshooting, administration, and management. IP Telephony technologies are introduced in the second year.

After completing this program, the student will have covered basic topic areas needed for the MCSA, Net+, A+, CCNA and CNA certifications.

**Program Outcomes--**

**Upon completion of this program, you will be able to:**

- Configure desktop hardware
- Troubleshoot microcomputer hardware and software problems
- Design a complex network to efficiently facilitate the flow of information using current LAN/WAN technologies
- Configure network equipment
- Utilize TCP/IP protocol suite for network configuration and administration
- Manage desktop operating systems and software
- Manage network operating systems
- Apply systems analysis and design as well as project management concepts
- Use the Internet as both a research and publishing tool
- Troubleshoot complex LAN/WAN issues
- Research, organize and present a seminar on a current networking technology
- Create, maintain, and update network documentation
- Manage an Information Technology project from inception to implementation
- Utilize structured programming principles in the creation, editing, compilation, and execution of computer programs
- Utilize an industry-standard relational database management system (RDBMS) to illustrate an understanding of data design and data access
- Analyze and secure network systems to prevent unauthorized access
- Design IP Telephony Systems for the enterprise

**Graduates from this program have found employment as:**

- Network Administrator
- Help Desk Specialist
- Network Support Specialist
- Technical Support Specialist
- Network Technician
- User Support Specialist
- Technical Consultant

**Helpful High School Courses:**

- Keyboarding and Software Applications
- PC Hardware Installation
- Internet Applications
- Web Page Design
- Algebra and math
- Business and information technology
- English and Speech

	Course Name	Credits	Lec-Lab
<b>Semester 1</b>			
150-120	Micro Operating Systems I	3	2 - 2
150-130	Network Design	3	2 - 2
801-195	Written Communication	3	3 - 0
804-133	Mathematics & Logic	3	3 - 0
809-195	Economics	3	3 - 0
<b>Semester 2</b>			
150-127	Windows Server 2003 <sup>1</sup>	3	2 - 2
150-131	Network Installation /Troubleshooting <sup>1</sup>	3	2 - 2
150-140	Data and Control Structures <sup>1</sup>	3	3 - 0
152-133	Advanced Systems Documentation <sup>1</sup>	2	1 - 2
801-196	Oral/Interpersonal Communication	3	3 - 0
	Elective <sup>2</sup>	3	3 - 0
<b>Semester 3</b>			
150-117	LAN/WAN Integration <sup>1</sup>	3	2 - 2
150-128	Active Directory <sup>1</sup>	3	2 - 2
150-141	Linux <sup>1</sup>	3	2 - 2
152-150	Systems Analysis & Design	3	2 - 2
809-166	Introduction to Ethics: Theory & Application	3	3 - 0
<b>Semester 4</b>			
150-132	IT Project Management <sup>1</sup>	3	2 - 2
150-142	Introduction to IP Telephony <sup>1</sup>	3	2 - 2
150-143	Exchange and SQL Server <sup>1</sup>	3	2 - 2
150-182	IT Career Preparation <sup>1</sup>	1	1 - 0
809-196	Introduction to Sociology	3	3 - 0
809-198	Introduction to Psychology	3	3 - 0
<b>TOTAL CREDITS</b>		<b>63</b>	
<sup>1</sup> Course has prerequisites.			
<sup>2</sup> Recommended Electives:			
154-113	Microcomputer Hardware Apps	3	2 - 2
154-121	IT - Service Fundamentals	3	2 - 2

**Short-Term Credit-Based Certificate Options:**

- IT - Help Desk & Network Support (28 credits) Certificate 99-9131
- IT - Project Management (11 credits) Certificate 99-9133

Students may choose to receive a certificate upon satisfactory completion of the required courses in the IT-Network Specialist Program. With this certificate, you will be better prepared for entry level positions. Students selecting this option may return to BTC at a later date (in accordance with the College's advanced standing policy) to complete the IT-Network Specialist Associate of Applied Science Degree.

## Course Descriptions

### 150-117 LAN/WAN Integration 3 Credits

LAN/WAN Integration is a hands-on course where students build multiplatform, multiprotocol, multiserver networks from the ground up. Topics include: installation and configuration of client software, protocols, and servers; virtual LANs, switches, routers, virtual private networks, secure infrastructure design, and WAN technologies.

**Prerequisites:** 150-131 Network Installation/Troubleshooting

### 150-120 Micro Operating Systems I 3 Credits

Micro Operating Systems I is a lecture/hands-on course designed to teach a popular microcomputer client operating system. The operating system covered is Microsoft Windows XP Professional. Topics include operating system installation and troubleshooting, and the use of users, groups, profiles, and policies. Best practices for securing the desktop environment are also discussed.

### 150-127 Windows Server 2003 3 Credits

This lecture/hands-on course concentrates on Microsoft Network Operating Systems such as Windows 2003 and Active Directory Server. Topics include: network administrator responsibilities; login security, file system security and design; Active Directory administration and design; user administration and client installation; configuration, troubleshooting, and print management. **Prerequisite:** 150-120 Micro Operating Systems I

### 150-128 Active Directory 3 Credits

Active Directory is a lecture/hands-on course designed to introduce advanced administration. The student can expect to be able to implement: advanced GPOs, backup strategies, Active Directory Design, WSUS, DFS, Terminal Services, CA configuration, IIS, VPNs, DHCP, DNS, software deployment, RAS, and utilities like NTDSutil. Students will learn to use these tools and applications in an enterprise Active Directory network. **Prerequisite:** 150-127 Windows Server 2003

### 150-130 Network Design 3 Credits

Network Design is a lecture/hands-on lab course designed to introduce students to network design fundamentals. Topics covered include: OSI Reference Model; LAN/WAN topologies; cabling systems; access methods; protocols; introduction to various network clients; and internetworking devices (e.g. hubs, switches, bridges, routers, etc.).

