Specialized Associate Degree—Information Technology

Objective: The Specialized Associate Degree – Information Technology program is intended to give the student knowledge of a wide array of network technologies. From the program, students learn to build and troubleshoot a computer and learn the terminologies, setup, and configuration of several different network technologies. This provides students with a solid foundation from which they can then specialize in a specific field. After completion of 1075 hours of core classes which prepare students for eight certifications, students may choose concentrations in Microsoft, Cisco, or Linux systems for the final 425 hours. Graduates are prepared for entry-level positions as network administrators, network consultants, network engineers, network technicians, or systems engineers.

Certification Preparations (Core Classes):

- CompTIA A+ Technician
- CompTIA Network+
- CompTIA Linux+
- Microsoft Certification at the product level (MCP) in three areas:
  - Windows XP Professional, Windows 2003 Server, and Implementing, Managing and Maintaining a Microsoft Windows 2003 Network Infrastructure
- Microsoft Certified Systems Administrator (MCSA): With completion of the CompTIA A+ Technician, Network+, and the three MCP certifications, the student will have achieved the highly regarded MCSA certification.

Certifications are not required to be employed in the career field or to graduate from the program, but they are highly recommended. Exams may be taken at the on-campus Prometric/VUE Testing Center. Exam fees vary, ranging from $60 to $225.

Specialized Associate Degree—Information Technology

Program Outline: Core Classes

Class No.	Class Title	Hours	Qtr. Units
CM166A	Beginning Excel	25	1.0
CM168A	Beginning Access	25	1.0
CM190A	Web Authoring I	25	1.0
CM190B	Web Authoring II	25	1.0
CM190C	Web Authoring III	25	1.0
CM192A	Microsoft Office Professional: An Overview of Word and Excel	25	1.0
CM210A	Photoshop	25	1.0
CS100	Introduction to Computer Hardware	75	6.0
CS110A	Command Line Scripting	25	1.0
CS120	Computer Configuration and Troubleshooting	75	6.0
CS140	Advanced Computer Set-up and Communications	75	6.0
CS160A	Network Plus I	25	2.5
CS160B	Network Plus II	25	2.5
CS175A	Wiring Hardware	25	1.5
CS191	Certification Preparation	25	1.5
CS205	Windows 2003 Server	75	5.5
CS212	Implementing, Managing, and Maintaining a Microsoft Windows 2003 Infrastructure	75	5.5
CS225A	Electronic Messaging with Virus Protection	25	1.0
CS242	Windows XP	75	5.5
CS245	Wireless Networking	25	1.0
CS260	Linux Plus with Novell Administration	75	6.0
CS270A	Technical Drawing with Visio	25	1.0
GB101	Career Transitions	25	2.5
General Education			
EN303A	Management Communications I	25	2.5
EN303B	Management Communications II	25	2.5
GB200A	Human Relations I	25	2.5
GB200B	Human Relations II	25	2.5
MA101	Introduction to Algebra	25	2.5
PH101A	Ethics in Technology and Society	25	2.5
	Total Core Classes:	1075	77.0

Cisco Concentration

Objective: During the 425-hour Cisco concentration, students work with the Cisco Internetworking Operating Systems including setup, configuration, and design of Local Area Networks (LAN) and Wide Area Networks (WAN). The student will be able to program Cisco routers and switches and will be able to implement TCP/IP addressing, Access Control lists, VLANs (Virtual Local Area Networks) and configure Distance Vector, Link State and Hybrid protocols.

The student is prepared for nine certifications:

- CompTIA A+ Technician, Network+, and Linux+
- Microsoft Certification at the product level (MCP) in four areas:
  - Windows XP Professional; Windows 2003 Server; Implementing and Managing Microsoft Exchange Server 2003; and Implementing, Managing and Maintaining a Microsoft Windows Server 2003 Network Infrastructure
- Microsoft Certified Systems Administrator (MCSA): With completion of the CompTIA A+ Technician, Network+, and the three MCP certifications, the student will have achieved the highly regarded MCSA certification.
- Cisco Certified Networking Associate (CCNA)

Certifications are not required to be employed in the career field or to graduate from the program, but they are highly recommended. Exams may be taken at the on-campus Prometric/VUE Testing Center. Exam fees vary, ranging from $60 to $225.

Expected Educational Outcomes: Upon completing the Specialized Associate Degree – Information Technology – Cisco program, students will have demonstrated:

1. The ability to provide customer and user support for computer systems and networking products including Microsoft Windows, Novell Netware, Cisco, Linux, and cross platform connectivity.
2. An understanding of Cisco Internetworking Operating Systems including configuration and implementation of routers and switches.
3. The ability to configure routers in a Local Area and Wide Area Network environment with firewall technologies.
4. The critical thinking skills required to analyze network connectivity problems and make necessary judgments to troubleshoot hardware and software.
5. The ability to design Local Area and Wide Area Networks from OSI Layer 1 to Layer 7.
6. The ability to interact with users/customers in a professional, businesslike manner.
7. Proficiency with Microsoft Office and Open Office suites.

