

## TECHNICAL NOTES PART II

Competency Unit	: Apply Workplace Safety and Health in Process Plant
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## Purpose of Guide

This Guide is designed for SSG's Training Providers (TPs) and Adult Educators who are responsible for the design and delivery of programs within the **Apply Workplace Safety and Health in Process Plan** of the Process Industry. This Guide aims to provide essential curriculum, training and assessment design advisory information, to guide developers, trainers and assessment in the interpretation and translation of competency standards into training and assessment programme. The Guide also contains training and assessment requirements stipulated by industry, and WSQ accreditation information for compliance. It is divided into 2 parts:

**Part I** - Details specific recommendations and advice for **Apply Workplace Safety and Health in Process Plant** programme developers.

**Part II** - Provides a broad spectrum of information about WSQ and related components relevant to the **Apply Workplace Safety and Health in Process Plant**.

# **PART I**

## **WSQ**

### **Apply Workplace Safety and Health in Process Plant**

# CHAPTER 1: WSQ Apply Workplace Safety and Health In Process Plant

This chapter describes the overview of the WSQ Framework and its qualifications, covering these components:

## 1.1 Overview of WSQ Apply Workplace Safety and Health in Process Plant

This section provides a brief synopsis about the **WSQ Apply Workplace Safety and Health in Process Plant**, how **Apply Workplace Safety and Health in Process Plant** sits within the WSQ Process Framework, the competency units under the Qualification, the WSQ level and the total credit values.

## 1.2 Key Features of the Apply Workplace Safety and Health in Process Plant

This section describes the key features or characteristics of the **Apply Workplace Safety and Health in Process Plant**. This may include features such as practicum component, usage of graded assessment, action-learning project requirement, learning environment etc.

## 1.3 Importation of Elective Credits from Other WSQ Frameworks or Recognised Equivalents

This section lists and explains the units that are imported from other WSQ frameworks and those units that are recognized as equivalent to the units within the **Apply Workplace Safety and Health in Process Plant**.

## 1.4 Target Audience

The job role(s) / occupations that this unit would be relevant to may include the following parties related to / in the process industry:

- Workers
- Foremen
- Supervisors
- Technicians
- Engineers
- Managers

## 1.5 Recommended Learning Hours (RLH) (Mandatory Section)

The recommended Learning Hour for **Apply Workplace Safety and Health in Process Plant** programme is 9 hours of competency-based Learning and assessment. The recommended Learning duration for the competency unit is illustrated in Table C.

**Table C: Competency Unit's Recommended Learning Hours**

Competency Units	Recommended Learning Hours	
	Training Delivery Hours:	Assessment Hours:
Apply Workplace Safety and Health in Process Plant	• 8	• 1

SSG acknowledges that different TPs may adopt different approaches and training methodologies in delivering these programmes and as such the programme duration may vary. Despite the variations in the programme duration, as the Curriculum Developer of these programmes, it is important that you ensure the developed programme meets the general principles of competency-based training delivery and assessment and fulfils all the Performance Criteria / Expectations and Underpinning Knowledge as stipulated in all the competency units.

This course is not allowed to be conducted in the evening.

## 1.6 Recommended Class Size and Trainer-Learner Ratio

Room with the capacity for up to 20 candidates for conduct of programme.

Room or place to be used must be away from noise or interruptions.

The recommend maximum class size and trainer-learner ratio are illustrated as follow:

Competency Unit Title	Class Size (Max)	Trainer to Learner Ratio	
		Lecture	Learning activities
<b>Apply Workplace Safety and Health in Process Plant</b>	<b>20</b>	<b>1: 20</b>	<b>≤5</b>

## 1.7 Recommended Assessor to Candidate Ratio

Competency Unit Title	Assessor to Candidate Ratio	
	Written Question	Practical Performance
Apply Workplace Safety and Health in Process Plant	1: 20	1: 5

## 1.8 Attendance

The attendance for theory and practical shall be 100%.



## CHAPTER 2: TYPES OF PROGRAMME

TPs has the prerogative to offer programme developed based on only one competency unit (CU) or may wish to develop as an integrated programme as there are correlation with other competency units.

### 2.1 Programmes with One Competency Unit (Modular)

There is one (1)) competency unit offered in the WSQ Process Industry for worker level under the category. The table below shows a summary of the content coverage for the competency unit.

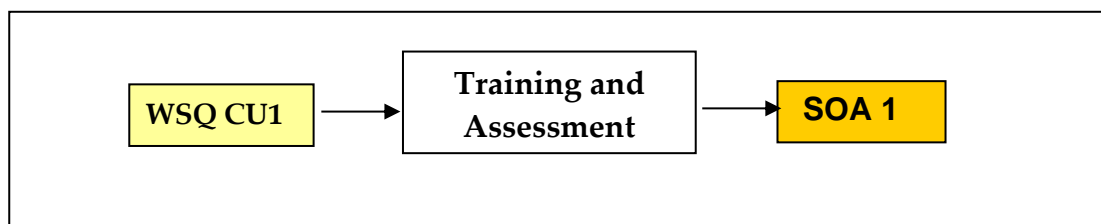
Competency Unit	Descriptor	Competency Element
<b>Apply Workplace Safety and Health in Process Plant</b>	On completion of this unit, learners will have the skills and knowledge in applying workplace safety and health practices to ensure the safety of oneself and others at work in the Oil and Petrochemical Industry	<div>CE1. Identify the roles and responsibilities under the Workplace Safety and Health Act</div> <div>CE2. Identify and prevent fire and explosion *hazards at the workplace</div> <div>CE3. Comply with safe work practices and control measures for material handling</div> <div>CE4. Comply with safe work practices and control measures for mechanical and electrical works</div> <div>CE5. Comply with safe work practices and control measures when working on specialized operations</div> <div>CE6. Comply with safe work practices and control measures when working at Heights</div> <div>CE7. Comply with safe work practices and control measures when working in a confined space</div>

\* The Risk Assessment/Management process should consider the management of infectious disease outbreak, employees' health (including mental well-being) and terrorist threats. Training Provider should take reference from the 3rd revision of the Code of Practice on Risk Management.

### 2.2 Programmes with One Competency Unit (Modular)

This section offers explanations to TPs who are keen to offer programmes developed based on only one competency unit (CU). There is little or minimal correlation with other competency units. An illustration (Figure 1) is given below.

**Figure 1: Programme with One Competency Unit**



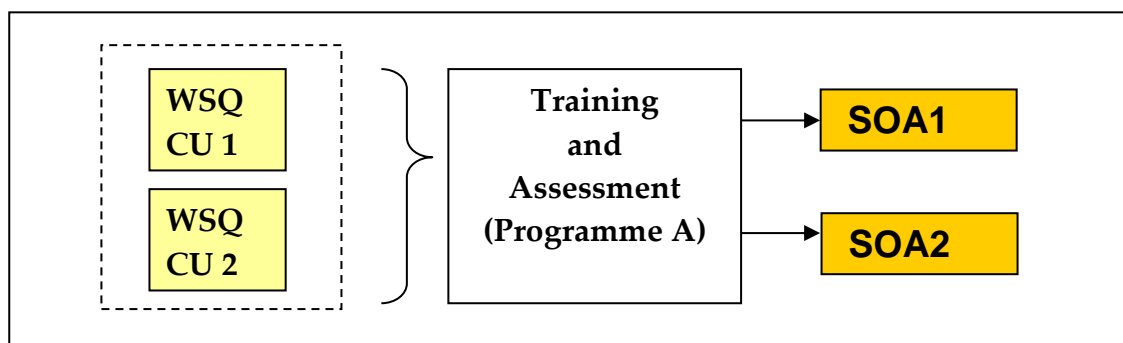
Developers should be discouraged from lifting of competency elements, performance criteria or underpinning knowledge straight from the competency standard and used them as learning outcomes. Developers should first examine what the learner should be able to perform at the workplace upon end of training (learning outcomes), and unpack the competencies to the learning outcomes accordingly.

## **2.3 Integrated Programme with Multiple Competency Units**

In order to meet the needs of the learners, TPs may want to consider combining two or more competency units into a single integrated curriculum/training programme. The competency units must be selected carefully in order to develop a learning programme that is meaningful and relevant to the learners. Developers should develop integrated programme when there is significant overlap of learning outcomes where integrated programme would normally achieve time-savings for the learners. Specific instructions on how to integrate and when to integrate should be explained in this section.

The sequencing of the learning content need not follow the sequence of competency requirements in the competency standard documents. They may be rearranged within the same or across different competency units as you deem most appropriate for your learners. Nevertheless, the sequencing of learning content should be logical and provide sufficient scaffolding for training to be effective. Learners should not be made to go through the same competency unit again as they progress from one training programme to another once they have acquired the SOA. An illustration (Figure 1) is given below.

**Figure 2: Integrated Programme with Two Competency Units**



**Note:** *If there are more elaborate or specific guidelines on packaging and integration of programmes, FLD should either include the details here or produce a separate advisory. To indicate so if there is a separate guide.*

## CHAPTER 3: KEY DELIVERY ADVICE

This chapter describes the following components:

### 3.1 Content Coverage

In developing the programme for any **Apply Workplace Safety and Health In Process Plant** Competency unit, TPs should always make cross references to the Performance Statements (PS) or Competency Elements (CE) / Performance Criteria, Underpinning Knowledge (UK), Range of Application and Evidence Sources sections as stipulated in the **Apply Workplace Safety and Health In Process Plant** National Competency Standard.

The components of the Competency Standard and the interpretations are briefly explained here.

For example,

*The Range and Application and Evidence Sources reference to the Performance Criteria and/or Underpinning Knowledge is usually accompanied by the instructions "may include" or "must include":*

#### ***"May include"***

- Indicates that training providers are required to cover some **(50 percent)** of the suggested Range and Application items listed when developing the **Apply Workplace Safety and Health In Process Plant**
- The training provider may choose to add more Range and Application items related to the corresponding Performance Statements/Criteria and/or Underpinning Knowledge as part of their **Apply Workplace Safety and Health in Process Plant** programme development.

#### ***"Must include"***

- Indicates that training providers are required to cover all of Range and Application items listed when developing courseware.
- The training provider may choose to add more Range and Application items related to the corresponding Performance Statements/Criteria and/or Underpinning Knowledge as part of their **Apply Workplace Safety and Health In Process Plant**

#### **(b) Underpinning Knowledge**

It is to be noted that "Assumed Attitudes Skills and Knowledge" stipulated in the respective competency unit will not be covered or taught during the delivery of the unit whereas "Underpinning Knowledge" will be.

