



Program Planning Guide
Information Technology, Network Management Track, Associate in Applied Science
Degree (A25590)

Program Length: 5 Semesters

Career Pathway Options: Associate in Applied Science Degree in Information Technology Network Management; Diploma in Information Technology Network Management; Specialized Networking Certificate Programs

Program Site(s): Lee Main Campus - Day; Selected evening courses

Suggested Course Schedule:		Hours				Notes:
		Class	Lab	Clinical	Credit	
1st Semester (Fall)						
ACA 122	Student Success Course				1	
CTI 110	Web, Pgm, & Db Foundation	2	2	0	3	
CTI 120	Network and Sec Foundation	2	2	0	3	
CTS 120	Hardware/Software Support	2	3	0	3	
CTS 115	Information Systems Business Concept	3	0	0	3	
NOS 130	Windows Single User	2	2	0	3	
					16	
2nd Semester (Spring)						
NET 125	Networking Basics	1	4	0	3	
SEC 110	Security Concepts	2	2	0	3	
NOS 120	Linux/UNIX Single User	2	2	0	3	
NOS 230	Windows Administration I	2	2	0	3	
Mathematics - select one:						
MAT 143	Quantitative Literacy	2	2	0	3	
MAT-171	Precalclus Algebra	3	2	0	4	
					15	or 16
3rd Semester (Summer)						
NET 126	Routing Basics	1	4	0	3	
ENG 111	Writing and Inquiry	3	0	0	3	
					6	
4th Semester (Fall)						
CTI 140	Virtualization Concepts	1	4	0	3	
NOS 220	Linux/UNIX Administration I	2	2	0	3	
NET 225	Routing and Switching I	1	4	0	3	
SEC 160	Security Administration I	2	2	0	3	
					12	
5th Semester (Spring)						
NET 226	Routing and Switching II	1	4	0	3	
SEC 175	Perimeter Defense	1	4	0	3	
Humanities/Fine Arts Elective						3
Communications Elective - select one:						3
COM 231	Public Speaking	3	0	0		
ENG 112	Writing/Research in the Disciplines	3	0	0		
ENG 114	Professional Research and Reporting	3	0	0		

Program Planning Guide
Information Technology-Network Management (A25590)

Technical Elective - select one:					3	_____
CIS 110	Introduction to Computers	2	2	0		
CSC 121	Python Programming	2	3	0		
DBA 110	Database Concepts	2	3	0		
					15	_____

6th Semester (Summer)

NET 289	Networking Project	1	4	0	3	_____
Social/Behavioral Science Elective		3	0	0	3	_____
					6	

Total Semester Hours Credit Required for Graduation: 64

Information Technology, Network Management Track, Associate in Applied Science Degree (A25590)

Course Descriptions

~ 2 ~

ACA 122	College Transfer Success	0-2-1	basic tasks related to networking mathematics, terminology, media and protocols.
<p>This course provides information and strategies necessary to develop clear academic and professional goals beyond the community college experience. Topics include the CAA, college policies and culture, career exploration, gathering information on senior institutions, strategic planning, critical thinking, and communications skills for a successful academic transition. Upon completion, students should be able to develop an academic plan to transition successfully to senior institutions. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.</p>			
CIS 110	Introduction to Computers	2-2-3	CTI 140 Virtualization Concepts 1-4-3 This course introduces operating system virtualization. Emphasis is placed on virtualization terminology, virtual machine storage, virtual networking and access control. Upon completion, students should be able to perform tasks related to installation, configuration and management of virtual machines.
<p>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 for transfer under the CAA and ICAA as a general education course in Mathematics.</p>			
COM 231	Public Speaking	3-0-3	CTS 115 Information Systems 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. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.
<p>This course provides instruction and experience in preparation and delivery of speeches within a public setting and group discussion. Emphasis is placed on research, preparation, delivery, and evaluation of informative, persuasive, and special occasion public speaking. Upon completion, students should be able to prepare and deliver well-organized speeches and participate in group discussion with appropriate audiovisual support. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Communications.</p>			
CSC Python Programming		2-3-3	CTS 120 Hardware/Software Support 2-3-3 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.
<p>This course introduces computer programming using the Python programming language. Emphasis is placed on common algorithms and programming principles utilizing the standard library distributed with Python. Upon completion, students should be able to design, code, test, and debug Python language programs.</p>			
CTI 110	Web, Programming, & Database Foundation	2-2-3	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.
<p>This course covers the introduction of the tools and resources available to students in programming, mark-up language and services on the Internet. Topics include standard mark-up language Internet services, creating web pages, using search engines, file transfer programs; and database design and creation with DBMS products. Upon completion students should be able to demonstrate knowledge of programming tools, deploy a web-site with mark-up tools, and create a simple database table.</p>			
CTI 120	Network & Sec Foundation	2-2-3	ENG 111 Writing and Inquiry 3-0-3 <i>Prerequisites: DRE 098 or ENG 002</i> <i>Local Prerequisites: Take one: 1) ENG 011; 2) ENG 002; 3) DRE 098; 4) ENG 090; 5) ENG 095</i> This course is designed to develop the ability to produce clear writing in a variety of genres and formats using a recursive process. Emphasis includes inquiry, analysis, effective use of rhetorical strategies, thesis development, audience awareness, and revision. Upon completion, students should be able to produce unified, coherent, well-developed essays using standard written English. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in English Composition.
<p>This course introduces students to the Network concepts, including networking terminology and protocols, local and wide area networks, and network standards, Emphasis is placed on securing information systems and the various implementation policies. Upon completion, students should be able to perform</p>			

