**Overview Table of Course Components: Course Objectives, Module/Unit Objectives, Activities and Assessments**

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| **Course Objective** | **Module-/Unit-Level Objective** | **Activities** | **Assessments** |
| Explain the basic characteristics and components of a network | Explain how multiple networks are used in everyday lifeExplain the topologies and devices used in a small to medium-sized business networkExplain the basic characteristics of a network that supports communication in a small to medium-sized businessExplain trends in networking that will affect the use of networks in small to medium-sized businesses | Complete designated reading in the online curriculumNetwork Components video | Unit I QuizUnit I Exam |



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| **Course Objective** | **Module-/Unit-Level Objective** | **Activities** | **Assessments** |
| Configure a network operating system | Explain the purpose of Cisco IOSExplain how to access and navigate Cisco IOS to configure network devicesDescribe the command structure of Cisco IOS softwareConfigure hostnames on a Cisco IOS device using the CLIUse Cisco IOS commands to limit access to device configurationsUse Cisco IOS commands to save the running configurationExplain how devices communicate across network mediaConfigure a host device with an IP addressVerify connectivity between two end devices | Complete designated reading in the online curriculumHands-on labsPacket Tracer 2.1.4.8m-v3-Navigating the IOSPacket Tracer 2.2.3.3m-v2 – Configuring Initial Switch SettingsPacket Tracer 2.3.2.5m-v1 – Implementing Basic ConnectivityCisco IOS Basics videoNavigating the IOS videoBasic IOS Commands video | Unit 2 QuizUnit 2 Exam |
| **Course Objective** | **Module-/Unit-Level Objective** | **Activities** | **Assessments** |
| Explain the function of network protocols | Explain how rules are used to facilitate communicationExplain the role of protocols and standards organizations in facilitating interoperability in network communicationsExplain how devices on a LAN access resources in a small to medium-sized business network | Complete designated reading in the online curriculumTCP/IP Model videoOSI Model Part I videoOSI Model Part II video | Unit 3 QuizUnit 3 Exam |
| Explain the function of access layer protocols and configure a simple network | Explain how physical layer protocols and services support communications across data networksBuild a simple network using the appropriateExplain the role of the data link layer in supporting communications across data networksCompare media access control techniques and logical topologies used in networks | Complete designated reading in the online curriculumHands-on labsPacket Tracer 4.2.4.5m-v1-Connecting a Wired and Wireless LANPlanning and Cabling Networks videoData Link Layer video | Unit 4 QuizUnit 4 Exam |
| **Course Objective** | **Module-/Unit-Level Objective** | **Activities** | **Assessments** |
| Describe the operation of Ethernet technology and configure a switch | Describe the operation of the Ethernet sublayersIdentify the major fields of the Ethernet frameDescribe the purpose and characteristics of the Ethernet MAC addressDescribe the purpose of ARPExplain how ARP requests impact network and host performanceExplain basic switching conceptsCompare fixed configuration and modular switchesConfigure a Layer 3 switch | Complete designated reading in the online curriculumHands-on labsPacket Tracer5.3.3.5m-v1-Configure Layer 3 SwitchesEthernet videoSwitch Features videoBasic Switch Functionality video | Unit 5 QuizUnit 5 Exam |

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| **Course Objective** | **Module-/Unit-Level Objective** | **Activities** | **Assessments** |
| Explain the function of the Network layer protocols | Explain how network layer protocols and services support communications across data networksExplain how routers enable end-to-end connectivity in a small to medium-sized business networkDetermine the appropriate device to route traffic in a small to medium-sized business networkConfigure a router with basic configurations | Complete designated reading in the online curriculumHands-on labsPacket Tracer 6.4.3.3m-v1-Connect a Router to a LANPacket Tracer 6.5.1.2m-v1-Skills Integration ChallengeNetwork Layer videoDeploying IPv6 Flash video | Unit 6 QuizUnit 6 Exam |

