



Networking Essentials

Course Syllabus



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| Course Dates | July 10, 2025 – October 2, 2025 | | | | Days: Tue – Wed – Thu | |
| GU Orientation – Virtual: | Wed, July 9, 2025 6:00 p.m. – 7:00 p.m. | | | | Facilitated by GU Team | |
| Program Orientation – Virtual: | Thu, July 10, 2025 6:00 p.m. – 7:00 p.m. | | | | Facilitated by Instructor | |
| Self-Directed: | Tuesdays 6:00 p.m. – 9:00 p.m. | | | | Additional Hours: Six (6) for study, assignments homework and projects | |
| Virtual Classes Instructor-led: | Thursdays 6:00 p.m. – 9:00 p.m. | | | | Additional Hours: Six (6) for study, assignments and projects | |
| Goodwill Wrap-a-Round Services: | Wednesdays 6:00 p.m. – 8:00 p.m. | | | | Additional Hours: 0 | |
| | Essential skills, professional development, career planning, employability skills workshops (mock interviews/resume critiquing), supportive services. | | | | | |
| Modality: | X | Virtual - Zoom | | In-Person | | Hybrid |

Networking Essentials Program Team:

| Name | Role | Email Address |
|------------------|------------------------------------|--|
| Kelly Caudle | Instructor | kcaudle5282@stanly.edu |
| Emanuel Doss | Training Program Experience Coord. | goodwill.university@goodwillsp.org |
| Brandon Kimber | Program Support Co-Lead | brandon.kimber@goodwillsp.org |
| Donnie Armstrong | Program Support Co-Lead | donnie.armstrong@goodwillsp.org |
| David Washam | Career Navigator | david.washam@goodwillsp.org |

Networking Essentials Overview:

The Network Essentials course is designed for people who want to learn the knowledge and skills needed to work in Information Technology (IT), specifically Networking. Obtaining the CCST Networking certification typically requires individuals to gain proficiency in a variety of technical skills, tools, and technologies related to entry-level IT support roles, and serves as a steppingstone for more advanced certifications in specific areas of IT, such as cybersecurity, security, or systems administration. This program may be considered as a foundational course leading to cybersecurity learning prerequisites.

12-Week Course Overview:

This program teaches the fundamentals of networking, covering the foundation of networking and network devices, how to use different network applications and protocols to accomplish networking tasks, how to provide Internet Protocol (IP) addresses to devices both manually and automatically and understand how IP addresses are calculated and assigned, how the physical, data link, and network layers work together to provide end-to-end connectivity, how to provide basic network diagnostics and troubleshooting including endpoints, networks, for both local and remote scenarios, will teach foundations of security and about network and computer threats and attacks including application, cyber, wireless, and mobile device attacks, and how to perform basic secure wireless configuration.



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Networking Objectives – The course material will assist students in developing the skills necessary to be successful in networking. By the end of this training course, students will gain the knowledge and skills required to enable them to:

- Explain important concepts in network communication.
- Explain network types, components, and connections.
- Configure mobile devices for wireless access.
- Configure an integrated wireless router and wireless client to connect securely to the internet.
- Explain the importance of standards and protocols in network communications.
- Describe common network media.
- Explain how communication occurs on Ethernet networks.
- Explain the features of an IP address.
- Explain how IPv4 addresses are used in network communication and segmentation.
- Explain features of IPv6 addressing.
- Configure a DHCP server.
- Explain how routers connect networks together.
- Explain how ARP enables communication on a network.
- Create a fully connected LAN.
- Explain how clients access internet services.
- Explain the function of common application layer services.
- Use various tools to test and troubleshoot network connectivity.
- Explain components of a hierarchical network design.
- Explain the characteristics of virtualization and cloud services.
- Calculate numbers between decimal, binary, and hexadecimal systems.
- Explain how Ethernet operates in a switched network.
- Explain how routers use network layer protocols and services to enable end-to-end connectivity.
- Explain how ARP enables communication on a local area network.
- Explain how DNS and DHCP services operate.
- Compare the operations of transport layer protocols in supporting end-to-end communication.
- Use the Cisco IOS.
- Build a simple computer network using Cisco devices.
- Use various tools to test network connectivity.
- Explain how physical layer protocols, services, and network media support communications across data networks.
- Explain how media access control in the data link layer supports communication across physical and logical networks.
- Explain how routers use network layer protocols and services to enable end-to-end connectivity.
- Calculate an IPv4 subnetting scheme to efficiently segment a network.
- Implement an IPv6 addressing scheme.
- Explain how ND enables communication on a network.
- Describe Cisco routers and switches.
- Troubleshoot basic network connectivity issues.
- Demonstrate effective troubleshooting methodologies and help desk best practices.
- Explain common threats, vulnerabilities, and attacks on end points.
- Configure secure user access on a network.



