

CHAPTER 8: OCCUPATIONAL SAFETY AND HEALTH PRACTICES/ DEMONSTRATE OCCUPATIONAL SAFETY AND HEALTH PRACTICES

8.1 Introduction

Occupational safety and health practices is a unit of competency offered in TVET level 6 qualification for basic competencies. This learning outcome describes the competencies required to comply with regulatory and organizational requirements for occupational safety and health. The significance of occupational safety and health practices to TVET level 6 curriculum is to equip trainee with knowledge, skills and attitude required to identify hazards in the workplace and/or the indicators of their presence, evaluation and/or work environment measurements of OSH hazards/risk existing in the workplace, gathering of OSH issues and/or concerns, prevention and control measures such as use of PPE and contingency measures for a safe working environment.

The critical aspects of competency to be covered include; identification of hazards/risks in the workplace and/or its indicators, requests for evaluation and/or work environment measurements of OSH hazards/risk in the workplace, gathering of OSH issues and/or concerns raised by workers, identification and implementation prevention and control measures, including use of PPE (personal protective equipment) for specific hazards, recommending appropriate risk controls based on result of OSH hazard evaluation and OSH issues gathered in accordance with organization procedures. The unit of competency covers three learning outcomes. Each of the learning outcome presents; learning activities that cover performance criteria statements, thus creating opportunity for the trainees to demonstrate knowledge and skills in the occupational standards and content in the curriculum. Information sheet provides; definition of key terms, content and illustration to guide in training. The competency may be assessed through written tests, demonstration, practical assignment, interview/oral questioning and case study. Self assessment is provided at the end of each learning outcome. Holistic assessment with other units relevant to the industry sector workplace and job role is recommended.

8.2 Performance Standard

Identify workplace hazards and risk, identify and implement appropriate control measures to hazards and risks, implement OSH programs, procedures and policies/guidelines in accordance with organization procedures.


8.3 Learning Outcomes

8.3.1 List of learning outcomes

- a) Identify workplace hazards and risk
- b) Identify and implement appropriate control measures to hazards and risks
- c) Implement OSH programs, procedures and policies/guidelines

8.3.2 Learning Outcome No. 1: Identify workplace hazards and risk

8.3.2.1 Learning Activities

Learning Outcome No. 1: Identify workplace hazards and risk	
Learning Activities	Special Instructions
 <p>1.1. Identify hazards (physical, biological, chemical, ergonomics, safety and unsafe) in the workplace and/or its indicators (increased of incidents of accidents, injuries, increased occurrence of sickness or health complaints/symptoms, common complaints of workers related to OSH, high absenteeism for work-related reasons) of its presence</p> <p>1.2. Conduct evaluation and/or work environment (health audit, safety audit, work safety and health evaluation, work environment measurements of physical and chemical hazards) measurements of OSH hazards/risk existing in the workplace by authorized personnel or agency</p> <p>1.3. Gather OSH issues and/or concerns (workers' experience/observance on presence of work hazards, unsafe/unhealthy administrative arrangements (prolonged work hours, no break time, constant overtime, scheduling of tasks), reasons for compliance/non-compliance to use of PPEs or other OSH procedures/policies/guidelines) raised by workers</p>	<p>PPEs should be provided at all times</p>

8.3.2.2 Information Sheet No8/LO1: Identify workplace hazards and risk

Introduction

This learning outcome addresses hazards as well as their indicators at work place, evaluation and work environmental measures and gathering of OSH issues and concerns at the work place as per the workplace procedures.

Definition of key terms

Hazards: It is anything (e.g. condition, situation practice or behavior) that has potential to cause harm, including injury, disease, death, environmental, property and equipment damage. It can be a thing or a situation.

Hazard identification: It is the process of examining each work area and working task for the purpose of identifying hazardous inherent in the job.

Risk: The likelihood or possibility that a risk will occur e.g. injury, illness, death, damage, may occur from exposure to hazard.

Risk control: It is taking actions to eliminate health and safety risks as far as is reasonably practicable.

Monitoring and review: These involve ongoing monitoring the hazard identified, risks assessed, risk control processes and reviewing them to make sure that they are working.