### 3.1.1 WSQ Apply Workplace Safety and Health In Process Plant Contents Coverage:

The content coverage should take into consideration the following:

Competency Elements	Performance Statement/Criteria/Underpinning Knowledge Range and Application and Evidence Sources to be covered
	<p><u>Performance Criteria</u></p> <ol style="list-style-type: none"> <li>1.1 Comply with the requirements of WSH Act</li> <li>1.2 Participate in a tool box meeting</li> <li>1.3 Select and use the appropriate personal protective equipment provided for the work in compliance with WSH Act</li> <li>1.4 Maintain and store personal protective equipment provided in accordance with organizational procedures</li> <li>1.5 Interpret and follow safety signs and instructions at workplace</li> <li>1.6 Follow road safety signs</li> <li>1.7 Identify safety devices and emergency equipment</li> <li>1.8 Carry out housekeeping of workplace in accordance with organizational procedures</li> </ol> <p><u>Underpinning Knowledge</u></p> <ul style="list-style-type: none"> <li>• Principles of the new Workplace Safety and Health (WSH) Framework</li> <li>• Duties and responsibilities of a worker under the WSH Act</li> <li>• Penalties for non-compliance</li> <li>• Roles and activities of the Workplace Safety and Health Committee</li> <li>• Purpose and agenda of a toolbox meeting</li> <li>• Types of personal protective equipment (PPE)</li> <li>• Common hazards associated with the misuse of PPE</li> <li>• Types of safety signs and instructions relating to the use of PPE, their importance and purposes</li> <li>• Types of safety devices and emergency equipment</li> <li>• Importance of road safety and road safety signs</li> <li>• Workplace housekeeping procedures</li> <li>• Workplace equipment, machinery and safety devices</li> </ul> <p>• Range of Application</p>

	<p>Knowledge of the roles and responsibilities of a general worker, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Working in compliance with the WSH Act</li> <li>• Observing safe work procedures</li> <li>• Reporting unsafe working conditions and work practices</li> <li>• Reporting work-related incidents/accidents</li> </ul> <p>Use of PPE appropriate for the workplace environment, which may include:</p> <ul style="list-style-type: none"> <li>• Overalls</li> <li>• Head protection</li> <li>• Eye protection/Face protection</li> <li>• Ear protection</li> <li>• Hand protection</li> <li>• Foot protection</li> <li>• Fall protection</li> <li>• Respirators/Masks</li> <li>• Gas detector</li> </ul> <p>Workplace equipment, machinery and safety devices, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Equipment and machinery such as: <ul style="list-style-type: none"> <li>– Mixers</li> <li>– Furnace</li> <li>– Incinerator</li> <li>– Boilers</li> <li>– Centrifuge</li> <li>– Heat exchangers</li> <li>– Blower</li> <li>– Compressors</li> <li>– Pumps</li> <li>– Scrubbers</li> <li>– Valves</li> <li>– Stripper</li> <li>– Powered tools</li> <li>– Welding machine</li> <li>– Metal cutting/forming machine</li> <li>– Pressure vessels and pressure systems</li> <li>– Tanks</li> <li>– Reactors</li> <li>– Dryers</li> </ul> </li> <li>• Safety devices such as: <ul style="list-style-type: none"> <li>– Relief devices</li> <li>– Fixed guards</li> <li>– Safety barriers or railing</li> <li>– Safety covers</li> <li>– Safety signage</li> <li>– Emergency button</li> </ul> </li> </ul>
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	<ul style="list-style-type: none"> <li>– Lock-out and tag-out devices</li> <li>– Mechanical and electrical Interlocks</li> <li>– Circuit protective devices</li> </ul> <ul style="list-style-type: none"> <li>• Emergency equipment such as: <ul style="list-style-type: none"> <li>– Fire sprinkler and alarm systems</li> <li>– Fire extinguishers</li> <li>– Fire fighting equipment</li> <li>– Emergency exit light</li> <li>– Eyes wash area/Shower area</li> </ul> </li> </ul> <p>Safety signs and instructions, which may include:</p> <ul style="list-style-type: none"> <li>• Prohibition (Colour: Red), such as: <ul style="list-style-type: none"> <li>– No entry sign</li> <li>– Smoking and open flames prohibited</li> </ul> </li> <li>• Mandatory (Colour: Blue) such as: <ul style="list-style-type: none"> <li>– Head protection must be worn</li> <li>– Eye protection/Face protection must be worn</li> <li>– Ear protection must be worn</li> <li>– Hand protection must be worn</li> <li>– Foot protection must be worn</li> <li>– Respirators/Masks must be worn</li> </ul> </li> <li>• Hazardous/Warning (Colour: Yellow) such as: <ul style="list-style-type: none"> <li>– Danger: electrical hazard</li> <li>– Caution: radioactive materials</li> <li>– Caution: slippery floor</li> </ul> </li> <li>• Information (Colour: Green) such as: <ul style="list-style-type: none"> <li>– Fire extinguisher</li> <li>– Fire hose</li> <li>– Emergency exit</li> <li>– Fire Escape route</li> <li>– Master point / Assembly area</li> </ul> </li> </ul> <p>Regulations, which include:</p> <ul style="list-style-type: none"> <li>• Workplace Safety and Health Act</li> <li>• Workplace Safety and Health (General Provisions) Regulations</li> <li>• Workplace Safety and Health (WSH Committees) Regulations</li> </ul> <p>Organizational procedures, which may include:</p> <ul style="list-style-type: none"> <li>• Safe work procedures</li> <li>• Equipment and machinery operations</li> <li>• Housekeeping of workplace</li> </ul> <p><u>Evidence Sources</u></p> <p><u>Process Evidence:</u></p> <ul style="list-style-type: none"> <li>• Identifying workplace equipment, machinery and safety devices are safe for use</li> </ul>
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	<ul style="list-style-type: none"> <li>Interpreting different types of safety signs and instructions</li> </ul> <p><u>Product Evidence:</u></p> <ul style="list-style-type: none"> <li>List of responsibilities of a general worker under the WSH Act identified</li> <li>Workplace is clean, free of obstruction and safe is confirmed</li> </ul> <p><u>Knowledge Evidence:</u></p> <ul style="list-style-type: none"> <li>State the responsibilities of a general worker stipulated by the Workplace Safety and Health (WSH) Act</li> <li>State the penalties for non-compliance</li> <li>State the functions of the WSH Committee</li> <li>State the types of personal protective equipment</li> <li>Explain the importance of safety signs and their purposes</li> <li>Why must we take care of our PPE</li> <li>List the types of safety signs and instructions</li> <li>List the types of safety devices and emergency equipment</li> <li>State the procedures for housekeeping of the workplace</li> <li>Name the Personal Protective Equipment required for protecting Head, Hearing, Eyes, Face, Body, Hands, Respiratory and Oral ingestion.</li> <li>Name the parts of the components of the Fall Protection Equipment.</li> <li>List some of the common unsafe use of Personal Protective Equipment and Fall Protection Equipment.</li> </ul>
CE2: Identify and prevent fire and explosion hazards at the workplace	<p><u>Performance Criteria</u></p> <ol style="list-style-type: none"> <li>2.1 Identify fire hazards associated with the workplace and report to appropriate person in accordance with organisational procedures.</li> <li>2.2 Interpret the types of fire safety signs and instructions</li> <li>2.3 Check safety signs and instructions at workplace for inadequacy and report to appropriate person in accordance with organisational procedures.</li> <li>2.4 Work in accordance with an issued permit-to-work</li> <li>2.5 Follow safe work procedures for hot work</li> <li>2.6 Follow organisational procedures to respond to a fire emergency</li> <li>2.7 Report unsafe working conditions and potential fire hazards to appropriate person in accordance with organisational procedures</li> </ol>



2.8 Select and use the correct solvents for chemical cleaning

2.9 Store and control chemicals safely

Underpinning Knowledge

- Fire triangle and the chemistry of fire
- Basic properties of flammable gases and chemicals
- Types of combustible material
- Types of fire hazards at workplace and sources of ignition
- Permit-to-Work System
- Types of firefighting equipment
- Reporting procedures for fire hazards at workplace
- Procedures to respond to fire emergency
- Types of solvents for chemical cleaning

- Range of Application

Knowledge of the classification of fire, which may include but not limited to:

- Class A Fires
- Class B Fires
- Class C Fires
- Class D Fires

Knowledge of Flammable Range, which may include but not limited to:

- Lower Explosive Limit (LEL)
- Upper Explosive Limit (UEL)

Use of Fire Extinguishment Agents, which may include but not limited to:

- Interrupting chemical chain reaction (Inhibition)
- Dry Chemicals
- Water
- Fire Fighting Foam
- Foam solution (mixture of foam concentrate and water)

Knowledge of the heat transfer, which may include but not limited to:

- Conduction
- Convection
- Radiation

Knowledge of the process of combustion zone, which may include but not limited to:

- Deflagration
- Detonation

Knowledge of the propagating reaction, which may include but not limited to:

- Reaction zone (flame)
- Propagation zone (behind flame)
- Unreacted zone (in front of flame)

Knowledge of the type of explosion, which may include but not limited to:

- Mechanical
- Chemical
- Electrical
- Nuclear

Explosive materials, which may include but not limited to:

Dust:

- ABS
- Acrylics
- Aluminium
- Cellulose
- Charcoal
- Chocolate
- Coal
- Corn
- Dyes
- Epoxies
- Fertilisers
- Flour

- Food additives
- Fungicides
- Gluten
- Grain
- Herbicides
- Ink toners
- Insecticides
- Milk powders
- Paper
- Pharmaceutical
- Phenolics
- Plastics
- Resins
- Rubber
- Starch
- Stearates
- Sugar
- Talc

Gases and vapours:

- Acetone
- Acetylene
- Adipic acid
- Aviation fuel
- Bentone
- Benzene
- Butane
- Carbon monoxide
- Cyclohexane
- Ethane
- Ethyl alcohol
- Ethylene
- Gasoline
- Glycol
- Heptane

- Hexane
- Hydrogen
- Isobutene
- Kerosene
- LP gas
- Methyl alcohol
- MEK methane
- Naphtha
- Pentane
- Propane
- Rocket fuels
- Shellac
- Turpentine
- Toluene

The combustible materials are found, which may include but not limited to:

- Conveying:
- Bucket elevators
- Pneumatic ducts
- Screw conveyors
- Separators
- Vapour control
  
- Process:
  - Blenders
  - Coaters
  - Cookers
  - Dust collectors
  - Fluid bed dryers
  - Flavouring cylinders
  - Bed dryers
  - Formers
  - Hydrocarbon mixing and fill rooms
  - Ink toning
  - Mixers

- Powder paint booths
- Pipe coating
- Ring dryers
- Sanders
- Spray dryers
- Transformer cooling
- Pulverising:
  - Ball mills
  - Cage mills
  - Flakers
  - Granulators
  - Grinders
  - Hammer mills
  - Separators
  - Shredders
- Storing:
  - Bins
  - Cyclones
  - Flammable liquid storage areas
  - Hoppers
  - Tanks

#### Evidence Sources

#### Process Evidence:

- Understanding the components, physics and chemistry of fire
- Identifying the source of ignition
- Distinguishing the flammable and combustible liquids and their flash points
- Checking hot-work permit before hot work
- Following instructions and requirements of Permit-to-Work
- Carrying out Safe work procedures are followed for hot and cold work
- Following organizational procedures to respond to a fire emergency