Information Technology, Network Management Track, Associate in Applied Science Degree (A25590)

Course Descriptions

~ 3 ~

ENG 112 Writing/Research in the Disciplines 3-0-3

Prerequisite: ENG 111

This course, the second in a series of two, introduces research techniques, documentation styles, and writing strategies. Emphasis is placed on analyzing information and ideas and incorporating research findings into documented writing and research projects. Upon completion, students should be able to evaluate and synthesize information from primary and secondary sources using documentation appropriate to various disciplines. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in English Composition.

ENG 114 Professional Research and Reporting 3-0-3

Prerequisite: 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. This course has been approved for transfer under the CAA and ICAA as a general education course in English Composition.

MAT 143 Quantitative Literacy 2-2-3

Prerequisite: Take one set: **1)** DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, and DRE-098; **2)** DMA 025, DMA 040, DMA 050 and DRE 098; **3)** DMA 025, DMA 045 and DRE 098; **4)** DMA 010, DMA 020, DMA 030, DMA 045 and DRE 098; **5)** MAT-003 & ENG-002; **6)** MAT-003 & ENG-111; **7)** MAT-003 & DRE-098; **8)** DMA-010, DMA-020, DMA-030, DMA-040, DMA-050, & ENG-002; **9)** DMA-010, DMA-020, DMA-030, DMA-045, & ENG-002; **10)** DMA-025, DMA-040, DMA-050, & ENG-002; **11)** DMA-025, DMA-045, & ENG-002
Local RISE corequisites: Take one group: **1)** MAT-043; **2)** MAT-003; **3)** DMA-010, DMA-020, DMA-030, DMA-040, DMA-050, DRE-098; **4)** DMA-025, DMA-040, DMA-050, DRE-098; **5)** DMA-025, DMA-045, DRE-098

This course is designed to engage students in complex and realistic situations involving the mathematical phenomena of quantity, change and relationship, and uncertainty through project- and activity-based assessment. Emphasis is placed on authentic contexts which will introduce the concepts of numeracy, proportional reasoning, dimensional analysis, rates of growth, personal finance, consumer statistics, practical probabilities, and mathematics for citizenship. Upon completion, students should be able to utilize quantitative information as consumers and to make personal, professional, and civic decisions by decoding, interpreting, using, and communicating quantitative information found in modern media and encountered in everyday life. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Mathematics.

MAT 171 Precalculus Algebra 3-2-4

Prerequisite: Take one set:

1. DMA-010, DMA-020, DMA-030, DMA-040, DMA-050, DMA-060, DMA-070, and DMA-080; **2.** DMA-010, DMA-020, DMA-030, DMA-040, DMA-050, and DMA-065; **3.** DMA-010, DMA-020, DMA-030,

DMA-045, DMA-060, DMA-070, and DMA-080

4. DMA-010, DMA-020, DMA-030, DMA_045, & DMA-065; **5.** DMA-025, DMA-040, DMA-050, DMA-060, DMA-070, & DMA-080; **6.** DMA-025, DMA-040, DMA-050, & DMA-065; **7.** DMA-025, DMA-045, DMA-060, DMA-070, & DMA-080; **8.** DMA-025, DMA-045, & DMA-065; **9.** MAT-212; **10.** MAT-003
Local RISE Corequisites: Take one group: **1.** MAT-071; **2.** MAT-003; **3.** DMA-010, DMA-020, DMA-030, DMA-040, DMA-050, DMA-060, DMA-070, DMA-080; **4.** MAT-121; **5.** MAT-161; **6.** DMA-010, DMA-020, DMA-030, DMA-040, DMA-050, DMA-065; **7.** DMA-010, DMA-020, DMA-030, DMA-045, DMA-065; **8.** DMA-025, DMA-045, DMA-065; **9.** DMA-025, DMA-040, DMA-050, DMA-060, DMA-070, DMA-080; **10.** DMA-025, DMA-045, DMA-060, DMA-070, DMA-080; **11.** DMA-010, DMA-020, DMA-030, DMA-045, DMA-060, DMA-070, DMA-080; **12.** DMA-025, DMA-040, DMA-050, DMA-065; **13.** MAT-060, MAT-080; **14.** MAT-060, MAT-090; **15.** MAT-095