Content/procedures/methods/illustrations

1.1 Hazards identification in the workplace and/or its indicators of its presence

The workplace hazards may include the following:

- Safety hazards at workplace: this includes unsafe work place conditions that may result from confined space, excavations falling objects, gas leak, electrical fault, waste spillage, debris, poor storage of tools and materials.
- Unsafe workers behavior: This include smoking in prohibited areas, substance and alcohol use at work.
- Physical hazards: This may include radioactive vibration extreme temperatures, pressure noise illumination and temperature.
- Agronomical hazards: This includes psychological factors like excessive pressure, fatigue and varying metabolic cycles.
- Chemical hazards: They may include dust, smoke, fumes, gases and vapors.
- Biological hazards: These are hazards resulting from bacteria viruses, plants, parasites, mites mold fungi and insect.

The hazards and risk indicators may include the following;

- A high rate of increased incidents of accidents and injuries
- Increase in occurrence of sickness or health complaints and symptoms
- Common complaints of workers as aspects related to the occupation safety and health
- Cases of high absent seem for work related reasons that may affect the normal working trend

1.2 Evaluation and/or work environment measurements of OSH hazards/risk existing in the workplace is conducted by Authorized personnel or agency

The evaluation and work environmental measurement may include the following:

Health audit: This is a process by health professionals to assess, evaluate and improve care of workers in a systematic way. It measures current practice against defined standard. It forms part of health governance which aims to safeguard high quality care of workers.

Safety audit: It is used to describe an activity where a facility gets information about one or more aspects of the workplace in order to evaluate the risks levels for health and safety issues. It is a structured process where information is collected relating to the efficiency, effectiveness and reliability of a company's total health and safety management system.

Work safety: This describes procedures in place to ensure safety and health of the employee. It involves hazard identification and action according to the government standards and ongoing safety training and education for employees. The occupational

safety and health issues can be gathered from workers by a number of methods. These methods include:

- Questionnaires
- Oral interviews
- By use of suggestion box

The data collected using these methods is analyzed to get the required information to facilitate site taking of the corrective actions. The concerns may concern the following aspects:

- Environmental safety
- Workplace safety
- Machine safety
- Workers welfare issues
- Compensation issues in case of injury or loss of life
- Operational hours and maximum exposure limit

1.3 OSH issues and/or concerns raised by workers are gathered.

When workplace hazards have been identified and controls introduced, top management, supervisors, safety and health personnel, employees, and employee representatives should be provided with training that describes these control measures. Standards developed by the Occupational Safety and Health Administration require the employer to train employees in the safety and health aspects of their jobs initially upon assignment, and/or annually. Many of these OSHA standards make it the employer's responsibility to limit certain job assignments to employees who are "certified," "competent," or "qualified" meaning that they have had special previous training, in or out of the workplace. The term "designated" personnel means selected or assigned by the employer or the employer's representative as being qualified to perform specific duties. Training records provide evidence of the employer's good faith and compliance with OSHA standards. Documentation can also supply an answer to one of the first questions an accident investigator will ask: "Was the injured employee trained to do the job?" Many researchers and studies conclude that those who are new on the job have a higher rate of accidents and injuries than more experienced workers. To help employers, safety and health professionals, training directors, and consultants can help fulfill OSHA training related requirements.

Conclusion

In summary, this learning outcome covered aspects concerning hazards in the work place as well as their indication, evaluation of the work environment and the OSH issues or observed by the workers and how they can be addressed.

Further Reading

Occupational Safety and Health Act (OSHA) 2007

Factory Act 2002

8.3.2.3 Self-Assessment

Written Assessment

1. Which of the following is not a chemical hazard?
 - a) Vapor
 - b) Fumes
 - c) Gases
 - d) Illumination
2. Identify which is not a psychological hazard.
 - a) Fatigue
 - b) Memory
 - c) Workout cycle
 - d) Personal relationship
3. Which of the following is a physical hazard?
 - a) Vibration
 - b) Electrical fault
 - c) Alcohol abuse
 - d) Gas leaks
4. Define the following terms
 - a) Hazard
 - b) Risk
5. Describe briefly the following terms as used in OSH
 - a) Hazard identification
 - b) Health auditing
 - c) Safety audit
6. Differentiate between physical and chemical hazards at the work place.
7. Describe briefly the ergonomic factors that can cause hazards.

