

Class of '26-'27

Tom P. Haney Technical College
Enterprise Network and Server Support Technology (ENSST)
Program Type: Career Preparatory - Information Technology
Program Number: Y300500
Program Length: 750 hours

Instructor(s): Mr. Jim Spring
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(850) 767-5500 ext. 212-3218
Monday through Friday; 7am to 12pm

OCP B.1 – Interconnecting Cisco Networking Devices (CTS0094 - 600 Hours)

CCNA1 Introduction to Networks - Ver. 7.0

COURSE DESCRIPTION

The courses in the CCNA Version 7.0 curriculum help students develop a comprehensive foundation for designing, securing, operating, and troubleshooting modern computer networks, on the scale from small business networks to enterprise networks, with an emphasis on hands-on learning and essential career skills like problem solving and collaboration.

The first course in the CCNA curriculum, Introduction to Networks introduces the architectures, models, protocols, and networking elements that connect users, devices, applications and data through the Internet and across modern computer networks - including IP addressing and Ethernet fundamentals. By the end of the course, students can build simple local area networks (LANs) that integrate IP addressing schemes, foundational network security, and perform basic configurations for routers and switches.

GRADING SCALE

A = 90-100%
B = 80-89%
C = 70-79%
F = 0-69%

OCP A WEIGHTED GRADE CALCULATION

Canvas Lab Assignments and Skills Assessment = 35%
NetAcad Module Quizzes (Formative)= 10%
NetAcad CheckPoint and Final Exams (Summative) = 40%
Employability Skills = 15%

NOTE: Your weighted grade in each OCP must be greater than or equal to 80% to pass this course.

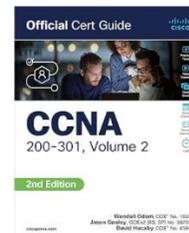
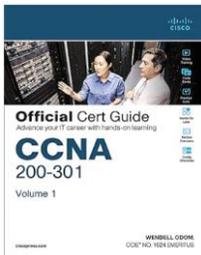
COURSE ORGANIZATION

This instructor-led course utilizes online course materials via *haney.instructure.com* (Canvas) and Cisco's *NetAcad.com* meaning that most activities are completed online. All email correspondence with students will take place via their student email account. Students

need to check this email daily for information from the instructor and the college. Students will also need to log into Canvas daily to check for new announcements regarding any changes or information about instructional material and activities and to upload their completed lab assignments. After every couple of NetAcad course chapters, students will complete the CheckPoint Exam Assessments. These assessments have been set up in NetAcad in quiz format for easier grading. These assessments will have a time limit and allow for two submissions. Once a student has submitted their assessment, they will be able to view their grade and decide whether they would like to attempt the assessment a second time. Students will not be able to view the answers to the assessments until after the due date has passed for the assessment. The highest grade between the two attempts counts. Students will also complete hands-on labs to practice the skills learned in the lesson. Students will be assigned to a Cisco "pod" consisting of two Cisco switches, two Cisco routers and two computer workstations which are used to complete hands-on labs. Students will also use Cisco's Packet Tracer virtual environments to complete virtual lab assignments. The provided lab worksheets MUST be completed along with each lab and must be submitted via Canvas. A final exam *and* a final skills assessment will also be administered that cover all topics covered in class.

REQUIRED TEXTS:

No textbook is required for this class. Below is a list of recommended reference books that can help you in class and/or study for your certification exam.



CCNA 200-301 Official Cert Guide, Volume 1 by Wendell Odom

CCNA 200-301 Official Cert Guide, Volume 2 by Wendell Odom, et. al.

ATTENDANCE POLICY

Students are required to attend class Monday through Friday, 7 AM to 12 PM. Class will begin at 7 AM with morning announcements and chapter reviews. It is important to be on time each day. College policy requires that a student be present 90% of the enrollment period designated hours. For ENSST, an enrollment period is 375 hours (one semester), therefore a student is allowed to miss 37.5 hours per semester. If a student exceeds 37.5 hours absence in an enrollment period, the student will be withdrawn from the ENSST program. This policy is not negotiable. Withdrawal exceptions cannot and will not be made for any student exceeding their allowed 10% absences.

Students will be responsible for any missed work or assignments. NOTE: Military veterans using VA assistance have a different attendance policy. Please refer to the Tom P. Haney Student Handbook for more information on Haney's attendance policy.

ACADEMIC INTEGRITY

Tom P. Haney Technical College is committed to providing an honest and fair learning environment and to preparing students for academic and career success. Students are expected to recognize and uphold standards of intellectual and academic integrity. Integrity means being honest, responsible, respectful, and ethical, and applies whether working independently or collaboratively, regardless of the level of supervision. Integrity and honesty are a part of professionalism and demonstrate employability skills. The College will not tolerate any dishonest practices, including plagiarism, in the academic environment.

