DepED
DEPARTMENT OF EDUCATION

COMPUTER SYSTEMS SERVICING NC II

COC 1:

Install and Configure Computer Systems

Module 10:

Occupational Health and Safety procedures

Computer Systems Servicing – Grade 11
Quarter 1 – Module 10: Occupational Health and Safety Procedures
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Computer Systems Servicing

11

Quarter 1

Self-Learning Module10

Occupational Heath And Safety Procedures

Introductory Message

For the Facilitator:

Welcome to the Computer Systems Servicing Grade 11 Self-Learning Module on Occupational Health and Safety procedures!

This Self-Learning Module was collaboratively designed, developed and reviewed by educators from the Schools Division Office of Pasig City headed by its Officer-in-Charge Schools Division Superintendent, Ma. Evalou Concepcion A. Agustin, in partnership with the City Government of Pasig through its mayor, Honorable Victor Ma. Regis N. Sotto. The writers utilized the standards set by the K to 12 Curriculum using the Most Essential Learning Competencies (MELC) in developing this instructional resource.

This learning material hopes to engage the learners in guided and independent learning activities at their own pace and time. Further, this also aims to help learners acquire the needed 21st century skills especially the 5 Cs, namely: Communication, Collaboration, Creativity, Critical Thinking, and Character while taking into consideration their needs and circumstances.

In addition to the material in the main text, you will also see this box in the body of the module:

Notes to the Teacher

This contains helpful tips or strategies that will help you in guiding the learners.

As a facilitator you are expected to orient the learners on how to use this module. You also need to keep track of the learners' progress while allowing them to manage their own learning. Moreover, you are expected to encourage and assist the learners as they do the tasks included in the module.

For the Learner:

Welcome to the Computer Systems Servicing Grade 11 Self-Learning Module on Occupational Health and Safety procedures!

This module was designed to provide you with fun and meaningful opportunities for guided and independent learning at your own pace and time. You will be enabled to process the contents of the learning material while being an active learner.

This module has the following parts and corresponding icons:

Expectations - This points to the set of knowledge and skills that you will learn after completing the module.

Pretest - This measures your prior knowledge about the lesson at hand.

Recap - This part of the module provides a review of concepts and skills that you already know about a previous lesson.

Lesson - This section discusses the topic in the module.

Activities - This is a set of activities that you need to perform.

Wrap-Up - This section summarizes the concepts and application of the lesson.

Valuing - This part integrates a desirable moral value in the lesson.

Posttest - This measure how much you have learned from the entire module.

EXPECTATIONS

After completing this lesson, you should be able to:

1. define and explain Occupational Safety and Health (OHS);
2. discuss common hazards and risk at workplace;
3. appreciate the importance of Occupational Safety and Health (OHS) procedures.

PRETEST

Direction: Identify what is referred to in the following statements. Write your answers on the space provided.

_____1. A multidisciplinary field dealing with the protection, fitness and well-being of people at work.

_____2. Is all that could harm you and others. It may affect people's safety and well-being and can affect tools and equipment.

_____3. These hazards are created by the use of tools, equipment, or machinery and plant either powered or manually (humanly).

_____4. Is an individual, element or situation which can inflict contact harm. We may be marked as occupational threat or risk to the environment.

_____5. Known as hazard control, this is part of the risk management process in which strategies are applied to neutralize or the defined threats.

_____6. Where the danger can be isolated by partitions or marked areas from the people or facilities at risk.

_____7. Is the type of occupational hazard that is caused by chemical exposure at work. Examples include acids and toxins, chemicals, dusts, gases and tools for bombs.

_____8. Workplace hazard impacting the psychological and physical well-being of employees, including their ability to engage in a work atmosphere and others, is a job stressor.