### 150-131 Network Installation/Troubleshooting 3 Credits

Network Installation and Troubleshooting is a lecture/hands-on course that is designed to introduce the student to routing and switching infrastructures, basic Cisco router and switch configurations, troubleshooting methodologies, OSI 7 layer concepts, integration of basic network components, and integration of desktop and server-based operating systems with infrastructure in an enterprise network. **Prerequisite:** 150-130 Network Design

### 150-132 IT Project Management 3 Credits

This is a capstone project course that culminates the experience of the two-year program. The focus will be an integration of all of the networking skills acquired throughout the program with hands-on applications including problem-solving, troubleshooting, and technical documentation. Network troubleshooting, server design, network analysis, network design, security, recovery models, project management, network planning, and business models relating to computer networking and IT will be stressed.

**Prerequisite:** 150-117 LAN/WAN Integration

### 150-140 Data and Control Structures 3 Credits

Data and Control Structures is a lecture/hands-on course designed to teach students to think the way that the computer thinks and how data is stored and retrieved. Topics include: structured programming (i.e. sequence, selection, and iteration), database design, query building, form design, and report design. **Prerequisite:** 150-120 Micro Operating Systems I

### 150-141 Linux 3 Credits

Linux is a lecture/hands-on course designed to teach basic Linux commands and system administration. Linux desktop operating system installation, users, groups and file security will be examined. Linux server installation, configuration, troubleshooting and security topics will also be addressed. **Prerequisite:** 150-127 Windows Server 2003

### 150-142 Introduction to IP Telephony 3 Credits

Introduction to IP Telephony is a lecture/hands-on course designed to teach basic VoIP and telephony concepts. This course also reinforces network design concepts for both LAN and WAN implementations that are used for IP Telephony. Topics include: Basic VoIP architectures, LAN/WAN telephony architectures, telephony concepts, telephony security, introduction to Cisco CallManager, introduction to open source telephony solutions like Asterisk, and VoIP protocols. **Prerequisite:** 150-117 LAN/WAN Integration

### 150-143 Exchange and SQL Server 3 Credits

Exchange and SQL Server is a lecture/hands-on course that is designed to introduce the student to Microsoft Exchange Server and Microsoft SQL Server Administration. Topics include: SQL Server installation, Exchange Server installation, Exchange and SQL configuration, managing the directory, managing distribution lists, managing information stores, writing advanced SQL queries, database design, normalization, and backing up and restoring Exchange and SQL Servers. **Prerequisite:** 150-128 Active Directory

### 150-182 IT Career Preparation 1 Credit

This is a course designed to prepare second year students with the skills necessary to plan and execute an active job search. Topics covered include: resumes; personal data files; letters of application; and interviewing techniques. Students will prepare a strategy for finding and obtaining a position that best fits their goals and interests.

**Prerequisite:** 152-150 Systems Analysis and Design

### 152-133 Advanced Systems Documentation 2 Credits

This lecture/lab course will focus on technical writing and documentation skills. Hands-on work will include writing and editing business letters and memos, persuasive documents, technical reports and html documentation. The course will culminate in a short research paper and oral presentation. **Prerequisites:** 801-195 Written Communication and 150-120 Operating Systems I

**152-150 Systems Analysis and Design 3 Credits**

Systems Analysis & Design is a lecture/lab course intended to introduce the student to the concepts involved in a small-to-medium sized information systems project from inception to implementation. We will cover the traditional analysis and design methodologies as well as object-oriented methodologies. Throughout the life cycle of the analysis and design process, we will cover project management, utilizing Microsoft Project. We will use Microsoft Visio as a tool in diagramming various components of the system during the analysis phase, and we will use Microsoft Access as a tool in the project's design phase. Additional concepts covered will be verbal and written communication with users and team members, professional behavior, professional attire, problem identification, and problem solving.

**Prerequisite: 150-140 Data and Control Structures**

**154-113 Micro Hardware Applications 3 Credits**

Micro Hardware Applications is a lecture/hands-on course designed to teach students microcomputer hardware fundamentals. Topics include: basic computer setup, installation and configuration of desktop operating systems, hardware installation, and troubleshooting. Previous understanding of operating systems is recommended.

**154-121 IT Service Fundamentals 3 Credits**

This course will explore the fundamentals of customer service required in order to successfully satisfy customer technology needs. Topics included in this course will be techniques for positive communication, effective listening skills, dealing with difficult customers as well as developing proficiency in time and stress management.

**General Education Courses:**

801-195	Written Communication	3 Credits
801-196	Oral/Interpersonal Communication	3 Credits
804-133	Mathematics & Logic	3 Credits
809-166	Introduction to Ethics: Logic & Application	3 Credits
809-195	Economics	3 Credits
809-196	Introduction to Sociology	3 Credits
809-198	Introduction to Psychology	3 Credits

Refer to BTC Catalog for complete course descriptions, program standards, and prerequisites information. BTC is an equal opportunity, access, affirmative action employer and educator.