	<p><u>Product Evidence:</u></p> <ul style="list-style-type: none"> <li>• Fire extinguishers are classified correctly</li> <li>• The correct type of fire extinguishment are used for different types of fire</li> <li>• Fire safety signs are displayed and followed</li> <li>• Safety signs are displayed for hot work</li> <li>• Correct solvents are used for chemical cleaning</li> <li>• Chemicals are stored safely</li> </ul> <p><u>Knowledge Evidence</u></p> <ul style="list-style-type: none"> <li>• Give the elements of the fire triangle</li> <li>• State the common types of combustible material found in the workplace</li> <li>• What are the types of fire hazards at workplace</li> <li>• State the common sources of ignition</li> <li>• Give the steps of the safe work procedure for gas cutting and welding</li> <li>• Explain the safe work procedure for grinding</li> <li>• State the types of permit-to-work in the Oil and Petrochemical industry</li> <li>• Give the main procedure when you hear a siren</li> <li>• State the different types of fire extinguisher</li> <li>• List the methods of heat transfer</li> </ul>
CE3: Comply with safe work practices and control measures for material handling	<p><u>Performance Criteria</u></p> <ol style="list-style-type: none"> <li>3.1 Use the correct method for manually handling of loads</li> <li>3.2 Carry out proper use of machine equipment</li> <li>3.3 Follow rules and procedures when operating mechanical lifting equipment</li> <li>3.4 Comply with the safe rigging and slinging method of lifting</li> <li>3.5 Coordinate the use of lifting machines /equipment</li> <li>3.6 Select and use the correct PPE for manual handling</li> </ol> <p><u>Underpinning Knowledge</u></p> <p>The need for authorized use of machine and equipment and the dangers of unauthorized use</p> <p>Methods of manual handling of load and prevention measures</p> <p>Methods of mechanical lifting</p> <p>Terms used in lifting operations</p>

	<p>Roles, responsibilities and duties of rigger and signalman</p> <p>Crane operations and lifting equipment</p> <p>Dangers and hazards associated with dangerous lifting of metal structures</p> <ul style="list-style-type: none"> <li>• Importance of good housekeeping of materials</li> <li>• Range of Application</li> </ul> <p>Knowledge of the use of lifting machine and equipment, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Control of heavy plant movement</li> <li>• Entry of personnel in lifting operation zone</li> <li>• Proper instruction of signaling by signalman</li> </ul> <p>Use of lifting equipment, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Hoist and lifts</li> <li>• Derricks</li> <li>• Piling</li> <li>• Mobile crane</li> <li>• Crawler crane</li> <li>• Tower crane</li> <li>• Jib crane</li> <li>• Lorry crane</li> </ul> <p>Knowledge of the terminology of lifting operational, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Stability of crane (tipping stability)</li> <li>• Load and capacity charts</li> </ul> <p>Use of personal protection equipment for manual handling, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Safety boots</li> <li>• Protective gloves</li> <li>• Helmets</li> <li>• Working apron or overalls</li> <li>• Goggles or safety glasses</li> <li>• Face mask or respirators</li> </ul> <p>Knowledge of the hazards associated with manual handling, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Heavy</li> <li>• Sharp</li> </ul>
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	<ul style="list-style-type: none"> <li>• Odd shapes</li> <li>• Toxic substances</li> </ul> <p>Knowledge of the common injuries from manual handling, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Neck strain</li> <li>• Wrist sprains</li> <li>• Back sprains such as ligament</li> <li>• Shoulder pain</li> <li>• Upper back pain</li> <li>• Slips, trips and fall</li> <li>• Cut</li> </ul> <p>Use correct method of manual handling (individual), which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Step 1 hold the load firmly</li> <li>• Step 2 keep the load close to you</li> <li>• Step 3 lift the load by pushing up your leg</li> <li>• Step 4 ensure your legs are stable before moving off</li> </ul> <p><u>Evidence Sources</u></p> <p><u>Process Evidence:</u></p> <ul style="list-style-type: none"> <li>• Demonstrating the proper handling of manual loads</li> <li>• Following safe work practices in lifting manual load</li> <li>• Following safe work practices in lifting heavy load</li> <li>• Following safe work practices in using drilling machines</li> </ul> <p><u>Product Evidence:</u></p> <ul style="list-style-type: none"> <li>• Correct types of PPE are used for manual handling</li> <li>• Safe work practices and control measures for material handling are followed according to Safety Rules</li> </ul> <p><u>Knowledge Evidence:</u></p> <ul style="list-style-type: none"> <li>• List the roles and responsibilities of authorised person when using the machine and equipment</li> <li>• What are the qualifications needed to become a qualified crane operator</li> <li>• Give three safe work procedures when using a drilling machine</li> <li>• Name two safe work practices in lifting heavy loads</li> </ul>
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	<ul style="list-style-type: none"> <li>• What are the roles and responsibilities of a rigger</li> <li>• What are the roles and responsibilities of a signalman</li> <li>• Why is it important to maintain good housekeeping</li> </ul>
CE4: Comply with safe work practices and control measures for mechanical and electrical works	<p><u>Performance Criteria/Statement</u></p> <p>4.1 Identify and recognize common mechanical and electrical hazards</p> <p>4.2 Follow hazards control prevention measures</p> <p>4.3 Select and use the correct PPE for electrical work</p> <p>4.4 Comply with procedures when using and maintaining the machinery</p> <p>4.5 Proper use and storage of hand tools</p> <p>4.6 Selection and proper use of hearing protection</p> <p>4.7 Risk Assessment</p> <p><u>Underpinning Knowledge</u></p> <p>Common mechanical and electrical hazards and their associated risks</p> <p>Dangers of electricity and the effect on the human body</p> <p>Preventive and control measures against mechanical hazards</p> <p>Preventive and control measures against electrical hazards, including types of PPE for electrical works</p> <p>Safe work practices for mechanical and electrical works</p> <p>Common noise hazards, consequences and types of hearing protection</p> <ul style="list-style-type: none"> <li>• Range of Application</li> </ul> <p>Knowledge of the mechanical and electrical and instrumentation hazards, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Crushing</li> <li>• Shearing</li> <li>• Cutting</li> <li>• Severing</li> <li>• Stabbing</li> <li>• Puncture</li> <li>• High pressure fluid ejection</li> <li>• Electrical shock</li> <li>• Noise and vibration</li> <li>• Contact with extremes of temperature</li> </ul>

	<ul style="list-style-type: none"> <li>• Ergonomics</li> </ul> <p>Knowledge of unguarded rotating part of machine, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Fixed guard</li> <li>• Interlocked guard</li> <li>• Adjustable guard</li> <li>• Self adjusting guard</li> <li>• Pullback devices</li> <li>• Restraint devices</li> <li>• Safety tripwire cable</li> <li>• Two hand control</li> <li>• Gates devices</li> <li>• Sensor devices</li> <li>• Safeguard by distance</li> <li>• Automatic feed and robot</li> <li>• Protective shield</li> <li>• Holding tools</li> <li>• Emergency switch</li> </ul> <p>Knowledge of the procedural control, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Standardization</li> <li>• Authorized personnel</li> <li>• Trained or competent personnel</li> <li>• Restricted entry</li> <li>• PPE</li> <li>• Inspection before and after use</li> <li>• LOTO</li> <li>• PTW</li> </ul> <p>Knowledge of the fire prevention of electrical devices, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Overloaded circuit</li> <li>• Hydrocarbons ignited</li> <li>• Thermal trip devices</li> </ul> <p>Static electricity</p> <p><u>Evidence Sources</u></p> <p><u>Process Evidence:</u></p> <ul style="list-style-type: none"> <li>• Identifying and recognize common mechanical and electrical hazards</li> </ul>
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	<ul style="list-style-type: none"> <li>• Following hazards control prevention measures</li> <li>• Selecting and using the correct PPE for electrical work</li> <li>• Complying with procedures when using and maintaining the machinery</li> <li>• Using and storage of hand tools correctly</li> </ul> <p><u>Product Evidence:</u></p> <ul style="list-style-type: none"> <li>• Mechanical and electrical hazards are correctly identified</li> <li>• Mechanical and electrical hazards are reported according to organizational procedures</li> <li>• Measures are put in place to prevent and control electrical hazards</li> <li>• LOTO procedures are established and implemented</li> <li>• Correct PPE are used to prevent mechanical, electrical and noise hazards</li> <li>• Proper handling of hand tools</li> <li>• Guards are used to prevent mechanical hazards</li> <li>• No mechanical and electrical hazards are observed in the work place</li> </ul> <p><u>Knowledge Evidence:</u></p> <ul style="list-style-type: none"> <li>• State the common mechanical hazards found in the work place.</li> <li>• List two common electrical hazards found in the work place</li> <li>• Give two control measures to prevent mechanical hazards</li> <li>• Give three measures to prevent electrical hazards</li> <li>• List three practices that must be observed when handling hand tools</li> <li>• What PPE is used to minimize noise hazards</li> </ul>
CE5: Comply with safe work practices and control measures when working on specialized operations	<p><u>Performance Criteria</u></p> <ul style="list-style-type: none"> <li>5.1 Recognize hazards associated with <i>specialized operations</i></li> <li>5.2 Follow preventive measures when working with radiation, steam, gases and chemicals</li> <li>5.3 Use and read gas detectors</li> <li>5.4 Work and comply with the Permit –to-Work System</li> <li>5.5 Use Lock Out Tag Out (LOTO)</li> <li>5.6 Apply safe work procedures when handling chemicals and related biological materials</li> <li>5.7 Minimizing the effects of prolong exposure to working under the sun</li> </ul>