_____9. Compete removal or danger avoidance often eliminates the risk.

_____10. Is the probability of something unpleasant occurring.

RECAP

Personal protective equipment (PPE) - is protective garments, gloves, goggles or other apparel or devices designed to shield the body of the wearer from injury or infection. Risks covered by protective devices include physical, electronic, fire, chemicals, biohazards and airborne particulate matter. Protective gear can be used for occupational safety and health reasons, as well as for sport and other leisure purposes. "Protective apparel" refers to common types of clothes, and "protective equipment" refers to items such as mats, soldiers, helmets or masks among others. The PPE suits can be similar in style to a cleanroom suit.

Types of Personal Protective Equipment

- Respiratory protection-e.g. plastic, bottle, air tube, half or full face.
- Eye protection – e.g. spectacles / goggles, helmets, visors, etc.
- Hearing protection-e.g. ear muffs and plugs.
- Hand protection – e.g. gloves and barrier creams.
- Foot protection, e.g. shoes / boots.
- Head protection – e.g. masks, tops, hoods, hats.
- skin protection – e.g. caps, sunburn treatment, long-sleeved shirts

It is essential that students and teachers will be allowed to use personal protective equipment during their laboratory time. There are plenty of these:

- Goggles A large spectacle with shielding across the rims to cover the eyes from debris, intense lighting, heat, etc.
- Rubber Sole A special type of shoes used for the protection of electrical shock and for waterproofing and insulation purposes.
- Apron A garment worn over the front of the body to protect one's cloth.
- Face Mask A skin mask to avoid inhalation or ingestion of dust and other chemicals
- Gloves Coating material with a different sheath for each finger used for hand protection.
- Anti-Static wrist strap - Is a crucial piece of safety equipment that helps avoid the build-up of static electricity in the vicinity of sensitive electronics or other ventures where static charging may destroy electronics or trigger safety problems.
- An anti-static mat - is intended to help reduce the effects of electrostatic discharge (ESD) on a human or static-sensitive object.

LESSON

Occupational safety and health (**OSH**) - Often generally referred to as health and safety, workplace health and safety (OHS), occupational health, or occupational safety, is a multidisciplinary field dealing with the protection, fitness and well-being of people at work. These terms also refer to the aims of this field, so their use in the sense of this article was originally an abbreviation of the program / department for occupational safety and health etc.

The aim of an occupational health and safety system is to encourage a clean and stable work climate. OSH may also protect workers, family members, bosses, customers, and many others who may be impacted by the working environment.

Workplace Hazards

Although employment provides many economic and other benefits, a wide variety of occupational dangers (also known as dangerous working conditions) often present threats to people's health and safety at work. These include "chemicals, biological agents, physical factors, adverse ergonomic conditions, allergens, a complex safety risk network," and a wide range of psychosocial risk factors. You'll need to follow the three "Think Safe" measures to ensure protection and health in your workplace.

1. **Hazard Identification**

Hazard is all that could harm you and others. It may affect people's safety and well-being and can affect tools and equipment. Alertness is useful at all times, and is also effective in detecting dangers. During this phase, you can recognize things that may cause injury and illness.

You will need to know the different classifications or types when identifying hazards. They may be physical, mechanical or electrical, chemical, biological or psychological hazards to the environment.

- **Physical-** Is an individual, element or situation which can inflict contact harm. We may be marked as occupational threat or risk to the environment. Physical risks include ergonomic dangers, pollution, discomfort from heat and cold, vibration threats, and risks from noise.
- **Mechanical** - are hazards are created by the use of tools, equipment, or machinery and plant either powered or manually (humanly).
- **Chemical** - Is the type of occupational hazard that is caused by chemical exposure at work. Workplace exposure to chemicals can cause immediate or long-term adverse effects on health. Examples include acids and toxins, chemicals, dusts, gases and tools for bombs.
- **Biological** - Infectious micro-organisms include viruses, flies, vermin(pest) and bacteria.

- **Psychosocial** - Any workplace hazard impacting the psychological and physical well-being of employees, including their ability to engage in a work atmosphere and others, is a job stressor. Psychosocial risks are linked to the manner in which work is created, structured and handled, as well as the economic and social context of research.

