



**Basic Electronics Communication and Multimedia  
Equipment Servicing  
Level - II**

# **Learning Guide #17**

**Unit of Competence: Implement Maintenance Procedures**

**Module Title: Implementing Maintenance Procedures**

**MO Code: EEL BEC2 MO217 0919 LO----**

**TTLM Code: BEC2 LG4 1709 19 V1**

**LO4: Apply Maintenance Procedures**



<b>Instruction Sheet</b>	<b>Learning Guide #4</b>
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This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Implementing OH&S procedures.
- Identify diagnostic tools
- Identify appropriate maintenance procedure
- Apply preventative maintenance schedule.

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you will be able to –

- Implementing OH&S procedures and practices in computer maintenance
- Identify diagnostic tools and appropriate maintenance procedure
- Applying preventive maintenance.

### Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number.
3. Read the information written in the information “Sheet 1, Sheet 2, Sheet 3, and Sheet 4”.
4. Accomplish the information “Sheet , Sheet , in page [redacted]”.
5. Try to answer self-check, you can ask your trainer for correction. If you finished answering the Self-check, take correction or explanation from your trainer if it is not clear.
6. If you scored a satisfactory evaluation proceed to “Information Sheet 2”. However, if your rating is unsatisfactory, discuss with your trainer for further instructions or go back to learning **operation sheet-----**.
7. Submit your accomplished Self-check. This will form part of your training portfolio.
8. Read the information written in the “Information Sheet 2”. Try to understand what are being discussed. Ask you Instructor for assistance if you have hard time understanding them.
9. Accomplish the “Self-check 2” in page [redacted]. Ask from your teacher for correction (key answers) if any.
10. Read the information written in the “Information **Sheets 3**”. Try to understand what are being discussed and ask you teacher for assistance if you have hard time understanding them.
11. Accomplish the “**Self-check -----**” in page [redacted].
12. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (To get the key answer only after you finished answering the Self-check 3).
13. If you scored a satisfactory evaluation proceed to “Operation Sheet 1” in page [redacted], however, if your rating is unsatisfactory, see your teacher for further instructions or go back to **Learning Activity #1**.
14. Read the “**Operation Sheet 1**” and try to understand the procedures discussed.



