This course supports the assessments for CWV1. The course covers 5 competencies and represents 3 competency units.

**Introduction**

**Overview**
Knowing how computers are networked together is very important if you plan to be an information technology specialist. Fundamental networking concepts are the building blocks of your future success in computer networking. To be a competent IT professional, you should know the basic concepts of network infrastructure, network hardware, protocols, and services. You also need hands-on experiences with Windows Server, Window-based networking, network management tools, DNS, TCP/IP, names resolution process, and network protocols and topologies.

Watch the following introduction video for this course:

**Competencies**
This course provides guidance to help you demonstrate the following [5] competencies:

- **Competency 400.4.1: Network Infrastructures**
  The graduate analyzes the characteristics of various network topologies and access methods.
- **Competency 400.4.2: Wired and Wireless Networks**
  The graduate analyzes standards, procedures, and protocols used in wired and wireless networking technologies.
- **Competency 400.4.3: Network Hardware**
  The graduate analyzes network hardware capabilities important to the development of network infrastructure.
- **Competency 400.4.4: Open Systems Interconnection (OSI)**
  The graduate analyzes the layers specified in the Open Systems Interconnection (OSI) model used to design, maintain, and troubleshoot networks.
- **Competency 400.4.5: Protocols and Services**
  The graduate analyzes the various applications and affordances of network protocols and services.

**Course Mentor Assistance**
As you prepare to successfully demonstrate competency in this subject, remember that course mentors stand ready to help you reach your educational goals. As subject matter experts, mentors enjoy and take pride in helping students become reflective learners, problem solvers, and critical thinkers. Course mentors are excited to hear from you and eager to work with you.

Successful students report that working with a course mentor is the key to their success. Course mentors are able to share tips on approaches, tools, and skills that can help you apply the content you’re studying. They also provide guidance in assessment preparation strategies and
troubleshoot areas of deficiency. Even if things don’t work out on your first try, course mentors act as a support system to guide you through the revision process. You should expect to work with course mentors for the duration of your coursework, so you are welcome to contact them as soon as you begin. Course mentors are fully committed to your success!

Preparing for Success

The information in this section is provided to detail the resources available for you to use as you complete this course.

Learning Resources

The learning resources listed in this section are required to complete the activities in this course. For many resources, WGU has provided automatic access through the course. However, you may need to manually enroll in or independently acquire other resources. Read the full instructions provided to ensure that you have access to all of your resources in a timely manner.

Note: If you decide to use other learning resources, particularly those found online, make certain that none qualify as a Braindump. Using them can result in academic sanctions and loss of your certification. Please see the full Microsoft Candidate Agreement.

Automatically Enrolled Learning Resources

You will be automatically enrolled at the activity level for the following learning resources. Simply click on the links provided in the activities to access the learning materials.

VitalSource E-Texts

The following textbooks are available to you as e-texts within this course. You will be directly linked to the specific readings required within the activities that follow.


Note: These e-texts are available to you as part of your program tuition and fees, but you may purchase hard copies at your own expense through a retailer of your choice. If you choose to do so, please use the ISBN listed to ensure that you receive the correct edition.

MeasureUp

You will access the following resource from MeasureUp at the activity level within this course:

- MTA: Network Fundamentals

Please use the steps listed in following document to guide your study of the MeasureUp material:

- Using MeasureUp
LearnKey
You will access the following LearnKey course within the activities of this course:

- MTA Networking Fundamentals

The LearnKey learning resource for this course contains the following:

- Pre-Assessment
- MTA Networking Fundamentals Training (Videos)
- Labs
- Post-Test

Each of the LearnKey sections correspond to parts of the 98-366: MTA Network Fundamentals text. See the following page for details about how these two resources work together:

- LearnKey Exam 98-366 Courseware Mapping

Direct your attention to the exam objectives associated with each chapter. This will help you pinpoint the chapters requiring special attention based on the results of your pre-assessment.

IMPORTANT: There are some important items to understand regarding the use of the LearnKey resource, primarily that it functions best with the Firefox browser. It is recommended that you use Firefox as you utilize the LearnKey resource. If you have technical assistance needs regarding this resource, you are invited to use LearnKey’s Tech Support Facts.

