



IT Support Specialist

*In this document, you'll find all the content covered in the **IT Support Specialist program**. Our content provider is Coursera, and here are the learning objectives of the 4 courses of the IT Support program.*

Technical Support Fundamentals

[Course Link](#)

Learning Objectives

- Understand why and how humans went from counting using manual methods to calculating data with computers.
- Describe what binary is and how we use it to communicate with computers.
- Understand what the layers of computer architecture are.
- Convert binary numbers into decimal form.
- Describe the main components that make up a computer and how they work together.
- Understand how the CPU takes instructions and executes them.
- Describe how binary data physically travels throughout a computer.
- Know what the main components that make up an operating system are.
- Understand the boot process of an operating system.
- Be able to install an operating system.
- Create a file using the Windows and Linux operating systems.
- Recognize the positive as well as negative impacts of the Internet such as privacy and security.
- Understand the basics of computer networking.
- Understand the basics of how data travels across the Internet.
- Be able to install software on Windows and Linux.
- Understand the main components of software and how they work.
- Describe how computers use instructions to process input and produce output.
- Describe how a program breaks down into instructions for the CPU.
- Be able to effectively troubleshoot an issue using the troubleshooting methods learned.
- Be able to empathize with a user and utilize soft skills for an excellent customer service experience.
- Understand why documentation is an important aspect of an IT role.

The Bits and Bytes of Computer Networking

[Course Link](#)

Learning Objectives

- Describe how the TCP/IP five layer network model works.
- Identify basic networking devices.
- Label each of the five layers in the TCP/IP network model.
- Describe how the physical layer works.
- Describe how the data link layer works.
- Describe the IP addressing scheme.
- Describe how subnetting works.
- Describe subnets by performing basic math in binary.
- Demonstrate how encapsulation works.
- Describe how ARP protocols allow different layers of the network to communicate.
- Describe how the Internet works.
- Understand the basics of routing and routing protocols.
- Describe TCP ports and sockets.
- Examine the different components of a TCP header.
- Compare differences between connection-oriented and connectionless protocols.
- Explain how TCP is used to ensure data integrity.
- Describe why name resolution is important.
- Identify the steps involved with a DNS lookup.
- Understand the most common DNS record types.
- Explain how DHCP makes network administration a simpler task.
- Demonstrate how NAT technologies help keep networks secure and preserve IP address space.
- Describe how VPNs and proxies help users get connected and stay secure.
- Describe various Internet connectivity technologies.
- Define components of WANs.
- Outline the basics of wireless and cellular networking.
- Inspect common network connectivity problems.
- Use tools available in Microsoft Windows, MacOS, and Linux to troubleshoot network issues.



Operating Systems and You: Becoming a Power User

[Course Link](#)

Learning Objectives

- List, change, remove and make directories and files in the Windows GUI, Windows CLI and Linux shell.
- Search for specific files and directories in Windows GUI, Windows CLI and Linux shell.
- Manipulate text in the Windows GUI, Windows CLI and Linux shell.
- Grant the appropriate permissions to users and groups.
- Add, modify and remove users on a computer.
- Add, modify and remove permissions on files and folders.
- Differentiate between different packaging and file compression methods.
- Understand how Windows and Linux package installs work.
- Understand how devices and drivers are managed in Windows and Linux.
- Format and partition a disk in Windows.
- Use common tools to repair a filesystem and disk.
- View disk usage and free space.
- Format and partition a disk in Linux.
- Use system tools and be able to read and understand process statuses.
- Start and terminate a process.
- Use troubleshooting tools to problem solve issues with processes and resources.
- Be able to remotely access a Windows or Linux machine.
- Read and troubleshoot logs.
- Utilize disk cloning tools to make an image.

System Administration and IT Infrastructure Services

[Course Link](#)

Learning Objectives

- Examine the roles and responsibilities of a Systems Administrator.
- Differentiate the technical differences between a server and a client machine.
- Understand why DNS and DHCP servers are used and what is needed to set it up.
- Learn the physical infrastructure services in an organization that make server management easier.
- Know what communication services are available and what you need for an organization.
- Run a local webserver and understand how a public webserver works.
- Understand what services a directory server provides.
- Understand what LDAP and Active Directory are.
- Understand tradeoffs between on-site vs off-site backups.
- Understand what characteristics to evaluate when designing a backup system.
- Understand the value and importance of backup and recovery testing.
- Understand the different options for data backup and the risks that each one protects against.
- Understand the purpose and contents of a disaster recovery plan.