## Information Sheet #1

## Apply Maintenance Procedures

### OH&S policies and procedures

### General Safety Rules

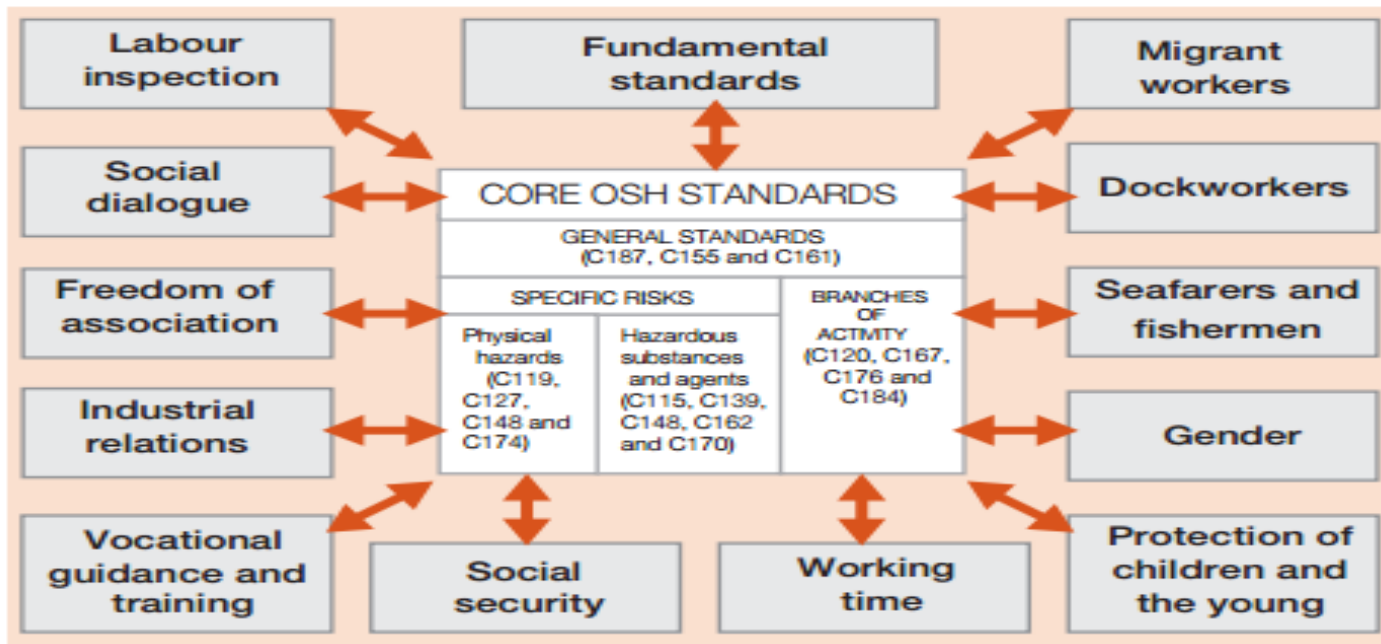
- ✓ All accidents, injuries or near misses, regardless of their nature, shall be promptly reported to the safety officer.
- ✓ Clothing shall be appropriate to the duties being performed. Long pants, a clean neat shirt and steel toed shoes are the minimum requirements.
- ✓ Hard hats and safety vests are provided for all warehouse staff and must be worn at all times in the warehouse, loading or unloading of vehicles in the yard.
- ✓ Running is not permitted except in extreme emergencies.
- ✓ Smoking is not permitted in any part of the warehouse or office. You may only smoke in designated areas.
- ✓ Visitors and customers are to be escorted by staff while on company property.
- ✓ Hand tools are to be used for their intended purpose only.
- ✓ Horseplay, fighting or tomfoolery is strictly prohibited on Your Company Name premises.
- ✓ All spacers are to be of equal proportion and undamaged. Damaged spacers are dangerous.
- ✓ Only solid spacers are to be used on lumber products, no particle board spacers.
- ✓ All bunked products will be placed securely in the bunks.
- ✓ All spills will be immediately cleaned up and reported.
- ✓ Filing cabinet drawers are to be filled from the bottom up or the cabinet is to be securely fastened or anchored.

### 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; and



- ✓ ☐ co-operate with your supervisor and anyone else with duties under the legislation.



How the core OSH standards are structured

### Hazardous and risk assessment mechanisms

Hazard identification is the process of identifying all hazards in the workplace. A hazard is a source of potential harm or a situation with the potential to cause harm. When identifying hazards, the following must be taken into consideration:

- ✓ **The workplace environment** – Temperature, size of site, number of staff and shifts.
- ✓ **Workplace layout, design and organization** – How have the warehouses and plants been designed and laid out and how are products, tanks and racking positioned around the site.
- ✓ **Design of equipment** – How has racking and tanks been designed and by whom. Does it meet Australian or International Standards?
- ✓ **How equipment is installed and disposed** – How has pallet racking, tanks and forklifts been installed, commissioned and disposed of.
- ✓ **Management systems and procedures** – Are all procedures valid, correct and current and are staff aware of these procedures.
- ✓ **Human Behaviour** – Effect of fatigue and horseplay on operations.
- ✓ **Emergency Situations** – What affect will emergencies such as storms, fires or explosions have on operations?
- ✓ **Contractors involved in work practices** – What task/process are contractors conducting and what training do they have.
- ✓ **Training** – Have all staff been trained in the operation of equipment or how to complete a task.
- ✓ **How often equipment is inspected and repaired** – Is equipment being inspected in accordance with manufacturer specifications?