Oral Assessment

1. Mention any three unsafe worker behavior.
2. Mention any five safety hazards at the work place.
3. Mention any three indicators of hazards
4. Mention any two ways of evaluating the work place environment

Practical Assessment

1. Trainees to identify any health hazards in the workshops as well as in the compound
2. Trainees to gather information on any precautionary measure that can be used to address the above hazards.

8.3.2.4 Tools, Equipment, Supplies and Materials

- Standard operating and/or other workplace procedures manuals
- Specific job procedures manuals
- Machine/equipment manufacturer's specifications and instructions
- Personal Protective Equipment (PPE)

1.3.2.5 References


Government of Kenya (2007). *Occupational Safety and Health Act*. Government Press. Nairobi. Kenya

<https://www.osha.gov/shpguidelines/hazard-Identification.html>

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8.3.3 Learning Outcome No. 2: Identify and implement appropriate control measures to hazards and risks

8.3.3.1 Learning Activities

Learning Outcome No. 2: Identify and implement appropriate control measures to hazards and risks	
Learning Activities	Special Instructions
 <p>2.1. Identify and implement prevention and control measures (isolate the hazard, substitute the hazard with a safer alternative, use administrative controls to reduce the risk, use engineering controls to reduce the risk, use personal protective equipment, safety, health and work environment evaluation, periodic and/or special medical examinations of workers), including use of safety gears / PPE (personal protective equipment) for specific hazards.</p> <p>2.2. Recommend appropriate risk controls (isolate the hazard from anyone who could be harmed, substitute the hazard with a safer alternative, use administrative controls to reduce the risk, use engineering controls to reduce the risk, use personal protective equipment) based on result of OSH hazard evaluation.</p> <p>2.3. Recognize and establish contingency measures (evacuation, isolation, decontamination, emergency personnel) including emergency procedures (fire drill, earthquake drill, basic life support/CPR, first aid, spillage control, decontamination of chemical and toxic, disaster preparedness/management, set of fire-extinguisher) during workplace incidents and emergencies are in accordance with organization procedures.</p>	<p>PPEs should be provided at all times</p>

8.3.3.2 Information Sheet No8/LO2: Identify and implement appropriate control measures to hazards and risks

Introduction

This learning outcome focuses on addressing prevention and control measures to hazards including the use of PPEs, taking appropriate risk controls as well as contingency measures recognized and re-established in accordance to the workplace procedures.

Definition of key terms

Hazard prevention and control: These are efforts geared towards protecting workers from the work place hazards i.e. help avoid injuries, illness, and incidents, minimize or

eliminate safety and health risk and help provide workers with safe and healthful working conditions.

Personal protective equipment: It is one of the importance means to protect the wearer from hazards in the work place. It is the last frontier of the wearer from worksite hazards and should be selected based on the job scope and intended protection.

Content/Procedures/Methods/Illustrations

2.1 Prevention and control measures for specific hazards identified and implemented

There are six major control measures to hazards. They include:

- Use of personal protective equipment
- Elimination
- Substitution
- Isolation
- Engineering controls
- Administrative controls

Elimination

It is often cheaper and more practical to eliminate hazards at the design or planning stage of a product, process or place used for work. In these early phases, there is greater scope to design out hazards or incorporate risk control measures that are compatible with the original design and functional requirements. For example, remove trip hazards on the floor or dispose of unwanted chemicals. This involves getting rid of dangerous machine, tool and equipment away from the work environment.

Substitution

If it is not reasonably practical to eliminate the hazards and associated risks, you should minimize the risk. For example, today the dangers associated with asbestos are well known and there are numerous alternatives to asbestos products currently on the market including cellulose fiber, thermoset plastic floor or polyethane foams. Replacing solvent-based paints with water-based ones is also a better alternative. In this case, the faulty machine is/tool/equipment is replaced by safe ones.