Pacing Guide
The pacing guide suggests a weekly structure to pace your completion of learning activities. It is provided as a suggestion and does not represent a mandatory schedule. Follow the pacing guide carefully to complete the course in the suggested timeframe.

Week 1

- In LearnKey, complete Session 1 Pre-Assessment, Session 2 Pre-Assessment, and Session 3 Pre-Assessment.
- Watch the videos listed in the course of study in MTA Networking Fundamentals Session 1 Training.
- Read Lesson 1 (Understanding Local Area Networking), Lesson 3 (Understanding Wired and Wireless Networks), Lesson 7 (Understanding Wide Area Networks), and Lesson 8 (Defining Network Infrastructures and Network Security) in the course text

Week 2

- Complete the Session 1 Labs and Post-Assessment
- Watch the videos listed in the course of study in MTA Networking Fundamentals Session 2 Training.
Week 3

- Complete the Session 2 Labs and Post-Assessment
- Watch the videos listed in the course of study in MTA Networking Fundamentals Session 3 Training.
- Read Lesson 2 (Defining Networks with the OSI Model), Lesson 4 (Understanding Internet Protocol), Lesson 5 (Implementing TCP/IP in the Command Line), and Lesson 6 (Working with Networking Services) in the course text.

Week 4

- Complete MeasureUp in Study Mode and MeasureUp in Certification Mode scoring 90% or higher.
- Work through the end of chapter exercises in the course text. Email your Course Mentor for an answer key.
- Ask your mentor to approve your first attempt.

Note: This pacing guide does not replace the course. Please continue to refer to the course for a comprehensive list of the resources and activities.

Preassessments

You will complete a variety of preassessments. Use the results of your preassessments to help you decide on which content you need to focus.

This topic addresses the following competencies:

- Competency 400.4.1: Network Infrastructures
  The graduate analyzes the characteristics of various network topologies and access methods.
- Competency 400.4.2: Wired and Wireless Networks
  The graduate analyzes standards, procedures, and protocols used in wired and wireless networking technologies.
- Competency 400.4.3: Network Hardware
  The graduate analyzes network hardware capabilities important to the development of network infrastructure.
- Competency 400.4.4: Open Systems Interconnection (OSI)
  The graduate analyzes the layers specified in the Open Systems Interconnection (OSI) model used to design, maintain, and troubleshoot networks.
- Competency 400.4.5: Protocols and Services
  The graduate analyzes the various applications and affordances of network protocols and services.

LearnKey Preassessments

Complete the following Session Pre-Assessments in LearnKey MTA Networking Fundamentals:
When you take these preassessments, you should avoid

- studying in advance,
- looking up answers, and
- guessing.

**MeasureUp Preassessment**

Please complete the MeasureUp test for the Network Fundamentals in certification mode in the following MeasureUp resource:

- **MTA: Networking Fundamentals**

**Coaching Report**

Discuss the results with your mentor to develop a study strategy that helps you strengthen weak areas.

### Computer Network Infrastructure

This section covers the fundamental concepts of computer networking and its associated infrastructures.

**Understanding Local Area Network (LAN), Wide Area Network (WAN), Networking Topologies, Media Access Methods, and Security**

This section covers LANs, WANs, topologies, access methods, and security.

This topic addresses the following competencies:

- Competency 400.4.1: Network Infrastructures
  The graduate analyzes the characteristics of various network topologies and access methods.

**LearnKey (Videos)**

Watch the following **MTA Networking Fundamentals Session 1 Training** videos (4 hours):

- Introduction
- Internet, Intranet, and Extranet
- Understanding LANs
- Understanding WANs
- Networking Topologies and Access Methods

**Wiley Textbook**
Wired and Wireless Networks

This section covers the basics of wired and wireless networking technologies.

Understanding Wired and Wireless Networks
This section covers standards, procedures, and protocols for wired and wireless networks.

This topic addresses the following competencies:

- Competency 400.4.2: Wired and Wireless Networks
  The graduate analyzes standards, procedures, and protocols used in wired and wireless networking technologies.

