GUIDED PRACTICE

Class: Tech 1010
Date assigned: PENDING
Date due: PENDING
Time estimate to complete this assignment: 1 Hour

Overview/Introduction

29 CFR 1910.1200 The Hazard Communication (HazCom) standard establishes uniform requirements to make sure that the hazards of all chemicals imported into, produced, or used in U.S. workplaces are evaluated, and that this hazard information is transmitted to affected employers and exposed employees.

The HazCom standard is different from other OSHA health rules because it covers all hazardous chemicals. The rule also incorporates a "downstream flow of information," which means that producers of chemicals have the primary responsibility for generating and disseminating information, whereas users of chemicals must obtain the information and transmit it to their employees.

Learning Objectives

Basic objectives

1. To examine the duties and responsibilities of the employer with respect to safety programs, with particular emphasis on identifying and mitigating workplace hazards.*
2. To learn the necessary elements of safety programs designed to eliminate or minimize safety and health hazards.*
3. To recognize the need and requirements for employer safety and health programs. *
4. To know the OSHA requirements for employer safety and health programs.

Advanced objectives

1. Identify the employer's responsibilities under the Hazard Communication Standard [HCS], including training requirements. *
2. Identify components of a Hazard Communication program. *
3. Describe requirements of the different types of Hazard Communication labels. *
4. Locate pertinent information about chemicals on labels, including other forms of hazard communication, to ensure "right to understanding" provisions of GHS requirements. *

Mandated Objective*:

Terminal Objective: Given current OSHA and general industry information regarding worksite illnesses, injuries, and/or fatalities, the student will be able to recognize responsibilities related to hazard communications, including GHS [Global Harmonizing System] requirements.

Exercises: Please complete by _PENDING_.

- Read:
  - Text Book: OSHA General Industry Standards & Regulations (29 CFR 1910) January 2018
  - Handout: OSHA Brief: Hazard Communication Standard: Labels and Pictograms (See course website)
  - Handout: OSHA Brief: Hazard Communication Standard: Safety Data Sheets (See course website)
- Watch video
  - Introduction to the Globally Harmonized System of Hazard Communication https://www.youtube.com/watch?v=DaZw5B1A9F4
- Complete exercise
  - Visit course website (Website Under Construction)
  - Download, print, and complete document titled: HAZCOMEX.doc (please bring to class)

Questions?

For more information, please visit the following website:

Website: https://www.osha.gov/dsg/hazcom/

Lesson Plan

Lesson: **CH 7 & 8 IP Addressing and Subnetting**

Timeframe: Note how long will it take the learner to complete all of the activities from pre-class to post-class activities.

2 days

Materials needed: Describe what items will be needed to complete the in-class activities.

Worksheets involving various IP conversions and subnetting ~~excercises~~exercises.
Website: Cisco.netacad.com
Youtube.com resources:

1. What is IP (Internet Protocol)
2. What is a subnet and why subnet
3. **Binary and decimal conversion**

Objectives: List out the basic objectives tied to pre-class activities and the advanced objectives tied to in-class and post-class activities.

Basic Students:

1. *Explain how sub-netting segments a network to enable better communication.*
2. *Define some examples as to how sub-netting is used in real life*
3. *Explain how to calculate IPv4 subnets for a /24 prefix*

Advanced Students:

1. *Explain how to calculate IPv4 subnets for a /16 and /8 prefix*
2. *Given a set of requirements for sub-netting, implement an IPv4 addressing scheme.*
3. *Explain how to create a flexible addressing scheme using variable length subnet masking (VLSM).*

Background to the Lesson: Note the typical composition of learners in the class, how this lesson fits into the course design/schedule, prerequisite knowledge required, and typical challenges that learners face with this content area.

The goal of this lesson is to introduce the students to fundamental networking concepts and technologies, IP networking addresses and subnets are embedded within this lesson.

The typical challenge students might face ~~for the learner~~ would be to learn a new system of numbering process, calculating and converting binary numbers without the use of an electronic device.

In this chapter, students will need to have the knowledge of ~~how to identify the~~ binary system identification and conversion of~~rting~~ the binary system to decimals without the use of electronic devices.

Introduction to Lesson: Describe the purpose of this content area for learners and an overview of the activities and resources for the flipped lesson.

The purpose of this content area is to:

- Demonstrate the knowledge of identifying, designing, and managing an effective IP addressing scheme
- Ensure that networks can operate effectively and efficiently as the number of host connections to a network ~~increases~~increase~~.~~
- Identify the hierarchical structure of the IP address
- Identify how to modify that hierarchy in order to more efficiently meet routing requirements is an important part of planning an IP addressing scheme.
- Collaboratively students will be working in small groups to complete a series of worksheets.