Isolate the hazard from people

This involves physically separating the source of harm from people by distance or using barriers. For example, introducing a strict work area, using guard rails around exposed edges and holes in the floors, using remote control systems to operate machinery, enclosing a noisy process from a person and storing chemicals in a fume cabinet.

Engineering control

An engineering control is a control measure that is physical in nature, including a mechanical device or process. For example, this can be done through the use of machine guards, effective ventilation systems and setting work rates on a roster to reduce fatigue. Involves incorporating engineering design to reduce accidents and hazards e.g. having guards.

Administrative control

Administrative controls are work methods or procedures that are designed to minimize exposure to a hazard. Establish appropriate procedures and safe work practices such as; limit exposure time to a hazardous task so that fewer employees are exposed, routine maintenance and housekeeping procedures, training on hazards and correct work methods and use signs to warn people of a hazard. This involves training and proper sensitization on how to use equipment safely, OSH related topics. Issue warning signs and ensure work operation shift.

Use Personal Protective Equipment (PPE)

Provide suitable and properly maintained PPE and ensure employees are trained in its proper use. Examples include gloves, earplugs, face masks, hard hats, aprons and protective eyewear. PPE limits exposure to harmful effects of a hazard but only if workers wear and use the PPE correctly.

2.2 Appropriate risk controls based on result of OSH hazard evaluation is recommended.

Risk control is the set of methods by which firms evaluate potential losses and take action to reduce or eliminate such threats. It is a technique that utilizes findings from risk assessments, which involve identifying potential risk factors in a company's operations, such as technical and non-technical aspects of the business, financial policies and other issues that may affect the well-being of the firm. It also implements proactive changes to reduce risk in these areas. Risk control thus helps companies limit lost assets and income. The following aspects can be considered in risk control:

- Isolate the hazard from anyone who could be harmed i.e. keep the machine in a closed room and operate it remotely.
- Use design control to eliminate the risk.
- Use personal protective equipment to control the risk.

Prevention and control measures outlined previously are the methods used in risk control.

1.3.1 Contingency measures during workplace incidents and emergencies are recognized and established in accordance with organization procedures

Contingency measures

In relation to occupational health and safety, contingency measures refer to plans involving suitable immediate action for responding to accidental hazards and emergencies. It refers to security measure put forward for emergence response to reduce the effects of system disruption and increase system efficiency. The contingency measures include:

- i. Evacuation:** This involves removal of operatives from the scene of hazard/accident to prevent the situation worsening. It also involves further medical attention i.e. evacuation to a medical facility.
- ii. Isolation:** The affected victims can be isolated to give a secrecy and more attention to prevent spread.

- iii. **Decontamination:** In the event of exposure to chemical hazards, where the level of contamination can be controlled then it can be done.
- iv. **Engage emergency personnel:** This involves getting an expert where possible to address situation.

Emergency procedures

The following procedures can be used to address hazards:

- Fire drill
- First aid
- Use of fire extinguishers
- Basic life support
- Earth quakes drill where applicable
- Disaster management/preparedness

Incidences and emergencies

The following incidents and emergencies should be addressed and identified where applicable:

- Fire
- Leaks
- Equipment/machine accidents
- Explosion
- Injury of personnel
- Structural support
- Toxic emission

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Conclusion

In summary, this learning outcome addressed hazards, prevention and control measures, appropriate risk controls, contingency measures, emergency procedures as well as incidents in the work place in accordance with the workplace procedures.

Further Reading

Occupational safety and health safety guidelines
OSHA 2007

8.3.3.3 Self-Assessment

Written assessment

1. Which of the following is not a hazard control measure?
 - a) First aid
 - b) Evacuation
 - c) Substitution
2. Which one of the following is not a contingency measure in controlling hazards?
 - a) Engage personnel
 - b) Decontamination
 - c) Explosions

- d) Isolation
3. Identify which one is not a risk or incidence
 - a) Toxic emissions
 - b) Leaks
 - c) Design control
 - d) Structural collapse
 4. Describe the term hazard prevention citing relevant example as used in OSH
 5. Describe briefly the following hazard control measures
 - a) Engineering controls
 - b) Elimination
 - c) Substitution
 6. Explain citing relevant examples the contingency measure to address hazards
 7. Outline any five incidents and emergencies that can arise in a work place
 8. Describe briefly any five emerging measures to address safety standards.