### When do we must make risk assessment?

Workplace hazard identification, assessment and control is an on-going process. It should be undertaken at various times, including:

- If it has not been done before.
- When a hazard has been identified



- When a change to the workplace may introduce or change a hazard. Such as when changes occur to the work equipment, practices, procedures or environment.
- As part of responding to a workplace incident, even where an injury has not occurred.
- Where new information about a risk becomes available or concerns about a risk are raised by workers

## The steps of risk assessment procedure

### Step 1: Identify Hazards

Consultation with concerned body or workers identifying all potentially hazardous things or situations that may cause harm. In general, hazards are likely to be found in the following;

- Physical work environment,
- Equipment, materials or substances used,
- Work tasks and how they are performed,
- Work design and management

### Step 2: Assess Risks

Risk assessment involves considering the possible results of someone being exposed to a hazard and the likelihood of this occurring.

**A risk assessment assists in determining:**

- How severe a risk is
- Whether existing control measures are effective
- What action should be taken to control a risk
- How urgently action needs to be taken.

### Step 3: Controlling Risks

Once a risk rating is determined, each hazard must have its existing risk control measures evaluated using the Evaluation of Control Effectiveness Table.

#### Evaluation of Control Effectiveness Table

Well Designed Control ?		Effectively Implemented ?	
3	Needs improvement	3	Deficient (b)
2	Adequate	2	Marginal
1	Strong	1	Effective

### Step 4: Implement additional risk controls

- ✓ Having identified the hazards in your workplace, assessed their risks and reviewed the existing controls, all hazards must be managed before people are hurt, become ill or there is damage to plant, property or the environment.
- ✓ The management of risks in the workplace requires eliminating risks so far as reasonably practicable in the first instance. Where elimination is not possible, then risks should be minimized, so far as reasonably practicable.
- ✓ All hazards that have been assessed should be dealt with in order of priority. The most effective control option/s should be selected to eliminate or minimize risks. The Hierarchy of Controls (see diagram below) ranks control options from highest level of protection and reliability to lowest. This should be used to determine the most effective control/s.

### Step 5: Monitor and Review

Hazard identification, risk assessment and control is an on-going process.

Therefore, regularly review the effectiveness of your hazard assessment and control



measures at least every 3 years. Make sure that you undertake a hazard and risk assessment when there is a change to the workplace including when work systems, tools, machinery or equipment change. Provide additional supervision when new employees with reduced skill levels or knowledge are introduced to the workplace. The effectiveness of control measures can be checked through regular reviews as well as consultation with workers.

Maintaining records of the risk management process assists when undertaking subsequent reviews or risk assessments as it demonstrates decision making processes and informs how controls were intended to be implemented.

**Use Personal protective equipment** (PPE) is defined as all equipment designed to be worn, or held, to protect against a risk to health and safety. This includes most types of protective clothing, and equipment such as **eye**, **foot** and **head**, ears, lungs, torso, hands and **feet**, protection, safety harnesses, life jackets and high visibility clothing. Additionally, protection from falls may need to be considered. Objects falling from a height present the major hazard against which head protection is provided. Other hazards include striking the head against projections and hair becoming entangled in machinery. Typical methods of protection include helmets, light duty scalp protectors called 'bump caps' and hairnets.

All PPE should be subject to regular checks. If replacements are needed then these must be ordered in advance. Where new equipment becomes available or new individuals are employed, it is the responsibility of the employer to ensure they receive the appropriate health and safety training on a continual basis.

The importance of wearing personal protective equipment at the workplace cannot be overstated. It is absolutely vital that both the employer and the employee are responsible in their approaches towards health and safety requirements and that they comply with regulation. When all parties accept responsibility for their roles, workplace risks can be kept to a minimum.

Training is the use of systematic and planned instructions activities to promote safety. Employers are required to train each employee who must use PPE. Employees or workers must be trained to know at least the following:

- Necessity of PPE.
- How to use PPE
- How to reduce hazard
- First aid and life care
- Proper care, maintenance & use of PPE.
- Different safety posters and signs



- How safely perform their activities.....etc.