LearnKey (Videos)

Watch the following MTA Networking Fundamentals Session 1 Training videos (4 hours):

- Wired vs. Wireless LANs
- Understanding Wireless Networks

Wiley Textbook

Read the following pages in 98-366: MTA Networking Fundamentals:

- pages 50 – 63 in Lesson 3 ("Understanding Wired and Wireless Networks")

Internetworking Devices

This section covers the capabilities and development of network infrastructure.

Connectivity Devices for LAN and WAN
This section covers connectivity devices in relation to LAN and WAN.

This topic addresses the following competencies:

- Competency 400.4.3: Network Hardware
  The graduate analyzes network hardware capabilities important to the development of network infrastructures.

LearnKey (Videos)

Watch the following MTA Networking Fundamentals Session 2 Training videos (3 hours):

- Understanding Switches
- Switches in Depths
The Open System Interconnection (OSI) Model

This section covers how to maintain and troubleshoot networks using the OSI model.

Defining Internetworking With OSI Model
This section covers the OSI model, IP addressing, name resolution and, services and tools.

This topic addresses the following competencies:

- Competency 400.4.4: Open Systems Interconnection (OSI)
  The graduate analyzes the layers specified in the Open Systems Interconnection (OSI) model used to design, maintain, and troubleshoot networks.

LearnKey (Videos)

Watch the following MTA Networking Fundamentals Session 3 Training videos (4 hours):

- Understanding the OSI Model Part I
- Understanding the OSI Model Part II
- IP addressing Part I
- IP addressing Part II
- Introduction to Name Resolution
- Networking Services and Tools

Wiley Textbook

Read the following pages in 98-366: MTA Networking Fundamentals:

- pages 30 – 46 in Lesson 2 ("Defining Networks with the OSI Model")

Network Protocols and Services

This section covers applications of network protocols and services.

Understanding Internet Protocols and Services, TCP/IP and IP Addressing, and Network Services
This section covers internet protocols, network services, and implementing TCP/IP in the command line.

This topic addresses the following competencies:

- Competency 400.4.5: Protocols and Services
  The graduate analyzes the various applications and affordances of network protocols and services.

Wiley Textbook
Read the following pages in *98-366: MTA Networking Fundamentals*:

- pages 68 – 93 in *Lesson 4 ("Understanding Internet Protocol")*
- pages 98 – 120 in *Lesson 5 ("Implementing TCP/IP in the Command Line")*
- pages 128 – 142 in *Lesson 6 ("Working with Networking Services")*

**Final Steps**

Congratulations on completing the activities in this course! This course has prepared you to complete the assessments associated with this course. If you have not already been directed to complete the assessments, schedule and complete your assessments now.

**Practice Tests**

Complete the following practice assessments:

**LearnKey:**

- [Post-Test & Labs (Session 1)]
- [Post-Test & Labs (Session 2)]
- [Post-Test & Labs (Session 3)]

Important: There are some important items to understand regarding the use of the LearnKey resource, primarily that it functions best with the Firefox browser. It is recommended that you use Firefox as you utilize the LearnKey resource. If you have technical assistance needs regarding this resource, you are invited to use LearnKey’s [Tech Support Facts](#).

**MeasureUp:**

- [MeasureUp in Study Mode]
- [MeasureUp in Certification Mode]

**First Attempt Checklist**

One of the many things that makes WGU unique is its competency based education model. If you know the material, all you have to do is prove it by passing the exam. If you can do this, you can accelerate the receipt of your degree.

To make sure you have the best chance possible to pass the exam on your first attempt, the following should be completed before you refer to take it:

1. Allow for at least 4-6 weeks’ time preparing for your CWV1 assessment.
2. Complete all three modules in LearnKey as required.
3. Complete readings on all the chapters of the Wiley textbook for CWV1 assessment at
least once.

4. Complete MeasureUp in Certification Mode with a score of at least 90% or better before attempting the final exam.

5. You may also benefit from the free online study guide for CWV1 (i.e. Microsoft MTA Exam 98-366).

6. Please contact Certiport for a test location that is closest to you in advance before going for the real exam.

If this has been done, and you feel comfortable with all of the concepts presented, you are most likely ready to refer for the first attempt of the exam.