Oral Assessment

1. Mention any four personal safety equipment
2. Mention any five hazards in a work environment
3. Mention any two contingency measures to be taken into consideration to be able to prevent and control hazards

8.3.3.4 Tools, Equipment, Supplies and Materials

- Standard operating and/or other workplace procedures manuals
- Specific job procedures manuals
- Machine/equipment manufacturer's specifications and instructions
- Personal Protective Equipment (PPE)

1.3.3.5 References


Government of Kenya (2007). *Occupational Safety and Health Act*. Government Press. Nairobi. Kenya

<https://www.investopedia.com/terms/r/risk-control.asp>

<http://phnews.org.au/six-steps-to-control-workplace-hazards/>

8.3.4 Learning Outcome No.3: Implement OSH programs, procedures and policies/guidelines

8.3.4.1 Learning Activities

Learning Outcome No. 3: Implement OSH programs, procedures and policies/guidelines	
Learning Activities	Special Instructions
	
3.1. Provide Information to work team about company OSH program procedures and policies/guidelines 3.2. Participate in implementation of OSH procedures and policies/guidelines 3.3. Train and advise team members on OSH standards and procedures 3.4. Implement procedures for maintaining OSH-related records (medical/health records, incident/accident reports, sickness notifications/sick leave application, OSH-related trainings obtained)	PPEs should be provided at all times Group discussions on OSH standards and procedures

8.3.4.2 Information Sheet No8/LO3: Implement OSH programs, procedures and policies/guidelines

Introduction

This learning outcome address the implementation of OSH programs, procedures, policy and guidelines as well as the OSH related records as per the workplace procedures.

Definition of key terms

OSH procedures and policies: They are guidelines used to direct all employees to work safely and prevent injury, to themselves and others.

OSH standards: OSH standards are rules that describe the methods that employers must use to protect their employees from hazards. These standards limit the number of hazards workers can be exposed to, require the use of certain safe practices and equipment, and require employers to monitor hazards and keep records of workplace injuries and illnesses.

OSH-related records: They are documentations that keep track on various OSH processes.

Content/Procedures/Methods/Illustrations

1.1 Information to work team about company OSH program, procedures and policies/guidelines are provided

The purpose of the Health and Safety policies and procedures is to guide and direct all employees to work safely and prevent injury, to themselves and others. All employees are encouraged to participate in developing, implementing, and enforcing Health and Safety policies and procedures. The following OSH programs can be considered:

- a) **Medical surveillance:** This is a planned plan of periodic examination which may include the following:
 - Biological effect monitoring
 - Clinical examination
- b) **Periodic occupational health surveillance:** This consists of examination conducted periodically to identify vulnerable groups among the staff which could be of immense value to prevention
- c) **Management of occupational exposure:** This means amount of work place agent that has reached and individual worker.

3.2 Implementation of OSH procedures and policies/guidelines are participated

The occupation health and safety address the following priorities:

- i. Conducting workplace audits and risk assessment at facility level.
- ii. Oversee compliance of facility design and building codes for new construction
- iii. Support the procurement systems for quality and adequate PPEs and other OSH supply within the facility
- iv. Review causes of/for rehabilitation and compensation of injured health sector employees
- v. The management of incidents and emergencies arising within the health facility.
- vi. Ensuring new staff go through the induction and orientation on OSH issues.
- vii. Publicizing, promoting and enforcing the guidelines and procedures among the staff they supervise.
- viii. To coordinate capacity building of the facility level staff and disseminate policy guidelines at the facility level

3.3 Team members are trained and advised on OSH standards and procedures

Effective training and education can be provided outside a formal classroom setting. Peer-to-peer training, on-the-job training, and worksite demonstrations can be effective in conveying safety concepts, ensuring understanding of hazards and their controls, and promoting good work practices.