	<p>5.8 Follow safety measures for transporting workers on lorries</p> <p>5.9 Follow the safety use of asbestos</p> <p><u>Underpinning Knowledge</u></p> <p>Types of specialized operations</p> <p>Chemical and biological hazards and their consequences</p> <p>Types, effects and dangers of radiation</p> <p>Hazards when working under the sun for prolong period</p> <p>Common safe work procedures at workplace for handling specialised operations</p> <p>The importance of Permit-to-Work System and types of permit</p> <p>Measures to enhance the safety of workers transported on lorries</p> <ul style="list-style-type: none"> <li>• Range of Application</li> </ul> <p>Specialized operations at the workplace, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Radiography work</li> <li>• Working with steam boilers</li> <li>• Working with chemicals</li> <li>• Working under the hot sun</li> <li>• Hydrojetting</li> <li>• Painting and blasting</li> </ul> <p>Knowledge of the categorize of hazard at the workplace, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Flammable materials</li> <li>• Toxic substances</li> <li>• Confined space entry</li> <li>• Working at heights</li> <li>• Health hazards such as physical, chemical, biological, and ergonomic</li> <li>• Heat exposure such as heat stress, heat rash, heat collapse, heat cramps, heat exhaustion and heat stroke</li> </ul> <p>Knowledge of toxic substances, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• H<sub>2</sub>S</li> <li>• Benzene</li> <li>• Phenol</li> </ul>
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	<ul style="list-style-type: none"> <li>• Acid and caustic</li> <li>• Methanol</li> <li>• Chlorine</li> <li>• Ammonia</li> <li>• Sulphur dioxide</li> <li>• Nickel carbonyl</li> <li>• Lead</li> </ul> <p>Knowledge of the physical hazards, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Noise and vibration</li> <li>• Heat</li> <li>• Lighting</li> <li>• Radiation</li> <li>• Pressure</li> </ul> <p>Knowledge of the chemical hazards, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Asphyxiants</li> <li>• Irritants</li> <li>• Narcotic</li> <li>• Sensitisers</li> <li>• Corrosive</li> <li>• Systemic poison</li> <li>• Carcinogens</li> <li>• Teratogenic</li> </ul> <p>Knowledge of the effect of toxic chemicals, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Acute</li> <li>• Chronic</li> <li>• Local</li> <li>• Systemic</li> <li>• Reversible</li> <li>• Irreversible</li> </ul> <p>Knowledge of the routes of entry by chemical substances, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Ingestion</li> <li>• Absorption</li> <li>• Inhalation</li> </ul> <p><u>Evidence Sources</u></p>
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	<p><u>Process Evidence:</u></p> <ul style="list-style-type: none"> <li>• Identifying hazards such as Radiation, chemical and health hazards</li> <li>• Carrying out measurement to prevent and control radiation, chemical and health hazards in the work place</li> <li>• Ensuring safety data sheets are available and interpreted correctly</li> <li>• Making sure that gas detectors are used when working with chemicals</li> <li>• Understanding the process of application for PTW</li> <li>• Ensuring road safety signed are observed in the work place</li> <li>• Carrying out measurement to enhance the safety of the workers transported on lorries in the company</li> <li>• Working and complying with the Permit –to-Work System</li> <li>• Using Lock Out Tag Out (LOTO) correctly</li> </ul> <p><u>Product Evidence:</u></p> <ul style="list-style-type: none"> <li>• Chemicals are properly controlled and stored</li> <li>• Routes of entry for chemical hazardous areas are clearly marked</li> <li>• Signs are displayed at places with radiation sources</li> <li>• Signs of health hazards are displayed prominently</li> </ul> <p><u>Knowledge Evidence:</u></p> <ul style="list-style-type: none"> <li>• What are the common types of radiation and their effects</li> <li>• State the common methods used to protect the worker against radiation</li> <li>• What is heat stroke and what should be done when a worker suffer from a heat stroke</li> <li>• How are chemicals absorbed into the body</li> <li>• What are the prohibitions when disposing unwanted chemicals?</li> <li>• State two measures to enhance the safety of workers transported on lorries</li> </ul>
CE6: Comply with safe work practices and control measures when working at Heights	<p><u>Performance Criteria</u></p> <ul style="list-style-type: none"> <li>6.1 Select the correct fall protection equipment for the work</li> <li>6.2 Safe use of fall protection equipment</li> <li>6.3 Correct way of using and maintenance the ladder at workplace</li> <li>6.4 Correct way of anchorage at height</li> <li>6.5 Follow procedures for rescue at height</li> </ul>

	<p>6.6 Proper disposal of debris and housekeeping while working at height</p> <p>6.7 Correct use of ladder</p> <p>6.8 Caring and maintaining fall protection equipment</p> <p><u>Underpinning Knowledge</u></p> <p>Responsibilities of the worker and authorized person in working at height</p> <p>Competent person authorized to erect scaffold and platform</p> <p>Safe means of access and egress at workplace</p> <p>Preventive measures for working at height</p> <p>Types of fall protection equipment</p> <p>Ladder safety</p> <ul style="list-style-type: none"> <li>• Range of Application</li> </ul> <p>Preventive measures for working at height, which may include but not limited to:</p> <p>Barricades and handrails</p> <p>Catch platform and covered walkways</p> <p>Scaffolding and stage (e.g. aerial work platform, mobile tower scaffolding)</p> <p>Use of ladder</p> <p>Proper disposal of debris</p> <p>Knowledge of the fall protection equipment, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Full body harness</li> <li>• Horizontal lifeline</li> <li>• Vertical lifeline</li> <li>• Self retracting lifeline</li> <li>• Three point contact while going up and down from ladder</li> <li>• Top two step is prohibited being use for portable ladder</li> </ul> <p>Knowledge of the procedure and combination of anchorage, body harness and connector for working at height, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Type of anchorage</li> <li>• Type of body harness</li> </ul>
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	<ul style="list-style-type: none"> <li>• Type of connector</li> <li>• Rescue kits for working at height</li> </ul> <p>Use of full body harness, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Inspection before and after work</li> <li>• Do's and don'ts of full body harness and lanyard</li> </ul> <p><u>Evidence Sources</u></p> <p><u>Process Evidence:</u></p> <ul style="list-style-type: none"> <li>• Working at height hazards are identified and control measures are put in place</li> <li>• Demonstrating the proper donning of full body harness</li> <li>• Demonstrating safe work practices when using the ladder</li> </ul> <p><u>Product Evidence:</u></p> <ul style="list-style-type: none"> <li>• Barricades and handrails are used at the work site</li> <li>• Catch platform and covered walkway are built where required</li> <li>• Scaffolding are safe, tagged and inspected regularly</li> </ul> <p><u>Knowledge Evidence:</u></p> <ul style="list-style-type: none"> <li>• List the components of the full body harness</li> <li>• What are the common hazards when working at height</li> <li>• Give two preventive measures for working at height</li> <li>• List the correct way of anchorage while working at height</li> <li>• Name two safety rules for scaffolding structures</li> <li>• State two safe work practices when using a ladder</li> </ul>
<p>CE7. Comply with safe work practices and control measures when working in a confined space</p>	<p><u>Performance Criteria</u></p> <p>7.1 Recognize what constitutes a confined space</p> <p>7.2 Identify hazards when working in a confined space</p> <p>7.3 Follow measures to prevent and control hazards when working in confined space</p> <p>7.4 Check and read gas meter</p> <p>7.5 Perform rescue for confined space</p> <p>7.6 Select and use the correct PPE for confined space</p> <p>7.7 Follow emergency procedures for evacuation</p> <p><u>Underpinning Knowledge</u></p> <p>Types of confined space</p>



	<p>Common hazards when working in confined space</p> <p>Common causes of oxygen enrichment</p> <p>Ventilation for confined space and testing of atmosphere</p> <p>Responsibilities of persons when working in confined space</p> <p>Permit-to-work system for confined space</p> <p>Preventive measures for working in confined space</p> <p>Confined space entry and safe work practices</p> <p>Emergency procedures while working in confined space</p> <p>Importance of a buddy system</p> <ul style="list-style-type: none"> <li>• Range of Application</li> </ul> <p>Knowledge of the confined space hazards, which may include but not limited to:</p> <p>Atmospheric hazards</p> <p>Physical hazards</p> <p>Mechanical hazards</p> <p>Electrical hazards</p> <p>Welding or cutting hazards</p> <p>Engulfment hazards</p> <p>Noise hazards</p> <p>Thermal hazards</p> <p>Chemical hazards</p> <p>Knowledge of oxygen deficiency related to confined space, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Oxidation such as rusting</li> <li>• Combustion such as brazing</li> <li>• Displacement such as gases/carbon dioxide and argon</li> <li>• Bacteria action or fermentation</li> <li>• Body consumption</li> </ul> <p>Use of ventilation in confined space, which may include but not limited to:</p> <p>Application of natural forces such as canvas chute and funnels to scoop wind</p> <p>Natural air movement by wind</p> <p>Mechanical ventilation</p>
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	<p>Artificial methods, supply and exhaust air from or to a space by air move devices such as rotating fans, blower, jet type air mover</p> <p>Use of PPE in confined space, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>Eye protection</li> <li>Personal hearing protection devices</li> <li>Body and leg protection</li> <li>Respiratory protection</li> <li>Life line and body harness</li> </ul> <p>Use of emergency equipment and procedure in confined space, which may include but not limited to:</p> <ul style="list-style-type: none"> <li>• Rescue personnel basic first aid CPR and AED</li> <li>• Rescue breathing techniques</li> <li>• SCBA, harness and rope rescue</li> <li>• Communication set and alternative signal system such as line jerk signals</li> </ul> <p><u>Evidence Sources</u></p> <p><u>Process Evidence:</u></p> <ul style="list-style-type: none"> <li>• Identifying confined space hazards in a confined space</li> <li>• Ensuring safe entry permit procedures are implemented for confined space work</li> <li>• Ensuring confined space entry are controlled</li> <li>• Following measures to prevent and control hazards when working in confined space</li> <li>• Performing rescue operations for confined space</li> <li>• Following the emergency procedures while working in confined space</li> </ul> <p><u>Product Evidence:</u></p> <ul style="list-style-type: none"> <li>• Hazards are identified and reported according to organizational procedure</li> <li>• Effective ventilation of confined space implemented</li> <li>• Safe work practices are implemented at the entry and exit of the confined space</li> <li>• Correct PPE are used in confined space</li> </ul> <p><u>Knowledge Evidence:</u></p> <ul style="list-style-type: none"> <li>• What are the characteristics of a confined space</li> </ul>
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	<ul style="list-style-type: none"> <li>• List the common hazards when working in a confined space</li> <li>• Give two examples of atmosphere hazards</li> <li>• What are the common causes of oxygen enrichment</li> <li>• Who is responsible for testing the atmosphere in the work area</li> <li>• What is a safe entry permit</li> </ul>
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### 3.1.2 Total WSH Presentation Slides

Total WSH presentation slides will be issued upon approval of the Training Provider.

The materials are provided strictly for the explicit use and guidance of training providers for the conduct of this course.

Any other use of the materials or parts thereof, reproduction, publication, distribution, transmission, re-transmission, or storage in a retrieval system in any form, electronic or otherwise, for purposes other than that expressly stated above without the express permission of WSH Council is strictly prohibited.

## 3.2 Sequence of Coverage

A clear sequencing strategy should be suggested. Sequencing is the efficient ordering of content in such a way as to help the learner achieve the objectives.

The learning sequence need not be the same as the sequence of tasks performed on the job. It is also not necessary to use the same sequencing strategy throughout the training programme although it may be more expedient. Effective sequencing can result in greater motivation since every task mastered will increase the learner's confidence and pride. Some effective sequencing strategies are proceeding from:

- the known to the unknown;
- the simple to the complex;
- the concrete to the abstract;
- the particular to the general;
- observation to reasoning; and
- the whole, to the parts, and back again to the whole

## 3.3 Practicum

Currently, there is no practicum requirement for the programme.

## 3.4 Project Work

Currently, there is no practicum requirement for the programme.

### 3.5 Learning Strategies and Methods

#### Suggested Delivery Strategies and Methods

The respective competency unit of the WSQ programme may be delivered off-the-job, it can be face to face in the classroom in a training organisation venue. Classroom delivery should emphasize interactive and learner-centred learning and use a flexible range of learning and delivery methods.