## Ear muffs

Noise may be defined as any disagreeable or undesirable sound or sounds, generally of a random nature, which do not have clearly defined frequencies. The usual basis for measuring noise or sound level is the decibel scale. Whether noise of a particular level is harmful or not also depends on the length of exposure to it. This is the basis of the widely accepted limit of 85 dB of continuous exposure to noise for 8 hours per day.

A peak sound pressure of above 200 pascals or about 120 dB is considered unacceptable and 130 dB is the threshold of pain for humans. If a person has to shout to be understood at 2 m, the background noise is about 85 dB. If the distance is only 1 m, the noise level is about 90 dB. Continuous noise at work causes deafness, makes people irritable, affects concentration, causes fatigue and accident proneness and may mask sounds which need to be heard in order to work efficiently and safely.



*Picture. Ear muffs and its use*

Where individuals must be subjected to some noise at work, it may be reduced by ear protectors. These may be disposable ear plugs, reusable ear plugs or ear muffs. The chosen ear protector must be suited to the user and suitable for the type of noise and individual personnel should be trained in its correct use.

## Goggles/glasses

The eyes are very vulnerable to liquid splashes, flying particles and light emissions such as ultraviolet light, electric arcs and lasers. Types of eye protectors include safety spectacles, safety goggles and face shields.



### **Face shield**

Face shields are personal protective equipment devices that are used by many workers (e.g., medical, dental, veterinary) for protection of the facial area and associated mucous membranes (eyes, nose, mouth) from splashes, sprays, and spatter of body fluids. Face shields are generally not used alone, but in conjunction with other protective equipment and are therefore classified as adjunctive personal protective equipment.

Such as ultraviolet light, electric arcs and lasers requires wear of face shield. Screen-based workstations are being used increasingly in industrial and commercial locations by all types of personnel. Working with VDUs (visual display units) can cause eye strain and fatigue.



Picture. Face shield and its use



## Safety hat

Objects falling from a height present the major hazard against which head protection is provided. Other hazards include striking the head against projections and hair becoming entangled in machinery. Typical methods of protection include helmets, light duty scalp protectors called ‘ bump caps ’ and hairnets.

### Types of Hard hats are divided into three industrial classes:

Class A hard hats provide impact and penetration resistance along with limited voltage protection (up to 2,200 volts).

Class B hard hats provide the highest level of protection against electrical hazards, with high-voltage shock and burn protection (up to 20,000 volts). They also provide protection from impact and penetration hazards by flying/falling objects.

Class C hard hats provide lightweight comfort and impact protection but offer no protection from electrical hazards.



Figure. Safety helmet or hard hat

## Safety apparel/suit

A worker’s body may need protection against heat or cold, bad weather, chemical or metal splash, impact or penetration and contaminated dust. Alternatively, there may be a risk of the worker’s own clothes causing contamination of the product, as in the food industry. Appropriate clothing will be recommended in the company’s health and safety policy. Ordinary working clothes and clothing provided for food hygiene purposes are not included in the Personal Protective Equipment at Work