ELECTRONIC DEVICE POLICY

- Cell phones are not allowed to be used in the classroom. Students will be able to store their cell phones in a cell phone locker in the back of the classroom. Students are allowed to use their cell phones outside of class when on breaks or at lunch. Please refer to Haney's Student Handbook for more information on our cell phone policy.
- Personal laptops and tablets are not allowed to be used in the classroom. If laptops are required in this course, the college will provide one per student. Students are not allowed to take their assigned laptops home for any reason and must be placed in the laptop cart at the end of the day.

FOOD AND DRINK POLICY

Food is not allowed in the classroom. Snacks and lunches are to be eaten in the Bldg 3 atrium or outside while on breaks. Water is allowed in class provided you use a container with a secured top such as water bottles, Tervis or Stanley tumblers. Fast food cups and aluminum cans are not considered secure containers. If you doubt your drink container is allowed, then ask your instructor.

STUDENTS WITH DISABILITIES STATEMENT

If you have a disability that may affect your academic performance and are seeking accommodations, it is your responsibility to inform the Student Services (Bldg 1). You may contact Ms. Sandy Johnson at (850) 767-5500 ext. 767-5527 if you have any questions concerning accommodations and services. You may visit the Disability Services webpage or the Disability Services section of the Student Handbook to learn more about accommodations and special services. It is important to request accommodations early enough to give the Counseling Services office adequate time to consider your request and recommend reasonable accommodations. Students are encouraged to initiate the request process as soon as possible at the beginning of a semester or class. Accommodations are not

retroactive and only become active after all required documents are submitted. Instructors will provide necessary accommodations based solely on the recommendations of the Disability Services office.

COURSE MODULES AND OBJECTIVES

Listed below are the current set of modules and their associated competencies outlined for this course. Each module is an integrated unit of learning that consists of content, activities and assessments that target a specific set of competencies. The size of the module will depend on the depth of knowledge and skill needed to master the competency.

<p>Module 1 – Networking Today</p>	<p>Explain how networks affect our daily lives. Explain how host and network devices are used. Explain network representations and how they are used in network topologies. Compare the characteristics of common types of networks. Explain how LANs and WANs interconnect to the internet. Describe the four basic requirements of a reliable network. Explain how trends such as BYOD, online collaboration, video, and cloud computing are changing the way we interact. Identify some basic security threats and solutions for all networks. Explain employment opportunities in the networking field.</p>
<p>Module 2 – Basic Switch and End Device Configuration</p>	<p>Explain how to access a Cisco IOS device for configuration purposes. Explain how to navigate Cisco IOS to configure network devices. Describe the command structure of Cisco IOS software. Configure a Cisco IOS device using CLI. Use IOS commands to save the running configuration. Explain how devices communicate across network media. Configure a host device with an IP address. Verify connectivity between two end devices.</p>
<p>Module 3 – Protocols and Models</p>	<p>Describe the types of rules that are necessary to successfully communicate. Explain why protocols are necessary in network communication. Explain the purpose of adhering to a protocol suite.</p>

	<p>Explain the role of standards organizations in establishing protocols for network interoperability.</p> <p>Explain how the TCP/IP model and the OSI model are used to facilitate standardization in the communication process.</p> <p>Explain how data encapsulation allows data to be transported across the network.</p> <p>Explain how local hosts access local resources on a network.</p>
<p>CheckPoint Exam: Basic Network Connectivity and Communications</p>	
<p>Module 4 – Physical Layer</p>	<p>Describe the purpose and functions of the physical layer in the network.</p> <p>Describe characteristics of the physical layer.</p> <p>Identify the basic characteristics of copper cabling.</p> <p>Explain how UTP cable is used in Ethernet networks.</p> <p>Describe fiber-optic cabling and its main advantages over other media.</p> <p>Connect devices using wired and wireless media.</p>
<p>Module 5 – Number Systems</p>	<p>Calculate numbers between decimal and binary systems.</p> <p>Calculate numbers between decimal and hexadecimal systems.</p>
<p>Module 6 – Data Link Layer</p>	<p>Describe the purpose and function of the data link layer in preparing communication for transmission on specific media.</p> <p>Compare the characteristics of media access control methods on WAN and LAN topologies.</p> <p>Describe the characteristics and functions of the data link frame.</p>
<p>Module 7 – Ethernet Switching</p>	<p>Explain how the Ethernet sublayers are related to the frame fields.</p> <p>Describe the Ethernet MAC address.</p> <p>Explain how a switch builds its MAC address table and forwards frames.</p> <p>Describe switch forwarding methods and port settings available on Layer 2 switch ports.</p>
<p>CheckPoint Exam: Ethernet Concepts</p>	

