AAS Degree in Networking System Administration / 3208

Program Prerequisites:	Credits
CIS 105 - Survey of Computer Information Systems (3) and CRE 101 - Critical and Evaluative Reading I (3)	6
I. General Studies Core Areas (12 - 14 Credits)	
English	6
Communication	3
Mathematics	3-5
II. General Studies Distribution Area (10 Credits)	
Humanities and Fine Arts	3
Social Behavioral Science	3
Natural Science	4
III. Core Courses (29-31 credits)	
BPC 170 - Microcomputer Maintenance I : A+Prep (3)	
or BPC 270 - Microcomputer Maintenance II	3
CIS 109AM - Networking Technology I (Windows XP)	2
CIS 126 - Unix Operating Systems (note: any module)	3
CIS 163AA - Java Programming: Level I (3)	
or CIS 162- C Programming I (note: any module)	3
CIS 191++ - System Administration, (note: any module) (3)	
or CIS 175DB- Implementing Microsoft Windows 2000 Professional (3)	
or MST 150++- Microsoft Windows 2000 Professional (note: any module)	3
CIS 240 - Local Area Network (LAN) Planning and Design	3
CIS 266 - Network Service and Support	4
CIS 270 - Essentials of Network and Information Security	3
CNT 140 - Cisco Networking Basics (4)	
or CIS 190 - Introduction to Local Area Networks (3)	3-4
ELE 100 - Concepts of Electricity and Electronics	3
Restrictive Electives (select 12 credits)	
CIS 175CB - Designing a Microsoft Win 2000 Directory Services Infrastructure	2
CIS 175CC - Designing a Microsoft Win 2000 Networking Services Infrastructure	2
CIS 175CE - Supporting a Microsoft Win 2000 Network Infrastructure	3
CIS 175CF - Implementing & Administering Microsoft Windows 2000 Directory Services	3
CIS 175CG - Designing a Secure Microsoft Windows 2000 Network	3
CIS 238 - Advanced Unix Systems Administration	3
CIS 245AD - Advanced System Administration	3
MST 150++ Microsoft Windows Professional (note: any module)	3
MST 152++ Microsoft Server (note:any module)	4
MST153WC - Windows 2003 Server Administration Level II	3
MST155 - Implementing Windows Network Infrastructure	3
MST157 - Implementing Windows Directory Services	3
MST240 - Microsoft Transmission Control Protocol/Internet Protocol (TCP/IP)	3
MST253 - Designing Microsoft Windows 2000 Directory Services Infrastructure	3
CNT150 - Cisco Networking Router Technologies	4
CNT160 -Cisco Switching Basics and Intermediate Routing	3
CNT170 - Cisco Wide Area Networks (WAN) Technologies	3
CNT200 - Cisco Networking Advanced Routing	4
CNT210 - Cisco Networking Remote-Access Networks	4
CNT220 - Cisco Networking Multi-Layer Switching	4
CNT145 - Voice and Data Cabling	4
CNT185 - Cisco Network Security	4
CNT186 - Fundamentals of Wireless LANs	4
CSC/EEE120 - Digital Design Fundamentals	4
ELT131 - Digital and Logic Circuits	4

ASU Arizona State University East

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Industry Certification

CompTia A+

BPC 170 - Microcomputer Maintenance I: A+ Prep (*)
or BPC 273 - Advanced Server Computer Maintenance: Server + Prep

CompTia Network+

CNT140 - Cisco Networking Basics

Cisco Certificate Pathways:

Cisco CCNA Certification Pathway: Must pass an exam at either our site or other official testing center. All four Cisco courses are needed to prepare for this exam. Prerequisites for this certification pathway are: BPC170 or BPC273, CIS190, and CIS109AM.

Cisco CCNP Certification Pathway: Must pass 4 vendor exams, one for each of the Cisco CCNP courses (CNT200, CNT210, CNT220, or CNT230).

Cisco Course Description continued...

MST150 Microsoft Windows Professional 3 credits

Knowledge and skills necessary to perform day-to-day administration tasks in a Microsoft Windows-based network. Preparation for Microsoft certification examination. PR: None.