2. Risk Assessment

Risk is the probability of something unpleasant occurring. Risk entails confusion about the consequences / implications of an action on something that is of interest to people (such as health, well-being, income, properties or the environment), often with negative, unintended results.

Risk management considerations also include the environment in which risks have been reported. You often analyze the structure of the workplace and the people who work on it, in particular their working patterns and postures. In addition, all current monitoring procedures introduced in the workplace must be reviewed.

3. Risk Control

Risk Control - known as hazard control, this is part of the risk management process in which strategies are applied to neutralize or the defined threats. Managed uncertainties remain potential challenges but there has been a substantial decrease in the possibility of a related accident or its effects.

The most successful way to reduce a danger is to eradicate the threat, although this is not always fairly possible. There is a recognized hierarchy of hazard controls that is described in an order of effectiveness and choice usually descending:

- **Elimination** - complete removal or danger avoidance often eliminates the risk.
- **Substitution** - there may be a less risky or less threatening material, device, or procedure.
- **Isolation** - Where the danger can be isolated by partitions or marked areas from the people or facilities at risk. The probability is lowered.
- **Safeguards -** suitable security, control systems, and related engineering solutions may change tools or equipment.
- **Procedural methods** - safer ways to do something.
- **Personal protective equipment and clothing (PPE**)- is the last resort.

Common hazards encountered by Computer Technicians and users

Computer technicians and users should follow the "Think Safe" measures as they can often be vulnerable to numerous job risks such as physical, mechanical, chemical and electrical shock risks.

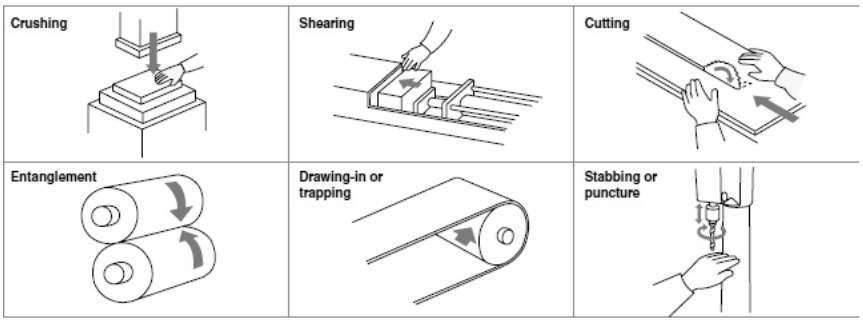
Image 1.1 Common Hazards

Physical Hazards - One of the most frequent physical hazards involving computer technicians is through-the-floor cables. If somebody slips, falls and damages themselves because of a cable that you dragged around the room, someone (you, your boss, or your customer) has a significant issue with legal negligence. Place a Danger warning close to the "wet floor" signs used by cleaning services should you decide to temporarily run a cable across the room.

Image 1.2 Physical Hazards

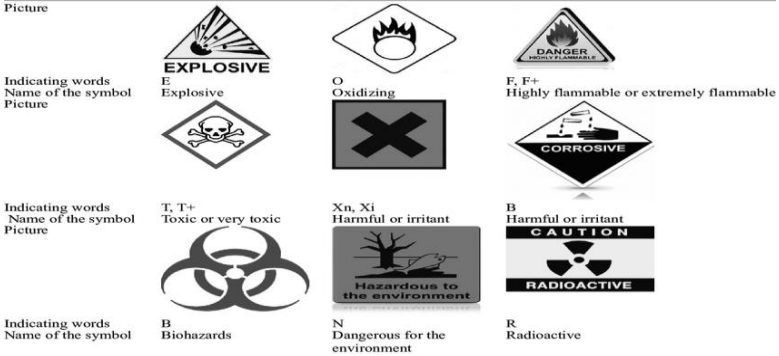
Mechanical Hazards - Tell yourself while operating on computer devices, "Does this device harm me?" You could put your hand in a printer and unexpectedly push the paper feed back, feeding not just paper through the printer, but also a piece of your finger. You could push your hand around a casing of your machine and lose a slice of flesh because it's sharp razor. Also be alert when operating on electronic equipment to the possibility that moving parts, hot components or sharp edges can harm.