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| **Course Objective** | **Module-/Unit-Level Objective** | **Activities** | **Assessments** |
| Explain TCP and UDP protocol functions | Describe the purpose of the transport layer in managing the transportation of data in end-to-end communicationDescribe characteristics of the TCP and UDP protocols, including port numbers and their usesExplain how TCP session establishment and termination processes facilitate reliable communicationExplain how TCP protocol data units are transmitted and acknowledged to guarantee deliveryExplain the UDP client processes to establish communication with a serverDetermine whether high-reliability TCP transmissions, or non-guaranteed UDP transmissions, are best suited for common applications | Complete designated reading in the online curriculumHands-on labsTransport Layer video | Unit 7 QuizUnit 7 Exam |
| **Course Objective** | **Module-/Unit-Level Objective** | **Activities** | **Assessments** |
| Describe IPv4 and IPv6 Addressing | Describe the structure of an IPv4 addressDescribe the purpose of the subnet maskCompare the characteristics and uses of the unicast, broadcast and multicast IPv4 addressesCompare the use of public address space and private address spaceExplain the need for IPv6 addressingDescribe the representation of an IPv6 addressDescribe types of IPv6 network addressesConfigure global unicast addressesDescribe multicast addressesDescribe the role of ICMP in an IP network. (include IPv4 and IPv6) Use ping and traceroute utilities to test network connectivity | Complete designated reading in the online curriculumHands-on labsPacket Tracer 8.2.5.3m-v1-Configuring IPv6 AddressingPacket Tracer 8.3.2.8m-v1-Troubleshooting IPv4 and IPv6 AddressingPacket Tracer 8.4.1.2m-v1-Skills Integration challengeAddressing the Network videoIPv4 Addressing 1-3 videosMaking Sense out of IPv6 Addresses videoIPv6 Link Local Address videoIPv6 SLAAC videoIPv6 Stateless DHCP video | Unit 8 QuizUnit 8 Exam |
| **Course Objective** | **Module-/Unit-Level Objective** | **Activities** | **Assessments** |
| Explain how to subnet IPv4 and IPv6 networks | Explain why routing is necessary for hosts on different networks to communicateDescribe IP as a communication protocol used to identify a single device on a networkGiven a network and a subnet mask, calculate the number of host addresses availableCalculate the necessary subnet mask in order to accommodate the requirements of a networkDescribe the benefits of variable length subnet masking (vLSM)Explain how IPv6 address assignments are implemented in a business network | Complete designated reading in the online curriculumHands-on labsPacket Tracer 9.2.1.5m-v1-Designing and Implementing a vLSM Addressing SchemePacket Tracer 9.3.1.4m-v1- Implementing a Subnetted IPv6 Addressing SchemeIPv4 Addressing 4 -8 videos | Unit 9 QuizUnit 9 Exam |

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| **Course Objective** | **Module-/Unit-Level Objective** | **Activities** | **Assessments** |
| Explain the function of Application Layer protocols | Explain how the functions of the application layer, session layer, and presentation layer work together to provide network services to end user applicationsDescribe how common application layer protocols interact with end user applicationsDescribe, at a high level, common application layer protocols that provide Internet services to end-users, including WWW services and emailDescribe application layer protocols that provide IP addressing services, including DNS and DHCPDescribe the features and operation of well-known application layer protocols that allow for file sharing services, including FTP, File Sharing Services, SMB protocolExplain how data is moved across the network, from opening an application, to receiving data | Complete designated reading in the online curriculumHands-on labsPacket Tracer 10.2.1.8m-v1-Web and E-mailPacket Tracer 10.2.2.8m-v1-DNS and DHCP | Unit 10 QuizUnit 10 Exam |
| **Course Objective** | **Module-/Unit-Level Objective** | **Activities** | **Assessments** |
| Build a small network incorporating basic security measures | Identify the devices and protocols used in a small networkExplain how a small network serves as the basis of larger networksExplain the need for basic security measures on network devicesIdentify security vulnerabilities and general mitigation techniquesConfigure network devices with device hardening features to mitigate security threatsUse the output of ping and tracert commands to establish relative network performance | Complete designated reading in the online curriculumHands-on labsPacket Tracer Practice Skills Final | Unit 11 QuizUnit 11 ExamComprehensive Final ExamComprehensive Final Skills Exam |

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|  | *MoHealthWINs* |

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