This course is designed to develop topics which are fundamental to the study of Calculus. Emphasis is placed on solving equations and inequalities, solving systems of equations and inequalities, and analysis of functions (absolute value, radical, polynomial, rational, exponential, and logarithmic) in multiple representations. Upon completion, students should be able to select and use appropriate models and techniques for finding solutions to algebra-related problems with and without technology. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Mathematics.

NET 125 Introduction to Networks 1-4-3

This course introduces the architecture, structure, functions, components, and models of the Internet and computer networks. Topics include introduction to the principles of IP addressing and fundamentals of Ethernet concepts, media, and operations. Upon completion, students should be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes.

NET 126 Routing Basics 1-4-3

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 225 Routing and Switching I 1-4-3

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 prerequisite courses. Upon completion, students should be able to perform tasks related to VLSM, routing protocols, switching concepts and configuration, STP, VLANs, and VTP.

Information Technology, Network Management Track, Associate in Applied Science Degree (A25590)

Course Descriptions

~ 4 ~

NET 226	Routing and Switching II	1-4-3	installation, configuring, and attaching a new Linux workstation to an existing network.
<p>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.</p>			
NET 241	Introduction to VOIP	2-3-3	NOS 230 Windows Administration I 2-2-3
<p>This course introduces students to the terms and definitions of analog phone systems and voice over internet protocol (VOIP) networks and how to configure, maintain, and troubleshoot said networks. Topics include configuring and maintaining an internet protocol (IP) telephony system, provisioning phones and users, configuring call features, and establishing voicemail over VOIP networks. Upon completion, students should be able to discuss the terms and definitions of VOIP as well as configure and maintain an IP telephony system, provision phones and users, configure call features and voicemail.</p>			<p>This course covers the installation and configuration of a Windows Server operating system. Emphasis is placed on the basic configuration of core network services, Active Directory and group policies. Upon completion, students should be able to install and configure a Windows Server operating system.</p>
NET 289	Networking Project	1-4-3	SEC 110 Security Concepts 2-2-3
<p><i>Prerequisites: CTI 110, CTI 120 and CTS 115</i> This course provides an opportunity to complete a significant networking project from the design phase through implementation with minimal instructor support. Emphasis is placed on project definition, documentation, installation, testing, presentation, and training. Upon completion, students should be able to complete a project from the definition phase through implementation.</p>			<p>This course introduces the concepts and issues related to securing information systems and the development of policies to implement information security controls. Topics include the historical view of networking and security, security issues, trends, security resources, and the role of policy, people, and processes in information security. Upon completion, students should be able to identify information security risks, create an information security policy, and identify processes to implement and enforce policy.</p>
NOS 120	Linux/UNIX Single User	2-2-3	SEC 160 Security Administration I 2-2-3
<p>This course develops the necessary skills for students to develop both GUI and command line skills for using and customizing a Linux workstation. Topics include Linux file system and access permissions, GNOME Interface, VI editor, X Window System expression pattern matching, I/O redirection, network and printing utilities. Upon completion, students should be able to customize and use Linux systems for command line requirements and desktop productivity roles.</p>			<p>This course provides an overview of security administration and fundamentals of designing security architectures. Topics include networking technologies, TCP/IP concepts, protocols, network traffic analysis, monitoring, and security best practices. Upon completion, students should be able to identify normal network traffic using network analysis tools and design basic security defenses.</p>
NOS 130	Windows Single User	2-2-3	SEC 175 Perimeter Defense 1-4-3
<p>This course introduces operating system concepts for single-user systems. Topics include hardware management, file and memory management, system configuration/ optimization, and utilities. Upon completion, students should be able to perform operating systems functions at the support level in a single-user environment.</p>			<p>This course introduces the principles of securing networks using routers and firewalls. Topics include networking protocols, threat mitigation, firewall configuration, authentication, authorization, intrusion detection, encryption, IPSec, VPNs, and remote access technologies. Upon completion, students should be able to secure internal networks using router and firewall technologies.</p>
NOS 220	Linux/UNIX Administration I	2-2-3	
<p><i>Prerequisite: NOS 120</i> This course introduces the Linux file system, group administration, and system hardware controls. Topics include installation, creation and maintaining file systems, NIS client and DHCP client configuration, NFS, SMB/Samba, Configure X, Gnome, KDE, basic memory, processes, and security. Upon completion, students should be able to perform system administration tasks including</p>			