Image 1.3 Mechanical Hazards



Chemical Hazards - For electronic devices, there is a wide variety of chemicals used. There are window cleaner additives, additives for keypad washing, compressed gas dirt and dust removers, and other solvents for cleaner. Some of such substances can be dangerous if ingested by mistake, get on bare skin, or get in the eyes. Please read the notices and directions on the packaging before using any chemicals on the electronic equipment. Also, must be very careful when treating cartridges for inkjet printers, or toner laser printers. Ink and toner have the ability to stain clothes, fabrics and furniture.

Image 1.4 Chemical Hazards



Electrical Shock hazards - There is a variety of voltages from 3.3 volts to 25 volts within devices and electrical appliances, the majority of which are harmless. Yet you can consider line strain at the power source, which is a deadly 220 volts. Attentiveness and caution must therefore be exercised at all times, as this threat can be fatal.

Image 1.5
Electrical Hazards

The workplace should follow safety regulations to:

- Secure from injuries
- Cover equipment from damage
- Safeguard the atmosphere from pollution

Safety Precautions at Work:

- Must not work alone, so that in case of an accident or emergency there is someone who can take care of you.
- Beware of the devices that can cause short circuit. Please fill up the handle with the cable connector and not keep it on the cable itself.
- Use only rubber shoes when standing on the ground or in a concrete floor.
- While attaching a cable connector, make sure that the pins are correctly spaced.
- Consider turning off and unplug the computer before working on it
- Take away any liquid such as mineral water or soft drinks near your working area or near computers.
- Contingency plans are known during industrial incidents, explosion, and other emergencies.
- Personal protective equipment is used properly according to the standards and protocol of the company.
- Workforce hazards / risks and their associated markers are identified to reduce or remove harm to co-workers, the workforce, and the environment.
- Take required precautions to prevent damage caused by Electrostatic Discharge (ESD) to the device component.
- Do not use excessive force if things do not quite slip into place.

ACTIVITIES

I. **Directions:** Identify the type of hazard described in the box by the following words. Write them in the appropriate column in the table.

1. Machine emitting dust
2. Working area without proper ventilation
3. Acid not properly stored on the ceiling
4. Weak Platforms and Ladders
5. Use of extension cord for high-powered equipment
6. Spread of malaria virus on workplace
7. Electrical cord loosely hanging
8. Tired workers treated unfairly by supervisors
9. Cable running across the floor
10. Exposure to loud noises

Physical hazard	Mechanical hazard	Chemical hazard	Biological hazard	Psychosocial hazard

II. **DIRECTION:** Assess the following hazards.

Hazards	Risk
A hazard is anything that could hurt you or somebody else	Work out how hazard could hurt someone and how badly he/she could be hurt.
1. Workstation too dark or with poor lighting	
2. High impact noises on the workplace such as music from big speakers	
3. Loose electrical leads and cables	
4. Malfunction of computers and monitors	
5. Poor design of computer workstation	

WRAP-UP

This module talked about Occupational safety and health (OSH) and procedures. Specifically, it discussed three steps to manage health and safety at work:(Spot the Hazard (Hazard Identification), Assess the Risk (Risk Assessment) Make the Changes (Risk Control). You have to identify the hazards where you work and decide how dangerous they are. Eliminate the hazard or change the risk it poses.

In addition, there is a recognized hierarchy of hazard controls that is described in an order of effectiveness and choice this are elimination, substitution, isolation, safeguards procedural methods and Personal protective equipment and clothing (PPE).

Now, as learners, aside from the several points mentioned above. You can use the blank spaces provided in the next page to answer and react to the following cases or scenarios:

- Would you be able to make use of this knowledge obtained in this module? In what particular scenario would it be?