Specialized (Occupational) Associate Degree awarded upon successful completion of all graduation requirements.

Program Outline: Requirements for Graduation

Class No.	Class Title	Hours	Qtr. Units
	All Core Classes	1075	77.0
CS236	Exchange Server 2003	75	6.0
CS280A	Network Security	25	1.5
CS290A	Firewall Services	25	1.5
CS330	Introduction to Cisco Routers I	75	6.0
CS340	Introduction to Cisco Routers II	75	6.0
CS350	Cisco Routers in Wide Area Networks I	75	6.0
CS360	Cisco Routers in Wide Area Networks II	75	6.0
	Program Total:	1500	110.0
	Total Weeks/Quarters		
	Daytime:	60/6	
	Evening:	90/6	

Keyboarding Speed Requirement: 25 NWPM

Linux Concentration

Objective: During the 425-hour Linux concentration, students will be able to implement various Linux platforms and fully deploy their capabilities. This program is designed to provide the student with the fundamental knowledge of the Linux operating system and installation, configuration, and basic system management including commands, and X Windows systems emphasizing Red Hat Linux.

There is also a study of the basic concepts of Linux File systems, Redundant Array of Independent Disks (RAID) design, backup procedures, SAMBA (Windows interconnectivity), IP routing, Domain Name Service (DNS), Apache Web Server, network file system, security models and standards, encryption, authentication, securing a network, and intrusion detection.

The student is prepared for nine certifications:

CompTIA A+ Technician, Network+, and Linux+

Microsoft Certification at the product level (MCP) in four areas:
Windows XP Professional; Windows 2003 Server; Implementing and Managing Microsoft Exchange Server 2003; and Implementing, Managing and Maintaining a Microsoft Windows 2003 Network Infrastructure

Microsoft Certified Systems Administrator (MCSA): With completion of the CompTIA A+ Technician, Network+, and the three MCP certifications, the student will have achieved the highly regarded MCSA certification.

Linux Professional Institute Certified Administrator.

Certifications are not required to be employed in the career field or to graduate from the program, but they are highly recommended. Exams may be taken at the on-campus Prometric/VUE Testing Center. Exam fees vary, ranging from $60 to $225.

Expected Educational Outcomes: Upon completing the Specialized Associate Degree – Information Technology – Linux program, students will have demonstrated:

1. The ability to provide customer and user support for computer systems and networking products including Microsoft Windows, Novell Netware, Linux cross platform connectivity, and numerous software products.
2. The ability to create a network infrastructure using Linux Workstation and Server software.
3. An understanding of Unix/Linux operating systems including setup, configuration, and file user management.
4. The critical thinking skills required to analyze network connectivity problems and make necessary judgments to troubleshoot hardware and software.
5. The ability to interact with users/customers in a professional, businesslike manner.
6. Proficiency with Microsoft Office and Open Office Suites.

Specialized (Occupational) Associate Degree awarded upon successful completion of all graduation requirements.

Program Outline: Requirements for Graduation

Class No.	Class Title	Hours	Qtr. Units
	All Core Classes	1075	77.0
CS236	Exchange Server 2003	75	6.0
CS280A	Network Security	25	1.5
CS290A	Firewall Services	25	1.5
CS365	Linux System Administration	75	6.0
CS375	Linux Networking	75	6.0
CS385	Linux Security, Ethics, and Privacy	75	6.0
CS395	Linux in the Enterprise	75	6.0
	Program Total:	1500	110.0
	Total Weeks/Quarters		
	Daytime:	60/6	
	Evening:	90/6	

Keyboarding Speed Requirement: 25 NWPM

Microsoft Concentration

Objective: The 425-hour Microsoft concentration is designed to give the student experience in designing, deploying, and administering network infrastructure using Microsoft Windows. At the end of the program the student should be prepared to achieve the Microsoft Certified Systems Engineer (MCSE) certification. In addition, students are introduced to the Linux/Unix operating system. Students will also learn the basics of Cisco routers including setup and configuration of many LAN (Local Area Network) and WAN (Wide Area Network) technologies, as well as the basics of web design and electronic messaging.

Empire College is a Microsoft IT Academy and MSDN AA (Microsoft Developers Network Academic Alliance) member and uses a teaching program prescribed by Microsoft to prepare graduates for certification as Microsoft Certified Systems Engineers. The student is prepared for 13 certifications:

- CompTIA A+ Technician, Network+, Linux+, and Security+
- Microsoft Certification at the product level (MCP) in seven areas:
  - Windows XP Professional; Windows 2003 Server; Implementing and Managing Microsoft Exchange Server 2003; Implementing, Managing and Maintaining a Microsoft Windows 2003 Network Infrastructure; Planning and Maintaining a Microsoft 2003 Server Infrastructure; Planning, Implementation, and Maintaining Windows 2003 Active Directory Infrastructure; Designing a Microsoft Windows Server 2003 Active Directory and Network Infrastructure
- Microsoft Certified Systems Administrator (MCSA) certification
- Microsoft Certified Systems Engineer (MCSE) certification: With completion of the CompTIA Security+ certification and the six MCP certifications, the student will have achieved the highly regarded MCSE certification.