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Certification Opportunity

Students will have the unique opportunity to earn the Cisco Certified Support Technician (CCST) Networking certification, which provides students with the foundational knowledge and skills essential to obtain the prerequisites required to matriculate to Goodwill's Cybersecurity Fundamentals program. For successful completion of the program, students must take the certification exam.

Prerequisites

To participate in this program, the following are required:

- Be 18 or older.
- Have a high school diploma/equivalent or higher.
- Possess an understanding of computer basics and internet browsing.
- Pass all assessments for Reading Comprehension, 9th Grade Basic Math and MS Windows.
- Be dedicated to job placement immediately upon graduation.

Equipment & Technology Required: Students must have daily access to:

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| Desktop or Laptop (Tablets are not sufficient to access and complete course/lab work) | Access to the Internet |
| Webcam and Microphone | Browser (preferably Google Chrome) |
| Zoom Platform | Canvas |

Program Attendance Policy

Goodwill University, in partnership with Cisco Networking Academy and Stanly Community College, values your commitment to success. This program requires dedication not only to our learning objectives and your active and robust participation, but also compliance with our attendance policy. For this 12-week program, students are required to attend virtual instructor-led sessions on Tuesday, Wednesday and Thursdays from 6:00 p.m. to 8:00 p.m. Students should anticipate a weekly investment of six (6) hours of virtual instructor-led sessions and an additional six (6) self-directed hours for studying, assignments and projects. Students must not have more than four (4) absences; and must not have more than six (6) tardies or early departures combined. This approach ensures a well-rounded learning experience to help students achieve their goals.

Student Expectations

- Complete two program surveys: 1) after the first 6 weeks; 2) at the end of class.
- Review the JCAP Participant Handbook for additional program requirements and expectations.

Program Requirements for Successful Completion

- Commit to twelve (12) weeks of active participation in the program.
- Commit to six (6) hours of weekly instructor-led virtual training sessions.
- Commit to an additional six (6) hours of weekly self-directed program activities.
- Adhere to the program attendance policy.
- Complete 80% of program assignments, projects and quizzes as required by program instructor.
- Achieve an 80% or higher cumulative average for all course work.
- Take the Cisco Certified Support Technician (CCST) Networking certification exam.
- Complete additional activities, attend all scheduled meetings and training sponsored by Goodwill University, Career Navigation and/or Employer Engagement.



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Career Path: This program equips students with additional skills for a variety of occupations, a few identified below. For details related to career paths and trends, visit www.onetonline.org.

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| Computer Support Specialist | IT Support Specialist |
| Network Coordinator | Junior Network Administrator |

Professional Development

Participants will acquire a robust set of professional and soft skills, equipping them with the necessary tools to enhance their employability prospects. Through a structured curriculum and interactive learning experiences, participants will develop communication, teamwork, adaptability, and problem-solving skills, along with a deep understanding of industry-specific knowledge. We aim to empower students to confidently navigate the professional landscape and position themselves as valuable assets in the job market.

Kelly Caudle: Program Head & Instructor, Cisco Academy Support Center

Kelly is an experienced IT Instructor who has worked at Stanly Community College as an instructor for over 28 years. He currently holds the following industry certifications: Cisco Certified Network Professional (CCNP) ENCORE, Cisco Certified Network Associate (CCNA), and A+ Certified Technician. His educational background includes a Bachelor of Arts and Master of Arts in English from the University of North Carolina at Charlotte. While his degrees in English no longer form the core of his job, his skills of creativity, critical thinking and communication are consistently used in the IT field and has led him to co-author five textbooks.

Contact Information

Goodwill Opportunity Campus:

Address: 5301 Wilkinson Boulevard, Charlotte, NC 28208

Phone: 704-372-3434

Email: goodwill.university@goodwillsp.org

NOTE: All course-related questions should be directed to your instructor.