CNT200 Cisco Networking Advanced Routing 4 credits

Knowledge and skills to install, configure, secure, and manage complex scalable Internetworks. Covers the use of advanced routing protocols, traffic filtering, ACLs, advanced IP addressing, and route summarization. Intensive hands-on labs focus on VLSM, RIPv2, IGRP, EIGRP, OSPF, BGP, IS-IS, and methods of filtering and route summarization. Students use the Cisco Network Academy certified curriculum. Prepares for first of four CCNP exams. PR: CNT170 or current CCNA Industry certification or department approval. Co-requisites: CNT210 & CNT220.

CNT210 Cisco Networking Remote-Access Networks 4 credits

Knowledge and skills to build, configure, customize and troubleshoot a remote-access network to interconnect central sites of branch offices, home offices, and control access to the central site, plus maximize bandwidth over remote links, provide redundant backup links, and control costs using filtering techniques. Students use the Cisco Network Academy certified curriculum including numerous hands-on labs. Prepares for second of four CCNP exams. PR: CNT170, or current CCNA industry certification, or department approval. Co-requisites: CNT200 and CNT220.

CNT220 Cisco Networking Multi-Layer Switching 4 credits

Knowledge and skills to build campus networks using advanced and multi-layer switching technologies. Covers advanced switching concepts such as VLANs, VTP, Trunking, STP, Qos, Multi-layer switching, and AVVID through the use of the Cisco Network Academy certified curriculum including numerous hands-on labs. Prepares for third of four CCNP exams. PR: CNT170, or current CCNA industry certification, or department approval. Co-requisites: CNT200 and CNT210.

CNT230 Cisco Network Troubleshooting 4 credits

Emphasis on troubleshooting complex network problems by focusing on documenting and baselining a network, utilizing troubleshooting methodologies and tools, and learning effective skills in Layer 1 to 7 troubleshooting. Preparation for the last of four exams leading to the Cisco Certified Network Professional (CCNP) certification. PR: CNT200 and CNT210 and CNT220, or CCNP Advanced Routing, Remote Access, and Multi-Layer Switching certification, or department approval.

Our partners include:

Cisco Systems Networking Academy · Oracle Academic Initiative · Java Sun Authorized Sun Education Center · CompTIA · Microsoft IT Academy Program · Novell Education Academic Partner

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CISCO NETWORKING ACADEMY

Cisco Systems Networking Academy

- MCC Certificate of Completion in Network Administration: Cisco Network Associate (CCNA)
- MCC Certificate of Completion in Network Administration: Cisco Network Professional (CCNP)
- MCC AAS Degree in Networking Administration Requirements
- Cisco Certification Exam Preparation

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Web: http://bii.mc.maricopa.edu

MCC Certificate of Completion in Network Administration: Cisco Network Associate (code 5205)

Cisco has several levels of certification. The first level of Cisco certification is the Cisco Certified Networking Associate (CCNA). To obtain a CCNA you must pass only one exam; however, all four semester courses are needed to prepare for this exam. These courses are designed to teach students the skills needed to design, build, and maintain small to medium-sized networks.

Program Prerequisites:	*Credits*
CIS 105 - Survey of Computer Information Systems	3
CRE 101 - Critical and Evaluative Reading	3
Required Courses (32 Credits):	
BPC 170 - Computer Maintenance I: A+ Prep (3)	
or BPC 270 - Microcomputer Maintenance II (3)	3
CIS 109AM - Networking Technology I	2
CIS 126 - Unix Operating Systems (note: any module)	1-3
CIS 191 - Novell NetWare System Administration (note: any module) (3)	
or MST 150 - Microsoft Windows Professional (3)	3
CIS 266 - Network Service and Support	4
CIS 270 - Essentials of Network and Information Security	3
CNT 140 - Cisco Networking Basics	4
CNT 150 - Cisco Networking Router Technologies	4
CNT 160 - Cisco Switching Basics and Intermediate Routing	3
CNT 170 - Cisco Wide Area Networks (WAN) Technologies	3

MCC Certificate of Completion in Network Administration: Cisco Network Professional (code 5238)

The next step beyond CCNA is the Cisco Certified Network Professional (CCNP), which is an intermediate-level certification for IT professionals. To obtain a CCNP you must pass four vendor exams. Each of the CCNP courses (CNT200, CNT210, CNT220, or CNT230) prepare you for the associated exam. The certificate of completion is designed to teach students the skills needed to install, configure, and troubleshoot local and wide area networks for enterprise organizations.