Certifications are not required to be employed in the career field or to graduate from the program, but they are highly recommended. Exams may be taken at the on-campus Prometric/VUE Testing Center. Exam fees vary, ranging from $60 to $225.

Expected Educational Outcomes: Upon completing the Specialized Associate Degree – Information Technology – Microsoft program, students will have demonstrated:

1. The ability to provide customer and user support for computer systems and networking products including Microsoft Windows client and server operating systems, Novell Netware, cross platform connectivity, and numerous software products.
2. The ability to create a complete network infrastructure using Microsoft client and server operating systems.
3. An understanding of Microsoft Windows operating systems including setup, configuration, file and user management, as well as router configuration.
4. The critical thinking skills required to analyze network connectivity problems and make necessary judgments to troubleshoot hardware and software.
5. The ability to interact with users/customers in a professional, businesslike manner.
6. Proficiency with web authoring and Microsoft Word, Excel, and Access.

Specialized (Occupational) Associate Degree awarded upon successful completion of all graduation requirements.

Microsoft Concentration

Program Outline: Requirements for Graduation

Class No.	Class Title	Hours	Qtr. Units
	All Core Classes	1075	77.0
CS218	Planning and Maintaining Windows 2003 Active Directory	75	5.5
CS219	Planning and Maintaining Windows 2003 Infrastructure	75	5.5
CS230	Designing a Microsoft Windows 2003 Server Active Directory and Infrastructure	75	5.5
CS236	Exchange Server 2003	75	6.0
CS250A	Introduction to Routers I	25	2.5
CS250B	Introduction to Routers II	25	2.5
CS325	Security Plus	75	5.5
	Program Total:	1500	110.0
	Total Weeks/Quarters		
	Daytime:	60/6	
	Evening:	90/6	

Keyboarding Speed Requirement: 25 NWPM

Security Concentration

Objective: The 425-hour Security concentration is designed to give the student experience recognizing network vulnerabilities and maximizing network security. At the end of this program the student should be prepared to take the SCNS (Security Certified Network Specialist), SCNP (Security Certified Network Professional), and SCNA (Security Certified Network Architect) exams. In addition, students are introduced to the Unix/Linux operating systems including setup, configuration, and user management. Students will also learn the basics of Cisco routers including setup and configuration of many LAN (Local Area Network) and WAN (Wide Area Network) technologies, as well as the basics of web design and electronic messaging.

The student is prepared for 11 certifications:

- CompTIA A+ Technician, Network+, Linux+ and Security+
- Microsoft Certification at the product level (MCP) in three areas:
  - Windows XP Professional, Windows 2003 Server, and Implementing, Managing and Maintaining a Microsoft Windows Server 2003 Network Infrastructure
- Microsoft Certified Systems Administrator (MCSA): With completion of the CompTIA A+ Technician, Network+, and the three MCP certifications, the student will have achieved the highly regarded MCSA certification.
- Security Certified Network Specialist (SCNS)
- Security Certified Network Professional (SCNP)
- Security Certified Network Architect (SCNA).

Certifications are not required to be employed in the career field or to graduate from the program, but they are highly recommended. Exams may be taken at the on-campus Prometric/VUE Testing Center. Exam fees vary, ranging from $60 to $225.

Expected Educational Outcomes: Upon completing the Specialized Associate Degree – Information Technology – Security program, students will have demonstrated:

1. The ability to provide customer and user support for computer systems and networking products including Microsoft Windows, Novell Netware, Linux cross platform connectivity, and numerous software products.
2. An understanding of Microsoft Windows operating systems including setup, configuration, and file and user management, as well as router configuration.
3. An ability to design and configure a PKI (Public Key Infrastructure).
4. An understanding of network data packets, the ability to create and design network firewalls and intrusion detection systems.
5. An understanding of strong authentication including the use of biometric, key fobs, and smart cards.
6. An understanding of various types of network vulnerabilities and the types of attacks used to penetrate a network.
7. The critical thinking skills required to analyze network connectivity problems and make necessary judgments to troubleshoot hardware and software.
8. The ability to interact with users/customers in a professional, businesslike manner.
9. Proficiency with web authoring and Microsoft Word, Excel, and Access.

Specialized (Occupational) Associate Degree awarded upon successful completion of all graduation requirements.

Security Concentration

Program Outline: Requirements for Graduation

Class No.	Class Title	Hours	Qtr. Units
	All Core Classes	1075	77.0
CS250A	Introduction to Routers I	25	2.5
CS250B	Introduction to Routers II	25	2.5
CS313	Tactical Perimeter Defense	75	6.0
CS323	Strategic Infrastructure Security	75	6.0
CS325	Security Plus	75	5.5
CS332	Advanced Security Implementation	75	6.0
CS342	Enterprise Security Solutions	75	6.0
	Program Total:	1500	111.5
	Total Weeks/Quarters		
	Daytime:	60/6	
	Evening:	90/6	

Keyboarding Speed Requirement: 25 NWPM