**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 life  Explain the topologies and devices used in a small to medium-sized business network  Explain the basic characteristics of a network that supports communication in a small to medium-sized business  Explain trends in networking that will affect the use of networks in small to medium-sized businesses | Complete designated reading in the online curriculum  Network Components video | Unit I Quiz  Unit I Exam |



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| **Course Objective** | **Module-/Unit-Level Objective** | **Activities** | **Assessments** |
| Configure a network operating system | Explain the purpose of Cisco IOS  Explain how to access and navigate Cisco IOS to configure network devices  Describe the command structure of Cisco IOS software  Configure hostnames on a Cisco IOS device using the CLI  Use Cisco IOS commands to limit access to device configurations  Use Cisco 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 | Complete designated reading in the online curriculum  Hands-on labs  Packet Tracer 2.1.4.8m-v3-Navigating the IOS  Packet Tracer 2.2.3.3m-v2 – Configuring Initial Switch Settings  Packet Tracer 2.3.2.5m-v1 – Implementing Basic Connectivity  Cisco IOS Basics video  Navigating the IOS video  Basic IOS Commands video | Unit 2 Quiz  Unit 2 Exam |
| **Course Objective** | **Module-/Unit-Level Objective** | **Activities** | **Assessments** |
| Explain the function of network protocols | Explain how rules are used to facilitate communication  Explain the role of protocols and standards organizations in facilitating interoperability in network communications  Explain how devices on a LAN access resources in a small to medium-sized business network | Complete designated reading in the online curriculum  TCP/IP Model video  OSI Model Part I video  OSI Model Part II video | Unit 3 Quiz  Unit 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 networks  Build a simple network using the appropriate  Explain the role of the data link layer in supporting communications across data networks  Compare media access control techniques and logical topologies used in networks | Complete designated reading in the online curriculum  Hands-on labs  Packet Tracer 4.2.4.5m-v1-Connecting a Wired and Wireless LAN  Planning and Cabling Networks video  Data Link Layer video | Unit 4 Quiz  Unit 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 sublayers  Identify the major fields of the Ethernet frame  Describe the purpose and characteristics of the Ethernet MAC address  Describe the purpose of ARP  Explain how ARP requests impact network and host performance  Explain basic switching concepts  Compare fixed configuration and modular switches  Configure a Layer 3 switch | Complete designated reading in the online curriculum  Hands-on labs  Packet Tracer5.3.3.5m-v1-Configure Layer 3 Switches  Ethernet video  Switch Features video  Basic Switch Functionality video | Unit 5 Quiz  Unit 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 networks  Explain how routers enable end-to-end connectivity in a small to medium-sized business network  Determine the appropriate device to route traffic in a small to medium-sized business network  Configure a router with basic configurations | Complete designated reading in the online curriculum  Hands-on labs  Packet Tracer 6.4.3.3m-v1-Connect a Router to a LAN  Packet Tracer 6.5.1.2m-v1-Skills Integration Challenge  Network Layer video  Deploying IPv6 Flash video | Unit 6 Quiz  Unit 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 communication  Describe characteristics of the TCP and UDP protocols, including port numbers and their uses  Explain how TCP session establishment and termination processes facilitate reliable communication  Explain how TCP protocol data units are transmitted and acknowledged to guarantee delivery  Explain the UDP client processes to establish communication with a server  Determine whether high-reliability TCP transmissions, or non-guaranteed UDP transmissions, are best suited for common applications | | Complete designated reading in the online curriculum  Hands-on labs  Transport Layer video | | Unit 7 Quiz  Unit 7 Exam | |
| **Course Objective** | | **Module-/Unit-Level Objective** | | **Activities** | | **Assessments** | |
| Describe IPv4 and IPv6 Addressing | | Describe the structure of an IPv4 address  Describe the purpose of the subnet mask  Compare the characteristics and uses of the unicast, broadcast and multicast IPv4 addresses  Compare the use of public address space and private address space  Explain the need for IPv6 addressing  Describe the representation of an IPv6 address  Describe types of IPv6 network addresses  Configure global unicast addresses  Describe multicast addresses  Describe 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 curriculum  Hands-on labs  Packet Tracer 8.2.5.3m-v1-Configuring IPv6 Addressing  Packet Tracer 8.3.2.8m-v1-Troubleshooting IPv4 and IPv6 Addressing  Packet Tracer 8.4.1.2m-v1-Skills Integration challenge  Addressing the Network video  IPv4 Addressing 1-3 videos  Making Sense out of IPv6  Addresses video  IPv6 Link Local Address video  IPv6 SLAAC video  IPv6 Stateless DHCP video | | Unit 8 Quiz  Unit 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 communicate  Describe IP as a communication protocol used to identify a single device on a network  Given a network and a subnet mask, calculate the number of host addresses available  Calculate the necessary subnet mask in order to accommodate the requirements of a network  Describe 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 curriculum  Hands-on labs  Packet Tracer 9.2.1.5m-v1-Designing and Implementing a vLSM Addressing Scheme  Packet Tracer 9.3.1.4m-v1- Implementing a Subnetted IPv6 Addressing Scheme  IPv4 Addressing 4 -8 videos | | Unit 9 Quiz  Unit 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 applications  Describe how common application layer protocols interact with end user applications  Describe, at a high level, common application layer protocols that provide Internet services to end-users, including WWW services and email  Describe application layer protocols that provide IP addressing services, including DNS and DHCP  Describe the features and operation of well-known application layer protocols that allow for file sharing services, including FTP, File Sharing Services, SMB protocol  Explain how data is moved across the network, from opening an application, to receiving data | Complete designated reading in the online curriculum  Hands-on labs  Packet Tracer 10.2.1.8m-v1-Web and E-mail  Packet Tracer 10.2.2.8m-v1-DNS and DHCP | Unit 10 Quiz  Unit 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 network  Explain how a small network serves as the basis of larger networks  Explain the need for basic security measures on network devices  Identify security vulnerabilities and general mitigation techniques  Configure network devices with device hardening features to mitigate security threats  Use the output of ping and tracert commands to establish relative network performance | Complete designated reading in the online curriculum  Hands-on labs  Packet Tracer Practice Skills Final | Unit 11 Quiz  Unit 11 Exam  Comprehensive Final Exam  Comprehensive Final Skills Exam |

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|  | *MoHealthWINs* |

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