  _____
  _____
  _____
  _____
  _____
  _____
  _____
  _____

- Do you see yourself using Occupational safety and health (OSH) and procedures.? In what particular field would it be applied?

  _____
  _____
  _____
  _____
  _____
  _____
  _____
  _____

VALUING

DIRECTION: Read and answer the following questions carefully in two to three sentences each number.

1. What do you think are the importance of learning the Occupational Health and Safety procedures?

2. How will you use the knowledge you acquired about Occupational Health and Safety procedures?

3. Cite a situation in which you can apply the knowledge of understanding Occupational Health and Safety procedures.

POSTTEST

I. DIRECTION: Write TRUE on the space provided if the statement is correct and FALSE if the statement is wrong.

_____1. Occupational Safety and Health is a working system performed only by people working in the computer industry.

_____2. Some hazards cannot be easily identified and are not easily noticeable.

_____3. Isolation is the process of moving away or storing hazardous materials in a separate site.

_____4. Contingency plans are known during industrial incidents, explosion, and other emergencies.

_____5. Workforce hazards / risks and their associated markers are identified to reduce or remove harm to co-workers, the workforce, and the environment.

_____6. Beware of the devices that can cause short circuit. Please fill up the handle with the cable connector and not keep it on the cable itself.

_____7. Must work alone, so that in case of an accident or emergency there is someone who can take care of you.

_____8. One of the most frequent physical hazards involving computer technicians is through-the-floor cables.

_____9. Risk assessment considerations also include the environment in which risks have been reported.

_____10. Computer technicians and users should follow the "Think Safe" measures as they can often be vulnerable to numerous job risks such as physical, mechanical, chemical and electrical shock risks.

II. DIRECTION: Enumerate the following

1-5. different classifications or types when identifying hazards.

1.
2.
3.
4.
5.

KEY TO CORRECTION

Pretest Key to Correction

1. Occupational Health and Safety
2. Hazard
3. Mechanical hazards
4. Physical hazards
5. Risk control
6. Isolation
7. Chemical hazards
8. Psychosocial hazards
9. Elimination
10. Risk

Posttest Key to Correction

I.	II.
1. FALSE	1. Physical hazard
2. TRUE	2. Mechanical hazard
3. TRUE	3. Chemical hazard
4. TRUE	4. Biological hazard
5. TRUE	5. Psychosocial hazard
6. TRUE	
7. FALSE	
8. TRUE	
9. FALSE	
10. TRUE	

Activity key to Correction

Physical hazard
working area without proper ventilation
weak platforms and ladders
exposure to loud noises
cable running across the floor

Mechanical hazard
machine emitting dust
use of extension cord for high powered equipment

Chemical hazard
electrical cord loosely hanging
acid not properly stored on the ceiling

Biological hazard
spread of malaria virus on workplace

Psychosocial hazard
tired workers treated unfairly by supervisors

References

- Google.” Occupational Health and Safety” Accessed July 8, 2020 https://en.wikipedia.org/wiki/Occupational_safety_and_health
- Google.” Occupational health and Safety Policies” Accessed July 8, 2020 https://bit.ly/2ZPn5uh
- Google.” Risk Control” Accessed July 8, 2020 https://en.wikipedia.org/wiki/Risk_control
- Google.” Occupational Health and Safety Procedures” Accessed July 8, 2020 https://bit.ly/3gLJiQQ
- Google.” Common Hazards” Accessed July 9, 2020 https://i.ytimg.com/vi/dh7NHU1PHIU/hqdefault.jpg
- Google.” Physical hazards” Accessed July 9, 2020 https://bit.ly/38GwFDE
- Google.” Mechanical hazards” Accessed July 9, 2020 http://www.keyence.ca/Images/safetyknowledge_risk_img02.jpg
- Google.” Chemical hazards” Accessed July 9, 2020 https://bit.ly/2OaLC7D
- Google.” Electrical shocks hazard” Accessed July 9, 2020 https://bit.ly/2ZgcjOy