Module 8 – Network Layer	<p>Explain how the network layer uses IP protocols for reliable communications.</p> <p>Explain the role of the major header fields in the IPv4 packet.</p> <p>Explain the role of the major header fields in the IPv6 packet.</p> <p>Explain how network devices use routing tables to direct packets to a destination network.</p> <p>Explain the function of fields in the routing table of a router.</p>
Module 9 – Address Resolution	<p>Compare the roles of the MAC address and the IP address.</p> <p>Describe the purpose of ARP.</p> <p>Describe the operation of IPv6 neighbor discovery.</p>
Module 10 – Basic Router Configuration	<p>Configure initial settings on a Cisco IOS router.</p> <p>Configure two active interfaces on a Cisco IOS router.</p> <p>Configure devices to use the default gateway.</p>
CheckPoint Exam: Communicating Between Networks	
Module 11 – IPv4 Addressing	<p>Describe the structure of an IPv4 address including the network portion, the host portion, and the subnet mask.</p> <p>Compare the characteristics and uses of the unicast, broadcast and multicast IPv4 addresses.</p> <p>Explain public, private, and reserved IPv4 addresses.</p> <p>Explain how subnetting segments a network to enable better communication.</p> <p>Calculate IPv4 subnets for a /24 prefix.</p> <p>Calculate IPv4 subnets for a /16 and /8 prefix.</p> <p>Given a set of requirements for subnetting, implement an IPv4 addressing scheme.</p> <p>Explain how to create a flexible addressing scheme using variable length subnet masking (VLSM).</p> <p>Implement a VLSM addressing scheme.</p>

Module 12 – IPv6 Addressing	<p>Explain the need for IPv6 addressing.</p> <p>Explain how IPv6 addresses are represented.</p> <p>Compare types of IPv6 network addresses.</p> <p>Explain how to configure static global unicast and link-local IPv6 network addresses.</p> <p>Explain how to configure global unicast addresses dynamically.</p> <p>Configure link-local addresses dynamically.</p> <p>Identify IPv6 addresses.</p> <p>Implement a subnetted IPv6 addressing scheme.</p>
Module 13 - ICMP	<p>Explain how ICMP is used to test network connectivity.</p> <p>Use ping and traceroute utilities to test network connectivity.</p>
CheckPoint Exam: IP Addressing	
Module 14 – Transport Layer	<p>Explain the purpose of the transport layer in managing the transportation of data in end-to-end communication.</p> <p>Explain characteristics of the TCP.</p> <p>Explain characteristics of the UDP.</p> <p>Explain how TCP and UDP use port numbers.</p> <p>Explain how TCP session establishment and termination processes facilitate reliable communication.</p> <p>Explain how TCP protocol data units are transmitted and acknowledged to guarantee delivery.</p> <p>Describe the UDP client processes to establish communication with a server.</p>
Module 15 – Application Layer	<p>Explain how the functions of the application layer, session layer, and presentation layer work together to provide network services to end user applications.</p> <p>Explain how end user applications operate in a peer-to-peer network.</p> <p>Explain how web and email protocols operate.</p> <p>Explain how DNS and DHCP operate.</p> <p>Explain how file transfer protocols operate.</p>

CheckPoint Exam: Network Application Communications	
Module 16 – Network Security Fundamentals	<p>Explain why basic security measures are necessary on network devices.</p> <p>Identify security vulnerabilities.</p> <p>Identify general mitigation techniques.</p> <p>Configure network devices with device hardening features to mitigate security threats.</p>
Module 17 – Build a Small Network	<p>Identify the devices used in a small network.</p> <p>Identify the protocols and applications used in a small network.</p> <p>Explain how a small network serves as the basis of larger networks.</p> <p>Use the output of the ping and traceroute commands to verify connectivity and establish relative network performance.</p> <p>Use host and IOS commands to acquire information about the devices in a network.</p> <p>Describe common network troubleshooting methodologies.</p> <p>Troubleshoot issues with devices in the network.</p>
CheckPoint Exam: Building and Securing a Small Network	
CCNA: Introduction to Networks Practice Final Exam	
CCNA: Introduction to Networks Final Exam	
CCNA: Introduction to Networks Practice Final Skills Assessment	
CCNA: Introduction to Networks Final Skills Assessment	

NOTE: This syllabus may change at the instructor's discretion. It is the responsibility of the student to record changes.