If preparations by learners are required prior to commencement of the course, they should be provided with learning materials such as handouts (self-directed learning) upon registration of the course. They should also be notified by training organisations on what they need to prepare before coming for the course.

Every effort must be made to emphasise the direct relationship between the acquisition and application of the skills, knowledge and attributes to their workplace.

Varied delivery strategies should be utilised to optimise learning. Listed below are some possible options:

- Lecture presentation / Self-directed learning / E-learning / Session Review
- Group Discussions / Presentation

The above suggested delivery strategies and methods should be adjusted according to the profile of the target audience. Programme developers are also encouraged to be creative in designing an interactive learning experience that allows the learners to apply the learning into context.

In additional, you may want to adopt the following approach to curriculum development for the learning:

Suggestions for delivery of Competency Unit are given below:

Learning Activity	Applications
Lecture on underpinning knowledge and principles	<ul style="list-style-type: none"><li>• Method to provide details on a specific subject</li><li>• Little or no interaction with learners</li><li>• Recommended to incorporate graphics such as videos, diagrams and pictures</li><li>• Recommended to complement lecture with session review to maximise learning for learners</li></ul>
Practice	<ul style="list-style-type: none"><li>• Opportunity for learners to try performing a skill with support and feedback</li><li>• Best conducted in small groups or one-on-one</li><li>• Generally used for skill development</li><li>• Effective form of learner engagement</li></ul>
Discussion	<ul style="list-style-type: none"><li>• Two-way interaction to examine issues or problems</li><li>• Best for a small group of learners</li></ul>

	<ul style="list-style-type: none"> <li>• Generally used for analysing problems, attitudes or difficult situations</li> <li>• Can be time consuming</li> </ul>
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The suggested learning strategies to optimize learning for the competency unit in the WSQ **Process Industry training programmes** are illustrated as follow:

### **CU: Apply Workplace Safety and Health in Process Plant**

<b>Suggested Strategy</b>	<b>Learning</b>	<b>Topics &amp; Learning Activity Involved</b>
Lecture / Session Review		CE1: Identify the roles and responsibilities under the Workplace Safety and Health Act CE2: Identify and prevent fire and explosion hazards at the workplace CE3: Comply with safe work practices and control measures for material handling CE4: Comply with safe work practices and control measures for mechanical and electrical works CE5: Comply with safe work practices and control measures when working on specialized operations CE6: Comply with safe work practices and control measures when working at Heights CE7: Comply with safe work practices and control measures when working in a confined space
Practice Performance		CE6: Comply with safe work practices and control measures when working at Heights

An example of instructional strategy selection for cognitive, affective and psychomotor domains is given in **Annex A**.

A non-exhaustive list of recommended delivery methods is provided below.

- Role play
- Group Discussion
- MCQ Exercise
- Written Exercise
- Case Study
- Workplace Practice
- Presentation
- Action Learning
- Coaching / Mentoring

Where relevant and appropriate, the learning activities for the unit should be designed to shape or cultivate the expected attitudes of the candidates and to prepare them for their role in the sector.

### **3.6 Industry Requirements**

NA

### **3.7 Trainer's Guide and Learners' Workbook/handouts**

The TP is required to prepare a trainer's guide for the course. The guide provides the facilitator with information on the course including

- Course aim
- Learning objectives
- Target audience
- Assumed skills and knowledge
- Course duration
- Class size and trainer/trainee ratio
- Lesson plan
- Course contents and instructional materials
- Training methodologies
- Training resource requirements
- Course administration instruction

To facilitate the learning process, it is recommended that the TP provided each trainee with a participant's workbook or handouts. This set of notes should contain the course aim, learning objectives and the key learning points (WSHA 2006, subsidiary legislations, industrial code of practice, safety guidelines etc) as well as guides for learning activities including safe use of cranes.

The TP to ensure that materials used for the training does not infringe on patent, design, copyright and intellectual property rights.

The TP shall maintain a version control of updates made to the course materials for verification by the relevant authorities.

### **3.8 Training Provider Requirements:**

Training Providers are required to fulfill the following requirements:

- ISO 29993 certification;
- bizSAFE Level 3 certification;

- Blended learning

Have developed an SOP to conduct online training and assessment when required to do so.

For each WSH course, the Training Provider must have at least:

- 1 full time Principal/Director;
- 1 full time WSH Approved Adult Educator/ Trainer/Facilitators for each WSH course; and
- 2 approved full time/associate Adult Educator/ Trainer/Facilitators for each of the language.

Training Providers are to inform the WSH Council when they withdraw their training provider status for any WSH course(s), or have their status suspended or terminated by any authority.

Training Providers are to comply with the instruction by either (i) SkillsFuture Singapore (SSG), Ministry of Manpower (MOM) or the WSH Council to stop conducting any WSH Course(s) when an investigation is ongoing, or a non-compliance is being verified. Further actions would be taken when fraudulent acts or significant non-compliances are established.

### 3.9 Training Resources:

- Training site emergency evacuation route – to be briefed at start of course
- Training SOP
- Photos/slides of the various types of process plant site-related hazards (biological, fire, explosives, working at height, chemicals, mechanical, electrical, radiation and gas)
- Video on "Safety and Health Training" welfare issues
- Local case studies, where possible, relating to incidents/accidents at process plant sites
- Appropriate and relevant PPEs and equipment for classroom demonstration

### 3.10 Total WSH Presentation Slides

Total WSH presentation slides will be issued upon approval of the Training Provider. The materials are provided strictly for the explicit use and guidance of training providers for the conduct of this course. Any other use of the materials or parts thereof, reproduction, publication, distribution, transmission, re-transmission, or storage in a retrieval system in any form, electronic or otherwise, for purposes other than that expressly stated above without the express permission of WSH Council is strictly prohibited.

### 3.11 Training Venue Requirements

- 3.11.1 Unless prior approval has been granted by the CB, which had certified its WSH courses, each TP shall maintain and conduct its WSH course at its primary Training Venue. In addition, the TP shall ensure that the following are not shared with any other TP:

- (a) their approved Training Venue/s; and
- (b) Any other equipment or loads, which are used for the conduct of the WSH course.

3.11.2 In the event, where the TP wishes to conduct its WSH theory course(s) at a venue, other than the approved Training Venue, the TP must inform the CB, which had certified its WSH course(s) at the approved Training Venue/s, of its intent to effect such a change, and it must also demonstrate to the CB that:

- (a) It has an approved Training Venue at the registered address;
- (b) That the proposed venue is conducive for learning; and
- (c) That there are no safety and health concerns in relation to the proposed venue/s. The TP may conduct its WSH theory course(s) at a venue other than the approved Training Venue/s only after obtaining the CBS approval.

3.11.3 The requirement stated at Para 3.11.2 shall apply to a TP for single and multiple usage

3.11.4 Where the CB has granted approval to the TP to conduct the WSH theory course(s) at an alternate venue, the TP must ensure that:

- a) All training and assessment records are kept by the TP, for courses conducted, at the alternate venue. Such records shall include the following documents:
  - i Photographs of the alternate venue
  - ii Photographs of the WSH theory course(s) being conducted at the alternate venue
  - iii Layout plan of the alternate venue; and
  - iv Leasing documents
- b) The records mentioned in sub-paragraph (a) above, are continually updated;
- c) The alternate venue is only used for the conduct of WSH theory course(s). No practical training/assessment shall be allowed at the alternate venue, unless approval has been granted by the Authorities; and
- d) The alternate venue is not occupied and or used by another TP or WSH approved training provider at any time.

3.11.5 The TP must ensure that all Training Venues (including alternate venues) have been approved by the Urban Redevelopment Authority (URA) or the Housing & Development Board ("HDB"), either as a Commercial School (theory based only) or for Industrial Training (theory and practical), before it applies to be certified by the CB. Note: Tenancy agreement (e.g. from JTC Corporation or other Developers) does not constitute a URA approval. Only correspondence with letterheads bearing the office of the relevant government authorities granting the approval shall be recognised.

3.11.6 Paragraph 3.11.5 shall not apply to TP who is applying for a once –off use of the theory training premises.

3.11.7 The TP is to note that a CB's approval of any practical training venue is conditioned upon its safe and adequacy of the training facilities and equipment. The TP shall comply with all relevant legislations including but not limited to legislations involving land use, building, fire and safety

3.11.8 The TP shall ensure that the classroom used for this training has adequate seating.



Facilities inclusive of writing tables must be reasonably and comfortably spaced so as to be conducive to the learning process and for the purpose of conducting the assessment. Classrooms must be equipped with projectors, whiteboards, flipcharts and specific training aides related to the course. The classroom must be adequately illuminated and ventilated. Emergency exit signs and routings must be clearly demarcated and briefed to all the course participants at the start of the course.

## CHAPTER 4: KEY ASSESSMENT ADVICE

This chapter describes the following components:

A description on the general guidelines and requirements for conducting assessment is given in the reference WSQ resource websites in Part II of this document.

### 4.1 Assessment Strategies

A non-exhaustive list of assessment strategies and methods indicating the possible assessment methods or combination of assessment methods, as illustrated in below, can be used as a planning guide for determining the appropriate assessment strategy for the respective performance statements and underpinning knowledge in each **Apply Workplace Safety and Health in Process Plant** competency unit.

*Written / Oral Questioning	50 mins
*Practical Performance	10 mins

*\*Please refer to Standard Assessment Plan, SAP, for more details*

- Written/OQ: a total of 6 formative assessment activities (20mins) and a 15 MCQ summative assessment (30mins) (Oral assessment shall not be allowed to be used to complement/replace the written Summative assessment unless otherwise advised. The number of attempts a candidate is allowed to be assessed in the written Summative assessment is ONE. The candidate certified "NOT YET COMPETENT" after the assessment, the candidate must be re-coursed.)*
- Practical : Demonstrate the proper of donning the full body harness.*

#### 4.1.1 Performance-based Methods (Practical Performance)

Performance-based assessments have always been the preferred competency-based assessment methods. They have the benefit of authenticity. The assessments require candidates to perform a particular task according to specification or standards as a demonstration of their achievement. Performance-based assessments offer the assessor a direct source of evidence to evaluate the candidate's ability. Most of the vocational training adopts performance-based assessment, for example in nursing, performing arts, culinary, military, and technical, etc. By observing the candidates performing the real task, it is more reliable for the assessor to predict the candidate's ability to perform the same tasks in future. Some examples of performance-based assessment methods are highlighted in the sections below.

- **Workplace Performance**

This is arguably the best method to collect reliable and authentic evidence of a candidate's actual work competencies. The fact that the assessment context is set under actual work

conditions that require demonstration of actual occupational competencies maximises the degree of realism in the assessment process. Consider the assessing of a candidate's process operating skills. What best way to administer this assessment other than to get his direct supervisor observes how he actually operates the process equipment and takes the required measurements? Due to the high-quality evidence that can be derived, workplace assessment should always be an assessor's primary source of evidence collection.