If the first attempt is failed, you will be required to get in contact with the course mentor to see what went wrong and how you can prepare to make sure your second attempt is a success. Once the course mentor feels you are ready to refer for the second attempt of the exam, he or she will approve your second exam referral.

**Outside Vendor Assessment**

Complete the Microsoft Exam 98-366: Network Fundamentals assessment.

View Microsoft's information about this exam on the "Exam 98-366: Network Fundamentals" web page.

**Network Fundamentals Exam Referral Instructions**

1. **Create a Certiport Account**
   In order to refer for your final exam, you will first need to create an account with Certiport. Click 'Register' and follow the required steps. Please keep your login information handy—you will need to log into your Certiport account to take your assessment.

2. **Choose an Assessment Location**
   The assessment has to be taken at a proctored site; there are two options for choosing a site:
   
   a. The Certiport website has a network of testing sites from which to choose.

   b. If you cannot find a Certiport site that is close to you, you can search for a site in the "WGU Proctor Yellow Pages." This site would have to be set up by Certiport, please follow step 4.2

3. **Contact the Certiport Testing Center to Schedule Your Exam**
   
   a. Most testing centers listed on the Certiport locator will provide a phone number for you to call and schedule, others will list an e-mail address or have a link to their website. Please use their preferred method to arrange your assessment.

   *Please note: Some testing centers require a proctor fee that has to be paid to the site, independent from the voucher number that pays for the exam itself. Check with the site on the amount of the proctor fee and how it can be paid to them.*
Once you have a scheduled test date and time, follow step 4.

b. If the testing center will not allow you to make an appointment, please proceed to step 4.3

4. Submit Your Referral

4.1 To complete the scheduling process for an exam on your Degree Plan, click the ‘schedule now’ button for this assessment. You will be required to provide the date and time your exam is scheduled, the name of the testing center, and any proctor fees; please make sure you have this information available.

4.2 If you cannot find a site or found a site in the WGU network that you would like to become a Certiport testing center, click the checkbox next to ‘I need help finding a site’ and enter the name of the WGU site or the reason why you need help scheduling in the notes section underneath. This will cancel the requirement of entering any of the other required information the referral is asking for and will allow you to submit the referral. A scheduler will then work with you to get a site set up for you.

4.3 If the Certiport testing site does not allow you to make an appointment without a voucher number for this assessment, click the checkbox next to ‘I need help finding a site’ and enter in the notes section underneath which site you selected and that they require a voucher number to schedule your appointment.

IMPORTANT: WGU will provide a discounted Certiport voucher for this assessment and will pay all associated proctor fees. You will receive the voucher within 3 business days of submitting the referral. Please understand that you will only be reimbursed the amount WGU would pay for a discounted voucher if you purchased a voucher directly from Certiport. However, you will be reimbursed the full amount of any proctor fee the site might charge you if WGU cannot pay the site directly. Submit receipts to reimbursements@wgu.edu along with your current mailing address and the date and exam code and you will receive a check within 3 weeks.

5. Verify Your Information
Make sure you fill out the information as requested before submitting the referral. Double check to make sure everything is correct and in order. Please provide any other information you feel your scheduler needs to know before processing this request for you.

Submitting Outside Vendor Assessment Scores

Your score report will be submitted by Certiport within 5 days of your exam and added to your Degree Plan by the records department. If your degree plan does not reflect the changes in this time frame, make your mentor aware of the situation.

Accessibility Policy

Western Governors University recognizes and fulfills its obligations under the Americans with Disabilities Act of 1990 (ADA), the Rehabilitation Act of 1973 and similar state laws. Western Governors University is committed to provide reasonable accommodation(s) to qualified
disabled learners in University programs and activities as is required by applicable law(s). The Office of Student Accessibility Services serves as the principal point of contact for students seeking accommodations and can be contacted at ADASupport@wgu.edu. Further information on WGU’s Accessibility policy and process can be viewed in the student handbook at the following link:

Support Student

WGU values your input! Please submit any feedback you have using the following form:

Access the WGU Library 24 hours a day, 7 days a week:

Visit the Student Success Center to access a variety of topics that will help you succeed at WGU:

Contact the WGU Writing Center for help with any part of the writing or revision process: