Cybersecurity & Network Engineering Technology

Cybersecurity & Network Engineering Technology with Specializations in:
- Cloud Infrastructure Security
- Cyber Security

Associate in Science Degree (CIP # 1511100112)
This program is designed to prepare students for careers in network engineering technology and IP Communications. Graduates will be qualified for technological roles in network design, network infrastructure, network installation, network security and maintenance, inter-network communication and connectivity, network monitoring and administration, and digital forensics and incident response. This hands-on program includes several courses that are essential in preparing individuals for achieving the requirements to take the examinations of various certifications including: A+, Network+, Security +, Cisco Certified Network Associate (CCNA), Cisco Certified Network Associate-Voice (CCNA-V), Microsoft Certified IT Professional (MCITP), Microsoft Certified Solutions Associate (MCSA), Certified Ethical Hacker (CEH), Cisco Certified Network Associate-Security (CCNA-Security), Systems Security Certified Practitioner (SSCP), Certified Hacking Forensic Investigator (HFI) and AccessDate Certified Examiner (ACE).

Students are strongly encouraged to consult a career program advisor in the department office for assistance in determining the best education plan for their career goals.

Although scheduling may not always provide for the following progression of courses, students should use the foundation, intermediate and advanced course sequence as a guide in program planning.

All degree-seeking students must satisfy entry testing requirements and satisfactorily complete all mandatory courses in reading, student success, mathematics, English, and English for Academic Purposes in which the student is placed.

Alternative Ways to Earn Credit toward this Degree
Graduates of specific programs at Orange Technical College and Osceola Technical College, as well as other institutions may be eligible to receive college credit for courses in this program. You may also be eligible to receive credit toward this degree if you have earned one of the approved Gold Standard industry certifications or Career Pathways credit. To learn more about Valencia’s award of credit options, visit valenciacollege.edu/academics/programs/as-degree/alternative-award-of-credit-agreements.php. Eligible students should contact the Career Program Advisor in their academic department for more information about the requirements for the award of credit.

College Credit Technical Certificates
The Cybersecurity & Network Engineering A.S. degree also offers the following college credit certificate programs. These certificates can put you on the fast-track to reaching your career goals. They are designed to equip you with a specialized skill set for entry-level employment or to upgrade your skills for job advancement. Most can be completed in one year or less, and all of the courses in the certificates are embedded in the A.S. degree. You can earn the certificates as you progress through your A.S. Degree or as a separate, stand-alone credential. Click on the Certificate tab at the top of the page for more information about the certificates that are offered.

- Cloud Computing Architecture (24 credits) (CIP # 0511100116)
- Cyber Security (30 credits) (CIP # 0511100118)
- Linux Enterprise Server Administration (24 credits) (CIP # 0511100122)
- Network Infrastructure (21 credits) (CIP # 0511100114)
- Network Support (21 credits) (CIP # 0511100121)
- Network Administration (24 credits) (CIP # 0511100112)

Start Right
Degree-seeking students enrolling at Valencia for the first time will have a limited range of courses from which to choose for their first 18 college-level credits. Within the first 18 college credit hours, you will be required to take ENC1101 (3 credits), and if applicable, SLS 1122 (3 credits) and a mathematics course appropriate to your selected meta-major (3 credits). The remaining courses will be chosen from the General Education Core Courses in humanities (3 credits), science (3 credits), or social science (3 credits), and/or the introductory courses within the A.S. degree programs. For specific courses see the Foundation Courses on the “Program Requirements” tab. For course sequencing recommendations, see your Career Program Advisor or create an education plan by logging into Atlas, clicking on the LifeMap tab and clicking My Education Plan.

Potential Careers
- Network and Computer Systems Administrator
- WAN/LAN Manager
- Network Systems Analyst
- Network Technician
- Computer Network Support Specialist
- Information Security Analyst
- Computer Security Specialist
- Data Center Support Specialist

Salary & Earnings Information
For career information related to this program, please visit O*Net OnLine (https://www.onetonline.org/).
Contacts

Future Students
To learn more about this program, contact Enrollment Services at enrollment@valenciacollege.edu or 407-582-1507 or visit valenciacollege.edu/network-engineering/ (https://valenciacollege.edu/network-engineering/).