Procedure [Time needed, include additional steps if needed].

Pre-Class Individual Space Activities and Resources: Outline the major steps for the preparatory activities and be sure to tie the steps to the basic learning objectives you have noted above. Note resources required for learner preparation.

Steps	Purpose	Estimated Time	Learning Objective
Step 1: Sponge Activity – ***Instructor* will:** - **Enlighten students of the business model on how large companies (AT&T, Verizon, etc.), utilize this IP addressing and sub-netting scheme to generate large amounts of $$$ from consumers every day who use the internet.** - Show video on internet protocol What is IP (Internet Protocol) - **Show video to describe what a subnet is and why is sub-netting important:** What is a subnet and why subnet -	**To draw attention to real world business practices which use the IP addressing scheme.** **To give a better ~~comprehention~~comprehension of what an IP ~~ip~~ addressing is as well as subnetting**	**30 min**	**To define how IP addresses and subnets are used in industry.** E1 Ch. 5.5.1

Step 2: ***Instructor* will –** - **Refer students to the website cisco.netacad.com for their online reading material. Chapter 7 & 8** - **Review the binary & decimal conversion process, with the aid of a video (if needed) Binary and decimal conversion** - **Demonstrate to the students what they will be doing on worksheet *without an electronic device*.** - ***Students will be reminded that the Cisco's CCNA certification exam does not allow electronic devices during testing.***	**To describe to the students how to fill out an IP Addressing and sub-netting worksheet during class to further enhance the learning process, *without an electronic device*.**	**20 min**	**To define what IP addresses and subnets are used for in industry.**

In-Class Group Space Activities and Resources. Outline the major steps for the in-class activities and be sure to tie the steps to the advanced learning objectives you have noted above. Also note any resources needed/developed to provide effective active learning activities within class.

Steps	Purpose	Estimated Time	Learning Objective
Step 1: **Worksheets will be distributed to students and to be filled out without the use of electronic devices.**	**Students will;** **- Learn to calculate and process the IP Addressing and sub-netting process.** **- Solve problems using critical thinking skills (analyze, synthesize, and evaluate) independently and in teams.**	**1.5 hrs.**	**To have students define and describe what IP addresses and subnets are and how it is used in everyday activities**

Standards utilized E1 Ch. 5.5.1: Use knowledge of network structure to help a technician troubleshoot a hidden gateway problem. E1 Ch. 6.1.3: Convert given binary numbers to decimal values; 6.1.5: convert given decimal numbers to binary values. E1 Ch. 6.3.1: Identify classifications of address assignment within the network organization structure of a client company. E1 Ch.10.3.2: Based on network requirements, design an addressing solution that meets current as well as future customer needs.	**- Solve problems using creativity and innovation.** ***(without the use of an electronic device)***		**including industry.**

Post-Class Individual Space Activities and Resources. Outline the major steps for the post-class activities and be sure to tie the steps to the advanced learning objectives you have noted above. Also note any resources learners will need to complete any post-class activities assigned after the group space activities.

Steps	Purpose	Estimated Time	Learning Objective
Step 1: **Students will submit worksheet for grading**	**1. To verify that students can identify different IP~~ip~~ address classes** **2. Identify sub-nets requirements.**	**10 min**	**Assessment/evaluation**
Step 2: **Students will complete an on-line post test detailing what is learned**	**To verify students comprehension on IP~~ip~~ addressing and sub-netting**	**1 hr**	**Evaluation or assessment**

Evaluation:

Analysis. In this section, note what you think will work and what challenges you think you may face in implementation.

Cell phone interruption or usage, during worksheet activity

Connections to Future Lessons. In this section, note how you think this lesson plan connects to your next topics in the course.

Students will design a simple network for a given scenario such as implementing a IP addressing scheme for a school.

References

Worksheets involving various IP conversions and sub-netting exercises (one worksheet is posted)
Cisco-Networking-Academy-Alignment-to-STEM-and-Ed-Standards.pdf
Website: Cisco.netacad.com
Youtube.com resources:

1. What is IP (Internet Protocol)
2. What is a subnet and why subnet
3. **Binary and decimal conversion**

Default Subnet Masks

Write the correct default subnet mask for each of the following addresses:

177.100.18.4	255.255.0.0
119.18.45.0	255.0.0.0
191.249.234.191	255.255.0.0
223.23.223.109	
10.10.250.1	
126.123.23.1	
223.69.230.250	
192.12.35.105	
77.251.200.51	
189.210.50.1	
88.45.65.35	
128.212.250.254	
193.100.77.83	
125.125.250.1	
1.1.10.50	
220.90.130.45	
134.125.34.9	
95.250.91.99	