In spite of the above, key considerations of this method include significant investment in resources, training of supervisors in conducting competency-based assessments and the availability of opportunities to assess the candidate across the full range of activities specified within the standards. In such cases, simulation of role-play should be considered as a supplementary means to collecting evidence.

#### **4.1.2 Questioning Methods**

- **Oral Questioning with interview**

The oral questioning methods are usually used for testing underpinning knowledge items or assessing performance statement/criteria that are not observable during performance observation (Oral questioning shall not be allowed to be used to complement/replace the written assessment used in the Summative assessment, unless otherwise advised).

Under this method, the candidates have to give appropriate answers to the questions asked by the assessors. It is recommended that the questions designed should be able to draw out the competence from the answers provided by the candidate.

This method is usually preferred over the written method as it allows the assessors to clarify and verify with candidates during the oral questioning. Though this method can be time consuming, however, it addresses the principles of assessment; flexibility and at the same time, fairness especially in cases where candidates have difficulty in expressing themselves in writing.

- **Written Questioning**

Written forms of assessments offer wider variety of methods and it is more versatile in its design and use. The more commonly-used types of written methods that are relevant to competency-based assessment are short answers, case study, portfolio, etc. However, TP may have the option to use MCQ in the assessment (Oral assessment shall not be allowed to be used to complement/replace the written assessment used in the Summative assessment, unless otherwise advised).

- **Short answers**

Short answers require the candidate to articulate his understanding in written form but the answers are relatively short as compared to essays. These are appropriate for candidates with difficulty in written literacy. Short-answer questions take different forms:

### 1) Fill in the blanks

Questions are focused on finding out a response that is very certain. In this example below, the answer that is expected is a method used to identify the most common recurring problem

#### ➤ **MCQ answers**

MCQ answers require the candidate to articulate his understanding in written form but 4 suggested answers are given. The candidate will demonstrate his competent in selecting the correct / most appropriate answer out of the 4 choices to the question asked.

### Industry Requirements

Currently there is no particular assessment method mandated by the industry. Training providers are encouraged to refer to the checklists such as those suggested in the Annexes (see Annex B to D) as tools for organising assessments for performance statements/criteria and underpinning knowledge.

## **4.2 Industry Requirements**

- Candidates must pass both the WA (MCQ) and PP to be considered to have successfully completed the "Apply Workplace Safety and Health in Process Plant" Course.
- Written Assessment is close book.
- For summative written assessment, the default is Individual assessment unless otherwise instructed. During the administration of the written assessment, there shall be an assessor to ensure the integrity of the assessment process. The trainer for the course is not permitted to be the assessor for the same course during the assessment. An invigilator can be appointed in place of the assessor, but the trainer for the course must be on standby to make clarification on the questions where needed. The number of attempts a candidate is allowed to be assessed in the written Summative assessment is ONE. The candidate certified "NOT YET COMPETENT" after the assessment, the candidate must be re-coursed.
- A candidate who has successfully completed and attained a Statement of Attainment for "Apply Workplace Safety and Health in Process Plant" qualifies to work in a process industry site.
- To facilitate uploading the test results, TPs shall install the Automated Marking System (AMS) and its associated hardware.
- TPs are to upload the test results to MOM/ WSH Council within 12 hours following the completion of the course assessment. All errors must be rectified within 24 hours for re-submission of the affected results to MOM/ WSH Council via WSH TRS. This is **in**

**addition** to the uploading of assessment results to SSG's TPGateway system.

- The TP personnel who is authorised to use the AMS to upload the test results via AMS must also ensure that the assessment results are updated in SSG's TPGateway system.
- MOM/WSH Council officers shall conduct audits with or without notice on WSQ WSH TPs.

## 4.3 Assessment Instruments and Tools

### General Guidelines on Conducting Competency-Based Assessment

As part of the preparation of courses for accreditation, training organisations are required to prepare an assessment plan for each Competency Unit. An integrated Assessment Plan can also be prepared where competency units with similar or related subject matter are combined and assessed at the same time. The advice which follows is provided to assist in the preparation of an assessment plan.

Samples and templates of these instruments and tools as suggested in Annex B to D that could be used for this Competency unit- **Apply Workplace Safety and Health in Process Plant.**

An Evidence Sources Checklist to serve as a reporting snapshot of the types of evidence gathering that may be used.

- Performance Statement/ Criteria Checklist as an instrument for the recording performance statements/Criteria
- Verbal assessment shall not be allowed to be used to complement/replace the written assessment used in the Summative assessment, unless otherwise advised.
- Written Assessment Checklists as an instrument for the recording of answers to questions concerning the performance statements and underpinning knowledge
- A Recording and Reporting Assessment Table Format as an instrument for the concise recording of competency and re-assessment information concerning the Competency Unit
- An Assessment Summary Record as an instrument for the recording of the performance statements/Criteria, assessment methods and assessment tools with the indication of the overall result (Competent or Not-Yet-Competent)

The Quality Assurance Division in SSG has set out the following general guidelines for conducting assessments, particularly competency-based assessment. While there are some points in the advice that follows which may need to be modified in the context of each Competency Unit, they represent a sound starting point for reference in developing an assessment plan.

#### 4.3.1 Technical Principles of Assessment

Competency based assessment is the process of collecting evidence and making judgments on whether or not competency has been achieved. All assessment centres and training

organisations are required to demonstrate compliance with the following four technical principles of assessment which are: Validity, Reliability, Flexibility and Fairness.

These technical principles of assessment must be addressed in the development of assessment tools, conduct of assessment, and in the design, establishment and management of the assessment process.

## **Validity**

A valid assessment assesses what it claims to assess; evidence collected is relevant to the activity and demonstrates that the performance criteria have been met.

The principles of assessment therefore must take into account several factors:

- Assessment activities are reflective of the performance expectations of the unit/s covered
- Assessment against the competency unit/s must cover the broad range of skills and knowledge
- Assessment should integrate knowledge and skill with their practical application
- Evidence should, if possible, be gathered on a number of occasions and in a range of contexts, using different assessment methods

The validity of assessments can be enhanced when some or all of the factors below are applied:

- The assessment focuses on the appropriate areas of competence and skills
- A sufficient range of the performance of the person being assessed is sampled
- The assessment tasks resemble those encountered in the workplace. Where this is not possible (e.g. in a facilitated learning environment where participants come from different industries), scenarios and/or contexts which participants can easily relate to should be used.
- Evidence of performance is obtained after the assessment to support predictive validity
- The assessment procedure documents the links to workplace performance
- Multiple approaches to assessment are used
- The assessor can demonstrate how evidence of competency discriminates between different competencies and reinforces similar competencies

## **Reliability**

Reliability refers to the consistency of the interpretation of evidence and the consistency of assessment outcomes. Reliability can only be achieved when assessors share a common interpretation of the unit/s being assessed.

Some or all of the following factors will contribute to reliability:

- The criteria for the judgment of competence must be stated clearly and adhered to

- Assessment practices in the assessment of candidates, need to be monitored and reviewed to facilitate consistency of judgment
- As a minimum requirement, assessors must meet the vocational competence requirements outlined in Part B of this Guide

Applying the following practices enhances reliability:

- Comparing the results of two or more assessors (moderation)
- Collecting evidence via a number of different assessment methods
- Collecting evidence across different locations and times
- Specifying clearly the competencies to be attained (documentation)
- Specifying clearly the instructions on how assessments should be undertaken and carried out
- Detailing clearly items on self / peer / supervisor assessment (documentation)
- Reviewing the training of assessors (systematic procedures)

Evidence of consistency can be obtained by assessing on multiple occasions and by using a number of methods of evidence gathering and in a range of contexts.

Flexibility

Flexibility in assessment allows for assessment either on or off the job and at mutually convenient times and situations:

Cover both on and off-the-job components of training where applicable

Provide for the recognition of competencies no matter how, where or when they have been acquired

Draw on a range of methods and be appropriate to the context, task and candidate

Be made accessible to candidates so that they can proceed readily from one Competency Unit to another

Flexibility applies to the process – not the standard.

### **i. Fairness**

A fair assessment will not disadvantage TN any person and will take into account the characteristics of the person being assessed. To maintain fairness:

- reasonable adjustments are made to assessment procedures depending on the characteristics of the person being assessed
- assessment procedures and the evidence (whether product or process) must be made clear
- a consultative approach to assessment of a competency against one or all of the units in the Standards is recommended
- persons being assessed against the Standards must have the opportunity for a review and an appeal of assessment decisions

To be fair, an assessment should:

- help the person being assessed understand clearly what is expected and what form the assessment will take
- be equitable to all groups of people being assessed (make reasonable adjustments to the methods used for collecting evidence depending on the characteristics of the person(s) being assessed)

- have criteria for judging performance that are made clear to all those seeking assessment
- involve a participatory approach to assessment that is agreed to by the assessor and the person being assessed
- provide opportunities that allow the person(s) being assessed to challenge assessments with provision for reassessments

### **4.3.2 Collecting Evidence of Competency**

Assessment of competency should involve demonstration of competence in all dimensions of competency (task skills, task management skills, contingency management skills, job role / environment skills and transferability). Evidence should involve a variety of evidence types, where possible.

At least one form of direct evidence should be considered to make a judgment on the practical performance component of the competencies, for example, observation of a simulated performance.

Supplementary and indirect forms of evidence should be used, where possible, in support of direct evidence to:

- extend on direct forms of evidence, for example, a range of situations, with different types of persons being assessed, or in conflict situations
- facilitate transferability of competencies to new situations and contexts
- assess underpinning or required knowledge and understanding
- provide information on possible performance in rarely occurring but critical situations, for example, theft, breakdown and industrial conflict

Third party reports are used only to verify and support evidence obtained using other methods, unless the third party is a qualified assessor and is familiar with the standards of the Competency Unit mentioned.

Self-assessment against the Competency Units can make the person being assessed aware of the standards they are expected to achieve, prepare them for formal assessment and/or contribute towards final assessment particularly as part of recognition of current competencies.

#### ***(a) Rules of evidence***

Evidence of competence must be:

Valid evidence

Evidence of competence must cover the broad range of knowledge and skills required to demonstrate competence. Assessors need to ensure that the evidence meets the specified criteria of the standards. Evidence should also match or reflect the type of performance that is being assessed.

Sufficient evidence



- i. This relates to the amount of evidence. Assessors must collect enough evidence to satisfy that the candidate is competent across all competency elements taking into account the contexts for application of the skills / knowledge required in performing the Competency Unit.

Evidence should be collected from multiple sources and at different time where possible.  
Current evidence

- i. An assessor needs to determine the currency of the evidence of competence.

Authentic evidence

- i. Assessors need to be sure that the evidence is the candidate's own work. To determine authenticity, validation of the evidence by a third party may be necessary.

## **(b) Questioning**

Written and or oral questioning is used to assess underpinning knowledge and performance expectations that are not observable during practical performance. Written test could be done through electronic means or question paper. Oral questioning shall not be allowed to be used to complement/replace the written assessment used in the Summative assessment, unless otherwise advised.