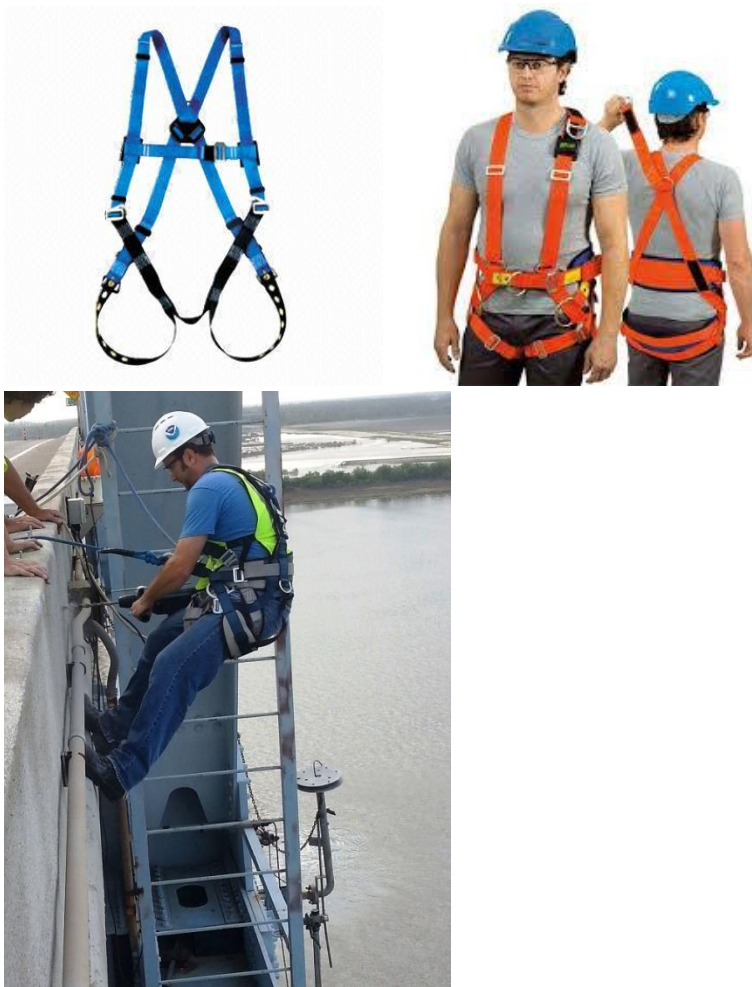
Regulations.

## Safety belt/harness

**Safety belt or harness** is a body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands



free while leaning. Is a device consists of straps that are secured about a body in a manner that distributes the arresting forces over at least the thighs, waist, chest, shoulders, and pelvis, with provision for attaching a lanyard, lifeline, or deceleration device.



*Picture. Safety harness and how to use*

### **Safety shoes**

Boots or shoes with in-built toe caps can give protection against impact or falling objects and, when fitted with a mild steel sole plate, can also provide protection from sharp objects penetrating through the sole. Special slip resistant soles can also be provided for employees working in wet areas.



Picture. Safety shoes

## **Mask**

Breathing reasonably clean air is the right of every individual, particularly at work. Some industrial processes produce dust which may present a potentially serious hazard. The lung disease asbestosis is caused by the inhalation of asbestos dust or particles and the coal dust disease pneumoconiosis, suffered by many coal miners, has made people aware of the dangers of breathing in contaminated air.



Picture. Different types of Respiratory mask

Some people may prove to be allergic to quite innocent products such as flour dust in the food industry or wood dust in the construction industry. The main effect of inhaling dust is a measurable impairment of lung function. This can be avoided by wearing an appropriate **mask**, respirator or **breathing apparatus** as recommended by the company's health and safety policy and indicated by local safety signs.

## **Gloves**

Hands and feet may need protection from abrasion, temperature extremes, cuts and punctures, impact or skin infection. **Gloves** or **gauntlets** provide protection from most industrial processes, but should not be worn when operating machinery because they may



become entangled in it. Care in selecting the appropriate protective device is required; for example, barrier creams provide only a limited protection against infection.



**If an injury occurs a record must be kept and include the following:**









- ✓ name of worker
- ✓ name and qualifications of person giving first aid
- ✓ a description of illness or injury
- ✓ the first aid given to the worker
- ✓ the date and time the illness or injury
- ✓ the date and time the illness or injury was reported
- ✓ where at the work side the incident occurred
- ✓ the work-related cause of the incident, if any

**A physical hazard** is an agent, factor or circumstance that can cause harm with or without contact. They can be classified as type of occupational hazard or environmental hazard. Physical hazards include ergonomic hazards, radiation, heat and cold stress, vibration hazards, and noise hazards. Engineering controls are often used to mitigate physical hazards.



Physical hazards are a common source of injuries in many industries.[3] They are perhaps unavoidable in certain industries, such as construction and mining, but over time people have developed safety methods and procedures to manage the risks of physical danger in the workplace. Employment of children may pose special problems.



