



Network Technology
Credential: Associate in Applied Science Degree
in Network Technology A25340

The Networking Technology curriculum prepares individuals for employment supporting network infrastructure environments. Students will learn how to use technologies to provide reliable transmission and delivery of data, voice, image, and video communication in business, industry, and education.

Course work includes design, installation, configuration, and management of network infrastructure technologies and network operating systems. Emphasis is placed on the implementation and management of network software and the implementation and management of hardware such as switches and routers.

Graduates should find employment in entry-level jobs as local area network managers, network operators, network analysts, and network technicians. Graduates may also be qualified to take certification examinations for various network industry certifications, depending on their local program.

Graduates should qualify for positions such as: LAN/PC administrator, microcomputer support specialist, network control operator, Communication technician/analyst, network/computer consultant, and information systems specialist. Graduates are also prepared to sit for certification exams that can result in industry-recognized credentials.

Program Length: 4 semesters
 Career Pathway Options: Specialized Networking Certificate Programs
 Program Sites: Lee Campus - Day Program and Selected Night Courses

Course Requirements for Network Technology Degree

A. General Education Courses (16 SHC)

ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
ENG 114	Professional Research and Reporting	3-0-3
*MAT 140	Survey of Mathematics	3-0-3
**HUM 115	Critical Thinking	3-0-3
***PSY 150	General Psychology	3-0-3

B. Required Courses (45 SHC):

CIS 115	Introduction to Programming and Logic	2-3-3
CTS 120	Hardware/Software Support	2-3-3
DBA 110	Database Concepts	2-3-3
NET 125	Networking Basics	1-4-3
NET 126	Routing Basics	1-4-3
NET 225	Routing and Switching I	1-4-3
NET 226	Routing and Switching II	1-4-3
NOS 110	Operating Systems Concepts	2-3-3
NOS 120	Linux/UNIX Single User	2-2-3

NOS 130	Windows Single User	2-2-3
SEC 110	Security Concepts	3-0-3

Required Subject Areas:

Basic Computer Skills. Select one:

CIS110	Introduction to Computers	2-2-3
CIS 111	Basic PC Literacy	1-2-2

Business. Select one:

BUS 110	Introduction to Business	3-0-3
CTS 115	Information Systems Business Concepts	3-0-3

Design. Select one:

NET 240	Network Design	3-0-3
NET 289	Networking Project	1-4-3

Operating System Administration. Select one:

NOS 220	Linux/UNIX Administration I	2-2-3
NOS 230	Windows Administration I	2-2-3

C. Other Major Hours (select 6 SHC)

CTS 220	Advanced Hardware/Software Support	2-3-3
CTS 287	Emerging Technologies	3-0-3
NET 113	Home Automation Systems	2-2-3
NET 116	Fundamentals of Voice/Data Cable	2-2-3
NET 175	Wireless Technologies	2-2-3
NET 230	Wide Area Networking	2-2-3
NOS 240	Novell Administration I	2-2-3
SEC 160	Security Fundamentals I	2-2-3
SEC 210	Intrusion Detection	2-2-3
SEC 240	Wireless Security	2-2-3

Total Semester Credit Hours: 66/67

Semester Curriculum for Networking Technology

1st Semester (18 SHC)

CIS 110	Introduction to Computers	2-2-3
CTS 115	Information Systems Business Concepts	3-0-3
MAT 140	Survey of Mathematics	3-0-3
NET 125	Networking Basics (Part of CCNA/Network +)	1-4-3
NOS 110	Operating Systems Concepts (part of A+/MCDST)	2-3-3
SEC 110	Security Concepts (Security +)	<u>3-0-3</u>
		14-9-18

2nd Semester (18 SHC)

CIS 115	Programming/Logic Concepts	2-3-3
CTS 120	Hardware/Software Support (part of A+/MCDST)	2-3-3
DBA 110	Database Concepts	2-3-3
NET 126	Routing Basics (Part of CCNA/Network +)	1-4-3
NOS 120	Linux /UNIX Single User (Linux +)	2-2-3
NOS 130	Windows Single User (MCP)	<u>2-2-3</u>
		11-17-18

3rd Semester (16 SHC)

ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
HUM	Humanities Elective	3-0-3
NET 225	Routing and Switching I (Part of CCNA/Network +)	1-4-3
NOS 220	Linux/UNIX Administration I (CLP) Option/Elective	2-2-3
		<u>3</u>
		12-8-16

4th Semester (15 SHC)

ENG 114	Professional Research and Reporting (prefer ENG 113)	3-0-3
NET 226	Routing and Switching II (Part of CCNA/Network +)	1-4-3
NET 289	Networking Project	1-4-3
Gen. Ed.	Social/Behavioral Sciences Elective Option / Elective	3-0-3 <u>3</u>
Total Semester Hours Credit: 67		11-8-15

*Students may substitute MAT 115 or MAT 161

**Students may substitute any approved Humanities

***Students may substitute any approved Social/Behavioral Science

COURSE DESCRIPTIONS

BUS 110 Introduction to Business 3-0-3

This course provides a survey of the business world. Topics include the basic principles and practices of contemporary business. Upon completion, students should be able to demonstrate an understanding of business concepts as a foundation for studying other business subjects. This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.