Where candidates are unable to express a response during oral questioning, other means of response could be used, such as writing, drawing or demonstrating. In situation where knowledge can be demonstrated or implied through practical performance, questions need not be asked.

## **(c) Documentary Review**

Documentary evidence can be recent work or current work completed by the candidate during the practical performance, which may includes working in team to implement improvement to work processes or products.

Where evidence is lacking from the documentary evidence, assessor will use supplementary questions to gather evidence during an interview with the candidate or gather the evidence from the candidate's supervisor.

In addition, the assessment instruments and tools for the conduct of the assessment planned that may be relevant to this programme include:

- Practical Performance Checklists to serve as reporting mechanism for several Performance Statements or Criteria that may be achieved through the use of different assessment methods
- An Evidence Sources Checklist to serve as a reporting snapshot of the types of evidence gathering that may be used.
- An Evidence Plan Checklist to serve as a reporting instrument to record a plan of expected evidence materials.

- A Verbal /Knowledge Assessment Checklist to record answers to questions concerning Underpinning Knowledge if this is used as an alternative to written exercise. Verbal assessment shall not be allowed to be used to complement/replace the written assessment used in the Summative assessment, unless otherwise advised.

In summary, the range of assessment tools utilised in assessing the performance can include work-related performances, projects, work related portfolio, case studies or practical tasks. The knowledge-based test may be written or oral, based on the underpinning knowledge specified in the evidence guide in the appropriate units of competency. Oral assessment shall not be allowed to be used to complement/replace the written assessment used in the Summative assessment, unless otherwise advised.

## **Other Assessment Advice**

### Collecting Evidence

Evidence must be gathered from a range of contexts that will enable a fair and reliable judgment about the participant's competence. The assessment process and collection of evidence must be valid, reliable, flexible, and fair while the evidence collected must also be valid, sufficient, current and authentic.

Evidence gathering methods should be culturally inclusive and take into account the language, literacy and numeracy skills of the participant.

Reasonable adjustments may be considered for participants with physical and/or sensory disabilities or learning difficulties that may require support to undertake assessment. Such support could include physical, mechanical or technical aids, extra time for assessment or specially devised or adapted methods of assessment. For example, participants who do not have opportunities to be observed conducting live meetings or briefings may be assessed through interviews or simulations.

Evidence of competency must include occupational safety and health and other legislative aspects of the job.

#### a. Recording and Reporting Assessment

The candidate should be given specific and constructive feedback on the assessment outcome. Information to be captured in an assessment record includes the Competency Unit and elements, the assessor name, assessment date, candidate name, the assessment evaluation, and any subsequent appeal and outcome. A suggested format is given in Annex E.

#### b. Recognition of Prior Learning

An individual who has acquired skills and knowledge relevant to this unit through previous learning or work experience may be assessed for recognition of prior learning. Where skills

and knowledge have been gained through experience, the applicant will need to provide evidence of competence. Documentary evidence of formal assessment should be provided by the applicant such as certification obtained under National Skills Recognition System (NSRS) Competency Units or other recognised certification bodies.

#### c. Workplace Safety and Health Requirements

This programme should be delivered and assessed in accordance with Workplace Safety and Health (WSH) regulations of Singapore. Candidates should only be required to undertake instruction and assessments in environments that comply with WSH regulations of Singapore so as to ensure that everyone associated with learning in this programme commits to maintaining a safe environment.

The following outlines where people can obtain more information and advice on the type of control measures used in the training programme to eliminate WSH risks are also addressed. Some suggested strategies that could apply to this training programme are:

- establish policies for safety and health policies
- establish roles and responsibilities with respect to safety and health
- specify procedures for safety and health
- communicate safety and health instructions to trainers, assessors, participants and administrative staff
- maintain safety and health records

There should be an emphasis on the interaction between everyone involved in the learning process. Mutual consultation should cover all aspects of the learning process. Trainers and assessors should make the participants aware of the WSH issues throughout the Competency Unit in theoretical and practical situations. For more information on WSH regulations of Singapore please access [www.mom.gov.sg](http://www.mom.gov.sg).

#### **4.3.3 Code of Practice for Assessors**

Conflict of interest sometimes arises for assessors. Under these circumstances, the conflict should always be declared. Potential forms of conflict of interest in the assessment process and/or outcome may include:

- a pre-established, personal relationship between the assessor and the person being assessed
- financial implications for the assessor
- employment opportunities for the assessor
- power opportunities for the assessor

Referrals for opinions to other internal assessor/s or to an external assessor/s can help to establish fair practice. The referrals may involve informal verbal consideration, a formalized written document, or a combination of the two.

Care must be taken to conduct assessment practices that do not perpetrate possible workplace discriminatory practices. As well, assessors must not use the assessment to coerce personal or professional favours or to gain economic advantage CTAG from the person/s being assessed or potential client groups.

Personal or interpersonal factors (biases) not related to the assessment decision or process may include the characteristics of the person being assessed and/or the assessor – for example, race, gender, language background, religious background, political affiliation, sexual orientation, physical disabilities, physical appearances, marital status, age, skin colour, social class and/or ethnic background. Such biases are always to be avoided.

Assessment specialists have developed an international code of ethics and practice (The National Council for Measurement in Education i.e. NCME). The Code of Practice below is based on the international standards:

- The differing needs and requirements of the person(s) being assessed, the local enterprise(s) and/or industry are identified and handled with sensitivity
- Potential forms of conflict of interest in the assessment process and/or outcomes are identified and appropriate referrals are made, if necessary
- All forms of harassment are avoided throughout the planning, conducting, reviewing and reporting of the assessment outcomes
- The rights of the candidate(s) are protected during and after the assessment
- Personal or interpersonal factors that are not relevant to the assessment of competency must not influence the assessment outcomes
- The candidate is made aware of rights and processes of appeal
- Evidence that is gathered during the assessment is verified for validity, reliability, authenticity, sufficiency and currency
- Assessment decisions are based on available evidence that can be produced and verified by another assessor
- Assessments are conducted within the boundaries of the assessment system policies and procedures
- Formal agreement is obtained from both the candidate(s) and the assessor that the assessment was carried out in accordance with agreed procedures
- Assessment tools, systems, and procedures are consistent with equal opportunity legislation
- The candidate is informed of all assessment reporting processes prior to the assessment
- The candidate is informed of all known potential consequences of decisions arising from an assessment, prior to the assessment
- Confidentiality is maintained regarding assessment results
- Results are only released with the written permission of the candidate(s)
- The assessment results are used consistently with the purposes explained to the candidate
- Self-assessments are periodically conducted to compare current competencies against the Advanced Certificate in Generic Manufacturing competencies
- Professional development opportunities are identified and sought
- Opportunities for networking amongst assessors are created and maintained
- Opportunities are created for technical assistance in planning, conducting and reviewing assessment procedures and outcomes

Sources: CU5 – Develop Competency-Based Assessment

#### **4.4 Issuance of “Safety Pass” & “Certificate of Successful Completion”**

- 4.4.1.** “Safety Pass/Card” is to be issued, in accordance with the format shown in Annex E to candidate who is assessed “Competent” in this Competency Unit for the SOC.
- 4.4.2.** “Certificate of Successful Completion” is to be issued, in accordance with the format shown in Annex F, to candidate who is assessed “Competent” in this Competency Unit.
- 4.4.3.** The issuance of the “Certificate of Successful Completion” is optional for LSPs/TPs who have already issued the “Safety Pass” to candidate who is assessed “Competent” in this Competency Unit.

# CHAPTER 5: ADULT EDUCATOR REQUIREMENTS

## (Mandatory Section)

This chapter articulates the Adult Educator (AE) requirements covering these components:

### 5.1 Trainer/Facilitator Requirements

#### Trainer Requirements

The trainer must be able to demonstrate current competency in the Competency Units delivered. Current competency will usually be demonstrated by the completion of a relevant technical or vocational qualification, or relevant work experience within the generic manufacturing industry, it is recommended that the trainer hold a qualification higher than the level of qualification being delivered. In the nutshell, a trainer of the Competency Unit must:

- Have demonstrated competency for the Competency Unit to be delivered
- Have at least three (3) years of relevant industry experience at supervisory or managerial level, including evidence of maintaining currency, for example, through recent work in the industry as supervisor, consultant or trainer, or professional development or active membership of a professional association
- Be certified competent in preparation, delivery and evaluation of training sessions or relevant National Trainer Competency Standards certification (Full Advanced Certificate in Training and Assessment) or Advanced Certificate in Learning and Performance (ACLP) or Diploma in Adult Continuing Education (DACE) or Diploma in Design and Development of Learning for Performance (DDDLP).
- Have completed Advanced Certificate in Workplace Safety and Health or its equivalent or higher
- Have completed Oil/Petrochemical Industry Safety Course for Supervisors or its equivalent; or an established track record in the delivery of the Oil/Petrochemical Safety Orientation Course for Workers or its equivalent.

All trainers/adult educators are required to attain 10 hours (minimum) annually by attending Continuing Professional and Development (CPD) courses conducted by appointed training providers. For more details, refer to Train-the-Trainer (T<sup>3</sup>) Programme in WSH Council website ([www.wshc.sg](http://www.wshc.sg))

The trainer for the course is not permitted to be the assessor for the same course learners during the practical assessment.

## 5.2 Developer Requirements

Developer Requirements:

- AE should be competent in the WSQ technical or vocational qualification, at an equivalent WSQ level or higher. This should also include any mandatory or legal certification or qualification. Alternatively, a qualified and experienced developer can work in consultation with an SME in developing a courseware.
- AE should possess at least 5 years of domain work experience within the sector.
- AE must have at least 3 years of experience in developing adult learning curriculums
- AE must be certified competent in preparation, delivery and evaluation of training sessions or relevant National Trainer Competency Standards certification (Full Advanced Certificate in Training and Assessment) or Advanced Certificate in Learning and Performance (ACLP) or Diploma in Adult Continuing Education (DACE) or Diploma in Design and Development of Learning for Performance (DDDLP).
- With effect from 1 October 2015, a Diploma in Adult and Continuing Education (DACE) or Diploma in Design and Development of Learning for Performance (DDDLP) is required.

## 5.3 Assessor Requirements

The assessment is to be carried out by approved assessors who meet the assessor requirements for this unit. Assessors must:

- Have demonstrated competency under this competency unit.
- Have at least three (3) years of relevant industry experience at supervisory or managerial level, including evidence of maintaining currency, for example, through recent work in the industry as supervisor, consultant or trainer, or professional development or active membership of a professional association.
- Be certified competent in the planning and conducting of competency-based assessments or relevant National Trainer Competency Standards certification such as; Advanced Certificate in Training and Assessment or Train and Assess qualifications or Advanced Certificate in Learning and Performance (ACLP) or Diploma in Adult Continuing Education (DACE) or Diploma in Design and Development of Learning for Performance (DDDLP).
- Have completed Advanced Certificate in Workplace Safety and Health or equivalent or higher
- Have completed Oil/Petrochemical Industry Safety Course for Supervisors or its equivalent; or an established track record in the delivery of the Oil/Petrochemical Safety Orientation Course for Workers or its equivalent.