Duties of Workers

One of your most important responsibilities is to protect your Health and Safety as well as that of your co-workers.

What the law requires

Workplaces under the jurisdiction are governed by your provincial legislation. The legislation places duties on owners, employers, workers, suppliers, the self-employed and contractors, to establish and maintain safe and healthy working conditions.

The legislation is administered by your provincial legislation. Your officials are responsible for monitoring compliance.

Duties of your Employer

Your employer is responsible for providing you with safe and healthy working conditions. This includes a duty to protect you from violence, discrimination and harassment. You must cooperate with your employer in making your workplace safe and healthy. Your Responsibilities You must also comply with the legislation. You have responsibilities to:

- Protect your own Health and Safety and that of your co-workers
- Not initiate or participate in the harassment of another worker
- Co-operate with your supervisor and anyone else with duties under the legislation

Your Rights

The legislation gives your three rights:

- The right to know the hazards at work and how to control them
- The right to participate in Occupational Health and Safety
- The right to refuse work which you believe to be unusually dangerous.

You may not be punished for using these rights. An employer can be required to legally justify any action taken against a worker who is active in Health and Safety.

Your Right to Know

The standards require your employer to provide you with all the information you need to control the hazards you face at work. For example, chemicals at the workplace must be listed. You are entitled to review this list. Your employer must train you to safely handle the chemicals you will work with. If you are inexperienced, you must receive an orientation.

Your Right to Participate

You have the right to become involved in occupational Health and Safety. The legislation encourages employers and workers to work together to maintain a healthy and safe workplace. Employers at workplaces with (ten or more – consult your provincial act) workers must set up an occupational health committee of employer and worker representatives.

Your Right to Refuse

You have the right to refuse to do work which you believe is unusually dangerous. The unusual danger may be to you or to anyone else.

3.4 Procedures for maintaining OSH-related records are implemented

The OSH documentations may include

- a) **Accident reporting:** This includes investigation and analyzing incidents, underlying deficiency and renew the incident reports.
- b) **Dangerous occurrences:** The OSH committee shall maintain register for such occurrences in the format give in the OSH regulations.
- c) **Incident/Near miss:** The workers shall report any accident and near miss within the work area. The Osh committee shall maintain a register and the occurrence should be investigated.

- d) **Notifiable diseases:** The OSH committee shall maintain a register of occupational disease that has been reported.

Conclusion

In summary, this learning outcome addressed aspects to do with OSH programs, policies, standards and related OSH records as applicable to the workplace.

Further Reading

OSHA 2007

Occupational safety and health safety guidelines

ISO standards

8.3.4.3 Self-Assessment



Written Assessment

1. What does OSHS not deal with?
 - a) Provision of PPE
 - b) Employability
 - c) First Aid training
 - d) Workplace safety
2. Which of the following is not an OSH related record?
 - a) Accident report
 - b) Hazard report
 - c) Work permit
 - d) Incident register
3. The occupation health and safety address the following priorities except
 - a) Workplace audits
 - b) Risk assessment
 - c) first aid training
 - d) Employees attendance
4. Differentiate between OSHS and OSHA.
5. Describe briefly the following OSH terms giving relevant examples
 - a) Medical surveillance
 - b) Periodical occupational health surveillance
 - c) Management of occupational exposure
6. Highlight four OSH policies and standards in relation in to the workplace procedures
7. Describe briefly any three OSH related records.

Project

Do an assessment of the OSHS been implemented in a neighboring industry

8.3.4.4 Tools, Equipment, Supplies and Materials

- Standard operating and/or other workplace procedures manuals
- Specific job procedures manuals
- Machine/equipment manufacturer's specifications and instructions
- Personal Protective Equipment (PPE)

1.3.4.4 References



Government of Kenya (2007). *Occupational Safety and Health Act*. Government Press. Nairobi. Kenya

<https://www.osha.gov/shpguidelines/education-training.html>

https://www.wrla.org/sites/wrla_01/files/health_and_safety_manual_sample.pdf

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