Current Students
Your Career Program Advisor contact information can be found in Atlas. Log into Atlas, click on the Courses tab, and check your Academic Profile information to find a link to your Advisor.

Faculty Program Chair
Joan Alexander: 407-582-1542
jalexander@valenciacollege.edu

Internship and Workforce Services
If you need assistance with job resources or in locating an internship, please visit: valenciacollege.edu/internship (https://valenciacollege.edu/internship/).

Program Requirements

Foundation Courses

ENC 1101 FRESHMAN COMPOSITION I *~*~* 3
CET 2178C COMPUTER HARDWARE A1 3
CET 2486C LOCAL AREA NETWORKS N1 C1 3
CNT 2417C CYBERSECURITY OPERATIONS O1 3
Humansities See Gen. Ed. Core Requirement ~ 3
Science See Gen. Ed. Core Requirement ~ 3
Mathematics See Gen. Ed. Core Requirement ~ 3
Social Science POS 2041 US GOV or AMH 2020 US HISTORY ~ 3

Intermediate Courses

CET 1610C CISCO ROUTER TECHNOLOGY Z1 3
CET 2660C LINUX NETWORKING AND SECURITY L1 3
CET 2830C INFORMATION SECURITY S1 3
CET 2544C COMPUTER VIRTUALIZATION TECHNOLOGY V1 3
CET 2792C INSTALLING AND CONFIGURING WINDOWS SERVER M1 3
CNT 2000C NETWORK AUTOMATION WITH SCRIPTING LANGUAGES * 3
CET 2793C ADMINISTERING WINDOWS SERVER * 3
CTS 2322C RED HAT ENTERPRISE LINUX L1 2
CET 2942 INTERNET IN NETWORKING * 1
or CGS 2650 SOCIAL NETWORKING FOR JOB SEARCH

Specialization (See below) 12

Total Credit Hours 60

+ This course must be completed with a grade of C or better.
* This course has a prerequisite; check description in Valencia catalog.
~ This is a general education course.
(GR) Denotes a Gordon Rule course.

Any course with a subject prefix of CET, CNT, CTS, or COP not already used to satisfy program requirements

A1 This course is part of a sequence which prepares students for a CompTIA A+ certification examination.
N1 This course is part of a sequence which prepares students for a Network + certification examination
S1 This course is part of a sequence which prepares students for a Security + certification examination
C1 This course is part of a sequence which prepares students for the Cisco Certified Network Associate certification (CCNA).
V1 This course is part of a sequence which prepares students for a VMware certification examination.
M1 This course is part of a sequence which prepares students for a Microsoft certification examination.
L1 This course is part of a sequence which prepares students for a Read Hat Linux certification examination.
Z This course prepares students for the Amazon Certified Cloud Practitioner Certification.
P This course prepares the students for the Palo Alto Networks Certified Network Security Administrator (PCNSA).
O1 This course is part of a sequence which prepares students for the Cisco Certified CyberOps Associate Certification.

Cloud Infrastructure Security Specialization

Program Outcomes

• Carry out procedures for installing, upgrading, securing, and optimizing operating systems and computer network equipment.
• Identify the causes of networking problems, using diagnostic testing software and equipment.
• Implement infrastructures for secured cloud computing services.
• Engage effectively in interpersonal, oral, visual, and written communication.

CET 2615C ROUTING & SWITCHING IN THE ENTERPRISE C1 3
CET 2620C NETWORK FIREWALLS * 3
CET 2890C ADVANCED CYBERSECURITY OPERATIONS O1 3
CNT 2426C CLOUD INFRASTRUCTURE SECURITY Z 3

Total Credit Hours 12

* This course has a prerequisite; check description in Valencia catalog.

Cyber Security Specialization

Program Outcomes

• Carry out procedures for installing, upgrading, securing, and optimizing operating systems and computer network equipment.
• Identify the causes of networking problems, using diagnostic testing software and equipment.
• Defend an enterprise-level network against cyber threats and attacks.
• Engage effectively in interpersonal, oral, visual, and written communication.

CNT 2414C CYBERCRIME INVESTIGATION * 3
CET 2890C ADVANCED CYBERSECURITY OPERATIONS O1 3
Practitioners. The content includes, but is not limited to, the selection of Security Penetration Testing Professionals; and Systems Security Architects, and Cloud Infrastructure Architect.