 Explosive	 Flammable	 Oxidizer	 Corrosive for metals
 Toxic	 Skin or eye corrosive	 Irritating, sensiblizing	 Compressed, liquefied gas

**Radiation** having a wide range of energies forms the electromagnetic spectrum, which is illustrated to the right. The spectrum has two major divisions:

- ✓ Non-ionizing radiation
- ✓ Ionizing radiation

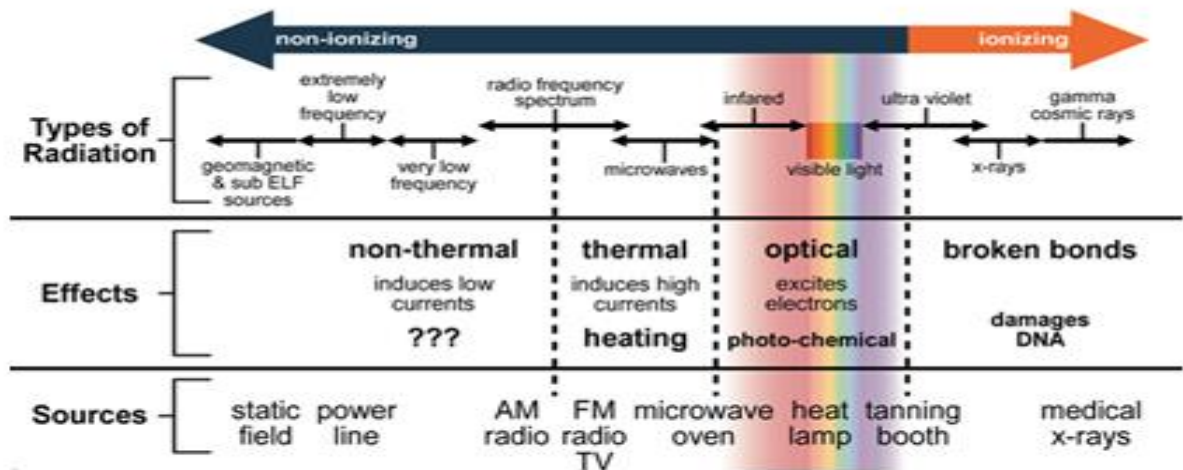
## Non-ionizing Radiation

Non-ionizing radiation is relatively low-energy radiation that doesn't have enough energy to ionize atoms or molecules. It's located at the low end of the electromagnetic spectrum ,Extremely low-frequency radiation has very long wave lengths (on the order of a million meters or more) and frequencies in the range of 100 Hertz or cycles per second or less. Radio frequencies have wave lengths of between 1 and 100 meters and frequencies in the range of 1 million to 100 million Hertz. Microwaves that we use to heat food have wavelengths that are about 1 hundredth of a meter long and have frequencies of about 2.5 billion Hertz. Non-ionizing radiation sources include power lines

- ✚ **Microwave radiation**-- telecommunications and heating food
- ✚ **Infrared radiation** --infrared lamps to keep food warm in restaurants
- ✚ **radio waves**—broadcasting

## Ionizing radiation

Ionizing radiation flow of energy in the form of atomic and subatomic particles or electromagnetic waves that is capable of freeing electrons from an atom, causing the atom to become charged (or ionized). Ionizing radiation includes the more energetic end of the electromagnetic spectrum (X-rays and gamma rays) and subatomic particles, such as electrons, neutrons, and alpha particles (helium nuclei each comprising two protons and two neutrons).








TYPES OF RADIATION IN THE ELECTROMAGNETIC SPECTRUM

## Impact

Impact is a change in positive or negative outcome for people or the planet. The Impact Management Project (IMP) has built consensus that to understand any impact, we need to understand five dimensions of performance: What, Who, How Much, Contribution and Risk.