CIS 110 Introduction to Computers 2-2-3

This course introduces computer concepts, including fundamental functions and operations of the computer. Topics include identification of hardware components, basic computer operations, security issues, and use of software applications. Upon completion, students should be able to demonstrate an understanding of the role and function of computers and use the computer to solve problems. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural science/mathematics (Quantitative Option). This course is also available through the Virtual Learning Community (VLC).

CIS 111 Basic PC Literacy 1-2-2

This course provides an overview of computer concepts. Emphasis is placed on the use of personal computers and software applications for personal and fundamental workplace use. Upon completion, students should be able to demonstrate basic personal computer skills.

CIS 115 Intro to Prog & Logic 2 3 3

Prerequisites: MAT 070, MAT 080, MAT 090, MAT 095, MAT 120, MAT 121, MAT 161, MAT 171, or MAT 175

This course introduces computer programming and problem solving in a structured program logic environment. Topics include language syntax, data types, program organization, problem solving methods, algorithm design, and logic control structures. Upon completion, students should be able to manage files with operating system commands, use top-down algorithm design, and implement algorithmic solutions in a programming language. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural science/mathematics (Quantitative Option). This course is also available through the Virtual Learning Community (VLC).

CTS 115 Info Sys Business Concept 3-0-3

The course introduces the role of IT in managing business processes and the need for business process and IT alignment. Emphasis is placed on industry need for understanding business challenges and developing/managing information systems to contribute to the decision making process based on these challenges. Upon

completion, students should be able to demonstrate knowledge of the 'hybrid business manager' and the potential offered by new technology and systems.

CTS 120 Hardware/Software Support 2-3-3

Prerequisites: CIS 110 or CIS 111

This course covers the basic hardware of a personal computer, including installation, operations and interactions with software. Topics include component identification, memory-system, peripheral installation and configuration, preventive maintenance, hardware diagnostics/repair, installation and optimization of system software, commercial programs, system configuration, and device-drivers. Upon completion, students should be able to select appropriate computer equipment and software, upgrade/maintain existing equipment and software, and troubleshoot/repair non-functioning personal computers.

CTS 220 Adv Hard/Software Support 2-3-3

Prerequisites: CTS 120

This course provides advanced knowledge and competencies in hardware and operating system technologies for computer technicians to support personal computers. Emphasis is placed on: configuring and upgrading; diagnosis and troubleshooting; as well as preventive maintenance of hardware and system software. Upon completion, students should be able to install, configure, diagnose, perform preventive maintenance, and maintain basic networking on personal computers.

CTS 287 Emerging Technologies 3-0-3

This course introduces emerging information technologies. Emphasis is placed on evolving technologies and trends in business and industry. Upon completion, students should be able to articulate an understanding of the current trends and issues in emerging technologies for information systems.

DBA 110 Database Concepts 2-3-3

This course introduces database design and creation using a DBMS product. Emphasis is placed on data dictionaries, normalization, data integrity, data modeling, and creation of simple tables, queries, reports, and forms. Upon completion, students should be able to design and implement normalized database structures by creating simple database tables, queries, reports, and forms.

ENG 111 Expository Writing 3-0-3

Prerequisites: 80 CPT reading score and 86 CPT writing score, or 18 ACT score, or 450 verbal SAT score, or satisfactory completion of developmental requirements.

Corequisites: ENG 111A

This course is the required first course in a series of two designed to develop the ability to produce clear expository prose. Emphasis is placed on the writing process including audience analysis, topic selection, thesis support and development, editing, and revision. Upon completion, students should be able to produce unified, coherent, well-developed essays using standard written English. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in English composition.

ENG 111A Expository Writing Lab 0-2-1

Prerequisites: 80 CPT reading and 86 CPT writing score, or 18 ACT score, or 450 verbal SAT score, or satisfactory completion of developmental requirements.

Corequisites: ENG 111

This writing laboratory is designed to apply the skills introduced in ENG 111. Emphasis is placed on the editing and revision components of the writing process. Upon completion, students should be able to apply those skills in the production of final drafts in ENG 111. The computer is used as a writing and design tool for this course.