This technical certificate program prepares the students for employment as Cloud Computing Engineer, Cloud Systems Architect, Cloud Solutions Architect, and Cloud Infrastructure Architect.

Program Outcomes

- Carry out procedures for installing, upgrading, securing, and optimizing operating systems and computer network equipment
- Identify the causes of networking problems, using diagnostic testing software and equipment
- Implement infrastructures for cloud computing services
- Defend an enterprise network against Cyber threats and attacks

Notes:

All specialized program courses are offered on the West Campus and may not be offered every session; some specialized courses are offered at other locations.

Expand your career opportunities with a Bachelor's Degree in Business and Organizational Leadership (BASBOL) from Valencia. This degree builds on your skills, and prepares you for a supervisory or management role within your respective field. For more information, go to: Bachelor's Degree in Business & Organizational Leadership (http://catalog.valenciacollege.edu/degrees/bachelorofscience/basbol/). Students who wish to continue their education should consult with a Career Advisor to determine the best education plan for their career goals.

Students wishing to transfer credits from this program to another institution must accept responsibility for securing approval from the transfer institution for acceptance of this degree.

Cloud Computing Architecture

Technical Certificate

This technical certificate program prepares the student for employment as Cloud Computing Engineer, Cloud Systems Architect, Cloud Solutions Architect, and Cloud Infrastructure Architect.

Program Outcomes

- Carry out procedures for installing, upgrading, securing, and optimizing operating systems and computer network equipment
- Identify the causes of networking problems, using diagnostic testing software and equipment
- Implement infrastructures for cloud computing services
- Defend an enterprise network against Cyber threats and attacks

Notes:

This course has a prerequisite; check description in Valencia catalog.

Total Credit Hours

3

Linux Enterprise Server Administration

Technical Certificate

This technical certificate program prepares students for employment as Linux Administrator, Red Hat Linux Engineer, Core Server Engineer, and Red Hat Linux System Administrator.

Learning Outcomes

- Carry out procedures for installing, upgrading, securing, and optimizing operating systems and computer network equipment
- Identify the causes of networking problems, using diagnostic testing software and equipment
- Manage Linux enterprise servers

Notes:

This course has a prerequisite; check description in Valencia catalog.

Total Credit Hours

30
Restricted Electives: (CET 2942C, CGS 2650, or any CET, CNT prefix courses)

Total Credit Hours 24

Network Administration

Technical Certificate
This technical certificate program prepares the student for employment as Microsoft Certified Professional (MCP); Microsoft Certified IT Professional (MCITP): Server Administrator; Microsoft Certified Technology Specialist (MCTS); and Microsoft Certified Solutions Associate (MCSA).

Program Outcomes
• Carry out procedures for installing, upgrading, securing, and optimizing operating systems and computer network equipment
• Identify the causes of networking problems, using diagnostic testing software and equipment
• Setup a Microsoft Windows Network
• Manage a Microsoft Windows Network

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Total Credit Hours 24

* This course has a prerequisite; check description in Valencia catalog.

Network Support

Technical Certificate
This technical certificate program prepares the student for employment as PC Technician, Computer Support Specialist, and Network Support Technician.

Program Outcomes
• Carry out procedures for installing, upgrading, securing, and optimizing operating systems and computer network equipment
• Identify the causes of networking problems, using diagnostic testing software and equipment

Foundation Courses

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<td>INFORMATION SECURITY *</td>
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Total Credit Hours 21

* This course has a prerequisite; check description in Valencia catalog.

Network Infrastructure

Technical Certificate
This technical certificate program prepares the student for employment as Cisco Certified Entry-Level Network Technician – Routing and Switching; and Cisco Certified Network Associate – Routing and Switching.

Program Outcomes
• Carry out procedures for installing, upgrading, securing, and optimizing operating systems and computer network equipment
• Identify the causes of networking problems, using diagnostic testing software and equipment
• Deploy Cisco networking devices including Routers and Switches in a network infrastructure
• Implement routing and switching protocols and services

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<td>CET 2615C</td>
<td>ROUTING &amp; SWITCHING IN THE ENTERPRISE *</td>
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Total Credit Hours 21

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