The IMP reached global consensus that impact can be deconstructed into five dimensions: What, Who, How Much, Contribution and Risk

IMPACT DIMENSION	IMPACT QUESTIONS EACH DIMENSION SEEKS TO ANSWER
 <b>WHAT</b>	<ul style="list-style-type: none"> <li>• What outcome occurs in period?</li> <li>• How important is the outcome to the people (or planet) experiencing it?</li> </ul>
 <b>WHO</b>	<ul style="list-style-type: none"> <li>• Who experiences the outcome?</li> <li>• How underserved are the affected stakeholders in relation to the outcome?</li> </ul>
 <b>HOW MUCH</b>	<ul style="list-style-type: none"> <li>• How much of the outcome occurs - across scale, depth and duration?</li> </ul>
 <b>CONTRIBUTION</b>	<ul style="list-style-type: none"> <li>• What is the enterprise's contribution to the outcome, accounting for what would have happened anyway?</li> </ul>
 <b>RISK</b>	<ul style="list-style-type: none"> <li>• What is the risk to people and planet that impact does not occur as expected?</li> </ul>



**A chemical hazard** is a type of occupational hazard caused by exposure to chemicals in the workplace. Exposure to chemicals in the workplace can cause acute or long-term detrimental health effects.



There are many types of hazardous chemicals, including neurotoxins, immune agents, dermatologic agents, carcinogens, reproductive toxins, systemic toxins, asthmagens, pneumoconiotic agents, and sensitizers.



Occupational dust exposure can occur in various settings, including agriculture, forestry, and mining. Dust hazards include those that arise from handling grain and cotton, as well as from mining coal. Wood dust, commonly referred to as "sawdust", is another occupational dust hazard that can pose a risk to workers' health.



Type of Dust	Sources of Exposure	Workers at High Risk
<ul style="list-style-type: none"> <li>▪ <b>Silica Dust</b></li> </ul>  <ul style="list-style-type: none"> <li>▪ <b>Wood Dust</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ Building materials such as cement, stone, bricks &amp; concrete</li> <li>▪ Flooring</li> <li>▪ Wood fixtures</li> </ul>	<ul style="list-style-type: none"> <li>▪ Pneumatic breakers operators</li> <li>▪ Drillers</li> <li>▪ Masons</li> <li>▪ Carpenters</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>Metal Dust</b></li> </ul> 	<ul style="list-style-type: none"> <li>▪ Leaded paint</li> <li>▪ Metallic lead</li> <li>▪ Welding fumes</li> </ul> 	<ul style="list-style-type: none"> <li>▪ Removal of leaded paint</li> <li>▪ Metal handlers</li> <li>▪ Welders</li> <li>▪ Flame cutting operators</li> </ul>
<ul style="list-style-type: none"> <li>▪ <b>Asbestos Fibers</b></li> </ul>   	<ul style="list-style-type: none"> <li>▪ Sprayed asbestos coatings</li> <li>▪ Thermal &amp; acoustic insulation</li> <li>▪ Fire resistant walls &amp; partitions</li> <li>▪ Asbestos cement sheets &amp; flooring</li> </ul>	<ul style="list-style-type: none"> <li>▪ Demolition workers</li> <li>▪ Workers involved in disposal operations</li> </ul>  

## Gases

Formless fluids usually produced by chemical processes involving combustion or by the interaction of chemical substance. A gas will normally seek to fill the space completely into

which it is liberated, for example, nitrogen gas widely used in vessels due to its chemically inert properties.



## Vapours

The gaseous form of a material normally encountered in a liquid or solid state at normal room temperature and pressure. Typical examples are solvents, for example, thinners that release vapours when the container is opened.

Paint thinner can be used to clean your equipment and tools once you have finished your job, especially when you have been using oil-based paint.



## Liquids/Mists

A state of matter with definite volume but no definite shape, like water. The routes of entry for liquids could be ingestion and skin contact. If finely dispersed, then they become a mist and therefore inhalable.

## Fumes

Solid particles formed by condensation from the gaseous state, for example, lead fume.

## Dusts

These are solid airborne particles, often created by operations such as grinding, crushing, milling and sanding e.g. MDF dust. The size of the dust particles is important as there is a difference between inhalable and respirable dusts and the nature of the hazards they present.