ENG 114 Prof. Research & Reporting 3-0-3

Prerequisites: ENG 111

This course, the second in a series of two, is designed to teach professional communication skills. Emphasis is placed on research, listening, critical reading and thinking, analysis, interpretation, and design used in oral and written presentations. Upon completion, students should be able to work individually and collaboratively to produce well-designed business and professional written and oral presentations. The computer is used as a writing and design tool for this course. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in English composition.

HUM 115 Critical Thinking 3-0-3

Prerequisites: ENG 095 or RED 090 and ENG 090

This course introduces the use of critical thinking skills in the context of human conflict. Emphasis is placed on evaluating information, problem solving, approaching cross-cultural perspectives, and resolving controversies and dilemmas. Upon completion, students should be able to demonstrate orally and in writing the use of critical thinking skills in the analysis of appropriate texts. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in humanities/fine arts. This course may meet the SACS humanities requirement for AAS degree programs.

MAT 140 Survey of Mathematics 3-0-3

Prerequisites: CPT arithmetic score of 57 and algebra score of 38, or ACT score of 18, or SAT mathematics score of 450, or successful completion of developmental requirements

This course provides an introduction in a non-technical setting to selected topics in mathematics. Topics may include, but are not limited to, sets, logic, probability, statistics, matrices, mathematical systems, geometry, topology, mathematics of finance, and modeling. Upon completion, students should be able to understand a variety of mathematical applications, think logically, and be able to work collaboratively and independently. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

NET 113 Home Automaton Systems 2-2-3

This course covers the design, installation, testing, troubleshooting, and customer service of a fully automated home. Emphasis is placed on a structured wiring system that integrates the home phone, TV, home theater, audio, video, computer network, lighting, security systems, and automation systems into a pre-wired, remote controlled system. Upon completion, students should be able to design, install, and maintain home automation systems.

NET 116 Fund of Voice/Data Cable 2-2-3

Prerequisites: CIS 110 or CIS 111 or CTS 125

This introductory course to Voice and Data Cabling focuses on cabling issues related to data and voice connections. Topics include

skills in design documentation, determining cabling equipment, pulling, mounting and managing cable, selecting wiring closets, terminating cable, installing jacks, and testing cable. Upon completion, students should be able to understand of the industry, media and cabling, physical and logical networks, and signal transmission.

NET 125 Networking Basics 1-4-3

This course introduces the networking field. Emphasis is placed on network terminology and protocols, local-area networks, wide-area networks, OSI model, cabling, router programming, Ethernet, IP addressing, and network standards. Upon completion, students should be able to perform tasks related to networking mathematics, terminology, and models, media, Ethernet, subnetting, and TCP/IP Protocols.

NET 126 Routing Basics 1-4-3

Prerequisites: NET 125

This course focuses on initial router configuration, router software management, routing protocol configuration, TCP/IP, and access control lists (ACLs). Emphasis will be placed on the fundamentals of router configuration, managing router software, routing protocol, and access lists. Upon completion, students should have an understanding of routers and their role in WANs, router configuration, routing protocols, TCP/IP, troubleshooting, and ACLs.

NET 175 Wireless Technology 2-2-3

Prerequisites: NET 110 or NET 125

This course introduces the student to wireless technology and interoperability with different communication protocols. Topics include Wireless Application Protocol (WAP), Wireless Mark-up language (WML), link manager, service discovery protocol, transport layer and frequency band. Upon completion, students should be able to discuss in written and oral form protocols and procedures required for different wireless applications.

NET 225 Routing and Switching I 1-4-3

Prerequisites: NET 126

This course focuses on advanced IP addressing techniques, intermediate routing protocols, command-line interface configuration of switches, Ethernet switching, VLANs, STP, and VTP. Emphasis will be placed on application and demonstration of skills acquired in pre-requisite courses. Upon completion, students should be able to perform tasks related to VLSM, routing protocols, switching concepts and configuration, STP, VLANs, and VTP.

NET 226 Routing and Switching II 1-4-3

Prerequisites: NET 225

This course introduces WAN theory and design, WAN technology, PPP, Frame Relay, ISDN, and additional case studies. Topics include network congestion problems, TCP/IP transport and network layer protocols, advanced routing and switching configuration, ISDN protocols, PPP encapsulation operations on a router. Upon completion, students should be able to provide solutions for network routing problems, identify ISDN protocols, and describe the Spanning Tree protocol.

NET 240 Network Design 3-0-3

Prerequisites: NET 110 or NET 125

This course covers the principles of the design of LANs and WANs. Topics include network architecture, transmission systems, traffic management, bandwidth requirements, Internet working devices, redundancy, and broad-band versus base-band systems. Upon completion, students should be able to design a network to meet specified business and technical requirements.

