

## **Introduction to Networking 1A: Introduction**

What would happen if we didn't have the internet? The internet is one example of a network, so you can only imagine why networking careers are essential. Start exploring the fundamentals of networking, learning about the different parts of a computer and hardware, network operating systems, and understanding how common network devices can be connected. You'll get hands-on to explore different types of cables used to create networks – and even make cables in Wired Networking activities. Get started with your introduction to networking!

### **Be Advised**

Unit 6 activities require the purchase of a number of physical materials. If these physical materials are not available, students may complete the alternate activities.

## **Unit 1: The Computing Environment**

Welcome to the world of networking! While we all know what computers are and how to operate them, it makes sense to step back and look closely at the basics. Everything starts with a strong foundation. To supply that foundation, we'll dig into the definitions and component parts that you need to know to understand computers and networking. What exactly does the computer do? What parts are responsible for the computer's basic operation? There's also power to consider: how it makes things run, how to harness and measure it, and how to stay safe when using it.

### **What will you learn in this unit?**

- Define the computer and describe how electricity is measured
- Describe electrical components and charge
- Discuss number systems and data management
- Outline specific ways to keep yourself, your electronics, and your identity safe

## **Unit 2: Computer Hardware Components**

When you think of computer networking, you might conjure abstract images of information passing through space to connect people. But a lot about networking is very hands-on. Computer hardware includes the physical components of a computer, the ones you can touch. There are various physical components that you can see, such as the monitor, keyboard, mouse, and speakers, but there are many physical components that you cannot see, such as the motherboard, video card, and central processing unit, to name a few. Our goal is to learn about all the various hardware components used to create a computer.

### **What will you learn in this unit?**

- Explain the purpose of a motherboard
- Identify the functions of the CPU
- Articulate the types and purposes of memory
- Explain expansion slots and cards
- Identify storage and multimedia devices
- Describe the functions of communication ports and devices

## **Unit 3: Computer Peripherals**

There are lots of devices that can be attached to a computer to either input data or produce output. The needs of each individual computer user are different, so the number of input and output devices attached to a computer system can vary greatly. For a networking professional, it's important to be familiar with these various options and to know how to troubleshoot any issues that might arise.

### **What will you learn in this unit?**

- Identify and describe the functions of input and output devices
- Classify devices as input or output
- List different types of printers and explain their functions
- Explain how to troubleshoot input and output devices

## **Unit 4: Software Programs for Computer Systems**

Computers need system software (operating systems) in order for humans to interact with them and software applications to manipulate data to produce an output. Computer network operating systems provide shared resources, file storage, and added security. There are many different network operating system programs to choose from, depending upon the needs of an organization.

### **What will you learn in this unit?**

- Plan a Windows installation
- Examine and support the operating system using Windows tools
- Articulate the specifics for the Mac and Linux OS
- Discuss application software across different operating systems
- Discuss the specifics associated with network operating systems

## **Introduction to Networking 1a Midterm Exam**

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from the first half of the course (Note: You will be able to open this exam only one time.)

## **Unit 5: Fundamental Networking Concepts and Principles**

Today's world, economy, and citizens live in and on the internet. Surfing the web, streaming on-demand movies and sports, e-commerce shopping, and online friendships and dating are expected and necessary parts of society. Because of this, it is important for individuals to be aware of the risks associated with the internet, the world's largest network.

### **What will you learn in this unit?**

- Define networking and describe the purpose of a network
- Identify and describe the different networking topologies
- Differentiate between the different types of networks
- Explain the function of a router and a switch
- Describe a client/server environment

## **Unit 6: Wired Networking**

Everywhere we go we are surrounded by wireless networks: the grocery store, restaurants, and libraries, just to name a few. Odds are you have a wireless network at home. However, wireless networks have a set number of devices that they can support, and the signal can be unreliable, which is why businesses have wired networks. They provide a stable connection at a faster speed.

### **What will you learn in this unit?**

- Explain the difference between broadband and baseband transmission
- Describe simplex, half-duplex and full-duplex communication
- Explain twisted pair cabling and identify wiring faults
- Define Ethernet (802.3) standards
- Explain the difference between a hub, switch, and router

## **Unit 7: Wireless Networking**

The internet is everywhere and is readily accessible to anyone. Now more than ever we release our personal and private information at the click of the mouse as we participate in our networked society, and although we may be intentionally sending our personal data to a contact for a specific purpose, we can't always be too sure that no one else has intercepted that data. When using wireless technologies, especially open networks, there are certain preventive and protective measures you should know how to take to keep your private information private.

### **What will you learn in this unit?**

- Distinguish the various types and uses of wireless network devices
- Describe various wireless access methods
- Connect the types of cloud computing with their best uses in businesses
- Troubleshoot and resolve common wireless issues
- Set up a home wireless router

## **Unit 8: Setting Up Your Network**

Information Technology (IT) jobs are in high demand with millions of unfilled jobs across the country. IT jobs are diverse and include programming, cybersecurity, cabling, network technician, network administrator, project manager, systems administrator, and systems engineer. Find the right area for you and watch the world of technology continue to evolve around you.

### **What will you learn in this unit?**

- Identify student organizations and competitions that contribute to IT and network-related coursework
- Connect the various aspects of a career plan to concrete decisions about coursework, extracurricular activities, and on-going professional development
- Describe how a positive professional outlook contributes to a positive workplace environment
- Contrast various networking careers and their educational and skill requirements

## **Introduction to Networking 1a Final Exam**

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from the second half of the course (Note: You will be able to open this exam only one time.)