## Fibres

Dust may be created that is made up of tiny fibres, for example, textile fibres. The fibres may become airborne during certain processes. The fibres may be so small that they fall into the respirable range and as such may be inhaled deep into the lungs.

## Smoke

A substance made up of small particles of carbonaceous matter in the air, resulting mainly from the burning of organic material, such as wood or coal. The Convention Centre Dublin | Rules and Regulations

Conditions of use Full details of the hazards arising, how they are harm

## What is ergonomics

Ergonomics is designing a job to fit the worker so the work is safer and more efficient. Implementing ergonomic solutions can make employees more comfortable and increase productivity.

## Important of ergonomics

Ergonomics is important because when you're doing a job and your body is stressed by an awkward posture, extreme temperature, or repeated movement your musculoskeletal system is affected. Your body may begin to have symptoms such as fatigue, discomfort, and pain, which can be the first signs of a musculoskeletal disorder.

## advantages of ergonomics

### 1. Increased savings

- ✓ Fewer injuries
- ✓ More productive and sustainable employees
- ✓ Fewer workers' compensation claims

### 2. Fewer employees experiencing pain

- ✓ Implementing ergonomic improvements can reduce the risk factors that lead to discomfort.

### 3. Increased productivity

- ✓ Ergonomic improvements can reduce the primary risk factors for MSDs, so workers are more efficient, productive, and have greater job satisfaction.

### 4. Increased morale

- ✓ Attention to ergonomics can make employees feel valued because they know their employer is making their workplace safer.

### 5. Reduced absenteeism

- Ergonomics leads to healthy and pain-free workers who are more likely to be engaged and productive.

## Risk reduction techniques

### Job rotation

- ✓ Cross train workers so they can rotate jobs throughout the day.
- ✓ Change tasks often within your own job

### Job hazard analysis



- ✓ Break each job up into smaller or different tasks.
- ✓ Determine the risk factors for each task.
- ✓ Determine how each task affects risk factors for the total job.

### **Select appropriate tools**

- ✓ By attaching a handle extension, bending can be eliminated from many jobs. Participatory ergonomics
- ✓ Enlist workers to brainstorm better ways to do their work.
- ✓ Have trained workers teach new staff.

### **Ergonomics training**

- ✓ Educate staff on the risk factors for musculoskeletal disorders, and how ergonomics can make their work easier, more efficient, and safer.
- ✓ Train staff to identify job tasks that may present a risk and determine better ways to complete those



Self-Check #1

Written Test

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Time Start: \_\_\_\_\_ Time Finish: \_\_\_\_\_

**Instruction:** Answer all the questions provided correctly, if you have some clarification regarding the test just raise your hand and ask the assistance of the teacher.

**Part I. Choose the best answer for the following questions? (2 points each)**

1. ----- is a situation that poses a level of threat to life, health, property, or environment?  
A. hazard  
B. Physical hazards  
C. Biological hazards  
D. Chemical hazards
2. ----- can be both natural and human made elements?  
A. Chemical hazards  
B. Physical hazards  
C. Psychological hazards  
D. All of the above
3. ----- is a method for a test in science or engineering, such as a physical test, chemical test, or statistical test ?  
A. Test method  
B. Isolation  
C. Effective safety training  
D. Safety training
4. ----- is a practice of protecting the natural environment on individual, organization controlled or governmental levels, for the benefit of both the environment and humans?  
A. *Environmental* protection.  
B. Exports Documentation  
C. Imports Documentation  
D. All of the above
5. ----- is an unofficial phrase used to describe the training materials designed to teach occupational safety and health standards?  
A. Effective safety training  
B. Safety training  
C. Psychological hazards  
D. Biological hazards

**Note: Satisfactory rating – 5 points Unsatisfactory - below 5 points.**

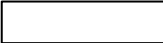
You can ask your teacher for the copy of the correct answers



**Answer Sheet**

**Scored points:**

**Part I**





1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_