Program Prerequisites:	*Credits*
Certificate of Completion in Network Administration: Cisco Network Associate (code 5205)	31-32
Required Courses (31 Credits):	
CIS266 - Network Service and Support	4
CIS270 - Essentials of Network and Information Security	3
CNT145 - Voice and Data Cabling	4
CNT186 - Fundamentals of Wireless LANs	4
CNT200 - Cisco Networking Advanced Routing	4
CNT210 - Cisco Networking Remote-Access Networks	4
CNT220 - Cisco Networking Multi-Layer Switching	4
CNT230 - Cisco Network Troubleshooting	4

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Cisco Course Descriptions

BPC170 Computer Maintenance I 3 credits

Technical aspects of the microcomputer, including system setup (hardware and software) and basic troubleshooting. Emphasizes troubleshooting, use of tools, hardware components and hardware and software interfaces, and operating systems. Students use Cisco certified course IT Essentials I. Course content prepares students for Computer Technology Industry Association (CompTIA) A+ certification exam. PR: None.

BPC273 Advanced Server Computer Maintenance: Server + Prep (Networking Systems) *(substitute for BPC270)* **3 credits**

Focuses on complex technical aspects of the microcomputer server, including server operating installation, configuration, and trouble-shooting. Preparation for the CompTIA Server+ and Linux+ examinations PR: CIS105 or department approval.

CIS109AM Networking Technology I (Windows XP) 2 credits

Computer workstation basics. Network services, transmission media, and connectivity devices covered. Open Systems Interconnection (OSI) Reference Model emphasized. PR: None.

CIS126AA UNIX Operating System Level I 1 credit

Use of the UNIX operating system: system components, built-in commands, files and directories, editors and UNIX Shell and command lines. No open labs for this class. This is on-line distance learning. You must have Internet access and meet CBT (Computer-Based-Training) system requirements. PR: CIS105. CBT courses are closed to registration. To register call 480-461-6100.

CIS126AL Linux Operating System I 1 credit

Introduction to the Linux Operating system. Develop knowledge and skills required to install, configure a Linux-based workstation including basic network functions. Prerequisites: None.

CIS126BL Linux Operating System II 1 credit

Introduction to the Linux Operating system. Develop knowledge and skills required to configure a Linux-based workstation including basic printing functions. Learn basic command line and Graphical User Interface (GUI) desktop environment utilities and applications. Prerequisites: CIS126AL or department approval.

CIS126CL Linux Operating System III 1 credit

Introduction to the Linux Operating system. Develop knowledge and skills required to install and configure applications and to troubleshoot a Linux-based workstation, including basic network functions. Learn basic command line and Graphical User Interface (GUI) desktop environment utilities and applications. PR: CIS126BL or department approval.

CIS126DA UNIX Operating Systems Sun Sponsored 3 credits

Introduction to the UNIX operating system for end users and is complementary to the other Cisco networking courses, such as routing and switching. Broadens the skills of Cisco academy students to include a major network operating system. Provides a strong foundation for those who wish to move on to more advanced courses in Unix system administration. Familiarizes students with the powerful UNIX command line utilities and the graphical Common Desktop Environment (CDE). PR: CIS105.

CIS266 Network Service and Support 4 credits

Prevention, diagnosis, and resolution of hardware-related problems network professionals encounter. Serves as a capstone course to link service and support skills in multi-platform environments. The course focuses on hardware issues in relationship to NetWare, Microsoft, and Linux. Students learn practical skills that optimize resources for networking products through extensive hands-on labs and practical exercises. PR: Students must have completed these courses to succeed: BPC170 and CIS191 (any module) or CIS175DB, and CIS245 or MST152, or any UNIX/Linux course.

CIS270 Essentials of Network and Information Security 3 credits

Addresses threats to security of information systems; responsibilities and basic tools for information security, including communication security, infrastructure security, organizational security and basic cryptography. Introduction to the language of network security and hardware, software and firmware components of an information security system for local, metropolitan, enterprise, and wide area networks. Helps prepare students for the CompTIA Security+ exam and the GIAC Security Essentials Certificate (GSEC). PR: CNT150, or CIS175DB or MST150 any module, or department approval.

CIS175DB Implementing Microsoft Windows 2000 Professional *(substitute for MST150)* **3 credits**

Installation, configuration and administration of Microsoft Windows 2000 Professional in a workgroup and domain environment, with emphasis on peer-to-peer networking. Covers user and group accounts, disk management, resource sharing and management, resource monitoring, printers, mobile computing, security and disaster protection are also covered. Covers content of Microsoft exam 70-210. PR: BPC170, CIS190 or CNT140 and/or department approval. CIS109AM recommended.

CIS191 Novell NetWare System Administration (NetWare 6) 3 credits

Knowledge and skills required to perform as network administrator or system manager for Novell NetWare 6 local area network. Prepares students for test associated with Novell course 3001 Fundamentals of Novell Networking Exam: 50-677 PR: CIS105, BPC170, CIS109AM, and CIS190 or CNT140.

CNT140 Cisco Networking Basics 4 credits

Introduction to the computer networking field. Covers network terminology and protocols, local area networks (LAN), and wide area networks (WAN). Includes Open Systems Interconnection (OSI) models, cabling and cabling tools, routers, router programming, Ethernet, Internet Protocol (IP) addressing, and network standards. First of four courses preparing for CCNA certification or first of two courses preparing for Cisco CCNA INTRO test. PR: None.

CNT145 Voice and Data Cabling 4 credits

Development of knowledge and skills related to the physical aspects of voice and data network cabling and installation. Emphasis on the cabling industry and its worldwide standards, types of media and cabling, physical and logical networks, and signal transmission. Hands-on experience and skills to read network design documentation, part list set up and purchase, pulling and mounting cable, cable management, choosing wiring closets and patch panel installation and termination as well as installing jacks and cable testing. Use of diagnostic equipment, troubleshooting procedures, and documentation processes. Preparation for Building Industry Consulting Services International (BICSI) Registered Certified Installer, Level 1 exam. PR: CNT140 or department approval.

CNT150 Cisco Networking Router Technologies 4 credits

Knowledge and skills to install, configure, customize, maintain and troubleshoot Cisco routers, their IOS and components, and basic ACL security through numerous hands-on labs. Students use Cisco Network Academy certified curriculum. Second of four courses preparing for CCNA certification or second of two courses preparing for Cisco CCNA INTRO test. PR: CNT140.

CNT160 Cisco Switching Basics and Intermediate Routing 3 credits

Advanced Internet Protocol (IP) addressing techniques, Variable Length Subnet Masking (VLSM), Intermediate routing protocols, Routing Internet Protocol version 2 (RIPv2), Single-area Open Shortest Path First (OSPF), and Enhanced Interior Gateway Routing Protocol (EIGRP), Command Line Interface configuration of switches, Ethernet switching, Virtual Local Area Networks (VLANS), Spanning Tree Protocol (STP) and Virtual local-area Network Trunking Protocol (VTP). Third of four courses preparing for CCNA certification exam or first of two courses preparing for Cisco CCNA ICND exam. PR: CNT150 or department approval.

CNT170 Cisco Wide Area Networks (WAN) Technologies 3 credits

Advanced Internet Protocol (IP) addressing techniques including Network Address Translation (NAT) Port Address Translation (PAT) and Dynamic Host Control Protocol (DHCP). Also covers Wide Area Network (WAN) technology and terminology, Point-to-Point Protocol (PPP), Integrated Services Digital Network (ISDN), Dial on Demand Routing (DDR), Frame Relay, and network management. Fourth of four courses preparing for CCNA certification exam or second of two courses preparing for Cisco CCNA ICND exam. PR: CNT160 or department approval.

CNT186 Fundamentals of Wireless LANs 4 credits

Design, planning, implementation, operation, and troubleshooting of wireless networks. Overview of technologies, security, and design best practices with emphasis on hands-on skills in wireless LAN (local area network) setup and troubleshooting, 802.11a & 802.11b technologies, products and solutions, site surveys, resilient WLAN design, installation and configuration, WLAN Security - 802.1x, EAP (Extensible Authentication Protocol), LEAP (Light Extensible Authentication Protocol), WEP (Wired Equivalent Privacy), SSID (Service Set Identifier), and vendor interoperability strategies. Prepare students to earn Cisco Wireless LAN Support Specialist designation and to take the Certified Wireless Network Administrator (CWNA) exam. PR: CNT150, or department approval.