Assessors must follow the assessment guidelines and are expected to carry out the assessment activities which include a pre-assessment briefing, careful evaluation of the evidence, feedback to the candidate and recording the assessment outcome.

## 5.4 Facilities, Equipment and Tools Information

Identify the required and / or recommended facilities, equipment, and tools needed for the training and assessment. Special attention should be paid to facilities, equipment, and tools for learners with disabilities or special needs. For example but not limited to,

- Room with tables and chairs
- Flip-chart/whiteboard
- Audio/visual aids
- Office stationery (pens, markers, writing materials, graph paper, etc)
- Application software pertaining to data collection
- WSHA and its subsidiary legislation
- Safety Data Sheet
- Technical advisory for Confined Space
- Personal Protection Equipment
- Gas testing instruments
- Open communication equipment
- First aid equipment



## CHAPTER 6: SUMMARY OF MANDATORY SECTIONS / INFORMATION

This chapter summarizes all the mandatory sections and required information, for easy reference. TPs / Adult Educators are expected to note the information indicated in the following Sections and to comply with the stated requirements, where appropriate:

<u>Section</u>	<u>Title</u>
2.6	Recommended Learning Hours (RLH)
2.7	Recommended Class Size and Trainer-Trainee Ratio
2.8	Recommended Assessor to Candidate Ratio
4.1	Content Coverage <i>On percentage of items under Range and Application and Evidence Sources to be covered</i>
4.5	Learning Strategies and Methods - Industry Requirements
5.1	Assessment Strategies - Industry Requirements
6.1	Trainer Requirements
6.2	Developer Requirements
6.3	Assessor Requirements

## CHAPTER 7: RESOURCE INFORMATION

The various literatures, journals, articles and researched information on **Apply Workplace Safety and Health in Process Plant** competency unit are listed below

- Workplace Safety & Health Act
- WSH(General Provisions) Regulations
- WSH(First Aid) Regulations
- WSH(Risk Management) Regulations
- WSH(Confined Spaces) Regulations 2009
- WSH(Noise) Regulations 2011
- WSH(Scaffold) Regulations 2011
- Factories (Asbestos) Regulations
- 3<sup>rd</sup> revision of Code of Practice on WSH Risk Management
- Code of Practice for Working Safely at Height
- Code of Practice on Safe Lifting Operations in the Workplaces
- WSH Guidelines Safeguarding against Falling Objects
- Confined Spaces - Technical Advisory
- Lifting Equipment - Technical Advisory
- Flammable Hazardous Substances - Technical Advisory
- Safe Use of Machinery - Technical Advisory
- Work at Height - Technical Advisory

### 7.1 CTAG Review Processes

The Curriculum, Training, and Assessment Guide should include the process for a regular review of the continuing relevance and quality of the document. A review should take place when there are changes such as industry developments, new technologies, work processes and legislation where applicable, or in response to feedback. Information on the feedback channel should be provided.

## **PART II**

### **WSQ & Supporting Resources**

## 1 Online WSQ Resources from SSG

This section highlights relevant WSQ resources that could be found online at SSG's website, and which are useful to the users. If WSQ information can be found at SSG's website, it should not be repeated in the Guide.

## 2 Glossary of Terms

This section presents the list of terms and abbreviations used in this document as well as terms frequently encountered in the training and assessment.

Glossary Terms	Description
<b>Competency-based Assessment</b>	Judging the degree to which a candidate has met predetermined criteria; candidates must show that they can do certain tasks in a prescribed way and that they know the context of the task and why it must be performed in certain ways.
<b>Assessment Criteria</b>	The standards against which assessments are judged; they must be explicit before the assessment is agreed and undertaken.
<b>Assessment Instruments</b>	The range of questionnaires, tests, checklists, and other materials used to assess specific skills, knowledge, qualities, or understanding; for example, there are tests designed to pick out weaknesses in processing of sales order, or tell us how confident we are; underpinning knowledge can be tested through oral questioning and skills by using real or simulated work tasks. Oral questioning shall <u>not</u> be allowed to be used to complement/replace the written assessment used in the Summative assessment, unless otherwise advised.
<b>Assessment Plan</b>	An agreed statement between candidate and assessor, normally documented, of how the candidate will demonstrate competence; the plan cover the whole award and whole unit of competence; assessment plan specifies what will be assessed, the criteria for assessment, how the assessment will be undertaken and by whom, the time-scale involved and any special arrangements that need to be made: the assessment plan is usually for individuals but can also be for groups.
<b>Approved Training Organisation</b>	Approved Training Organisations are accredited with SSG to conduct the training and assessment under the Workforce Skills Qualifications.
<b>Authentic</b>	Authentic evidence can be established as being that of the candidate rather than that of another, or of a group; if group work is used as evidence, the candidate's contribution should be clearly identifiable. Determining whether performance evidence is authentic is straightforward if the assessor is observing the candidate actually doing something at work
<b>Candidate</b>	A person who is preparing to be assessed for a skills standard; the term is used in this document to indicate anyone who is presenting themselves for assessment in the workplace or

<b>Glossary Terms</b>	<b>Description</b>
	training school; depending on the context, the candidate can be an employee/client.
<b>CB</b>	A Certification Body (CB) is an organization accredited by the Singapore Accreditation Council (SAC) to assess and certify a WSH Training Provider's compliance to ISO 29993:2017 and MOM/ WSH Council requirements.
<b>Certification</b>	The process of registration, assessment, recording results, completing documentation, applying for and receiving certificates.
<b>Competency</b>	The ability to perform within a work-related function or occupational area to national standards expected in employment; the ability to produce results that are valuable to the employer and that make the employer valuable to the customer or consumer, that someone is willing to pay; employers and the public will not pay for what someone knows or feels; knowledge and attitudes are only useful if they help the person produce some valuable product or service.
<b>Competency Unit</b>	A group of elements of competence which together constitute a particular work role, duty or function, and which form the smallest grouping of competence able to be recognized separately for certification.
<b>Currency</b>	Refers to evidence which shows the candidate can competently perform at the time of the assessment; evidence less than two years old is usually required. For example, a candidate's evidence that he/she has worked in a retail store 15 years ago would not be considered current for a unit in retail nor would someone who has been out of work for the last two years qualify for a unit in retail. Generally, areas that deal primarily with people can use evidence that dates back over a greater number of years than occupational areas where rapid changes in technology are likely to make skills obsolete even those acquired only a few years before.
<b>Evidence</b>	Information from a variety of sources which proves competence or meeting the criteria.
<b>Feedback</b>	Reviewing a process and giving constructive oral or written comment to the candidate or candidates so that they understand the strengths and weaknesses of their performance / evidence and understand what to do as a consequence.
<b>Practical Performance</b>	Observation of performance at the actual workplace with real guests or clients to assess knowledge, skills and attitude.
<b>Prior Experience</b>	Experience acquired by the candidate before registering for an assessment which may provide evidence against units or elements of competence.
<b>Prior Learning</b>	Learning acquired by the candidate before registering for an assessment; this learning may or may not be certificated.
<b>Qualification</b>	A certificate legally provided which indicates that the holder has reached a necessary standard.

<b>Glossary Terms</b>	<b>Description</b>
<b>Quality Assurance</b>	The methods by which standards are regularly checked and monitored to ensure that procedures are done in a certain way.
<b>Reliability</b>	The degree to which an assessment can be administered with the same results to others, the consistent ability of the assessment or the assessor to accurately distinguish between competent and non-competent performance.
<b>Role Play</b>	A realistic exercise to assess knowledge, skills and attitudes. It replicates a real work situation with the assessor and candidate taking on pre-defined roles according to instructions.
<b>Simulation</b>	A realistic exercise set up specifically to assess knowledge, skills or understanding; it should replicate a real work situation and should be used in circumstances where it would be difficult or costly to assess within the work context (e.g. dealing with complaints).
<b>Skill</b>	The ability to do a task or perform an activity.
<b>Statement of Attainment (SOA)</b>	Certificate testifying that the candidate has the competencies identified in the competency standard. It can be achieved through training and assessment, assessment only pathway and recognition of prior learning (i.e. current work competencies, work experiences and prior learning)
<b>Sufficiency</b>	Evidence presented for accreditation is considered sufficient when they are enough to prove competence. Examples of insufficient evidence: letter from an employer which simply claims that the candidate is competent but does not say how that has been determined; documentation included in portfolio without any explanation as to why it is valid; only one observation of someone performing a task
<b>Technical Notes (TN)</b>	The TN is a document that provides training and assessment advice to achieve effective training and assessment.
<b>Validity</b>	An assessment process has validity if it measures what it is supposed to measure. Valid assessment implies that the method(s) used are the ones most likely to give an accurate picture of that individual's competence within a particular area. No evidence is automatically valid or not valid. It is the candidate's interpretation of that evidence and how they justify its relevance that makes it valid.

### 3 List of Acronyms

**To provide a list of acronyms used to aid users.** This glossary of used acronyms commonly encountered in the training and assessment.

<b>Acronyms</b>	<b>Meaning</b>
<b>ABC</b>	Association of Boards of Certification
<b>ACTA</b>	Advanced Certificate in Training and Assessment
<b>TP</b>	Training Provider
<b>AWWA</b>	American Water Works Association
<b>C</b>	Competent

<b>Acronyms</b>	<b>Meaning</b>
<b>CB</b>	Certification Body
<b>CBA</b>	Competency-based Assessment
<b>CE</b>	Competency Element
<b>CP</b>	Code of Practice
<b>CU</b>	Competency Unit
<b>CTAG</b>	Curriculum Training and Assessment Guide
<b>EPA</b>	US Environmental Protection Agency
<b>NYC</b>	Not-Yet-Competent
<b>OJT</b>	On-the-Job Training
<b>PET</b>	Pre-employment Training
<b>PC</b>	Performance Criteria
<b>PI</b>	Process Industry
<b>PS</b>	Performance Statement
<b>PUB</b>	Public Utilities Board
<b>RLH</b>	Recommended Learning Hours
<b>RPL</b>	Recognition of Prior Learning
<b>SDF</b>	Skills Development Fund
<b>SOA</b>	Statement of Attainment
<b>UK</b>	Underpinning Knowledge
<b>SSG</b>	Workforce Development Agency
<b>WSH</b>	Workplace Safety and Health
<b>WSQ</b>	Singapore Workforce Skills Qualifications

## 4 Version Control Record

An example is given below:

<b>Version</b>	<b>Amendment Date</b>	<b>Changes</b>	<b>Author</b>	<b>Approved</b>
1.0	20 May 2016	First Official Issue	ASPRI-IPI	SSG
2.0	21 Jan 2022	Update	WSH Council	WSH Council
3.0	1 Sep 2023	Updates	WSH Council	WSH Council

## Annex A

**Instructional Strategy Selection Chart**

<b>Instructional Strategy</b>	<b>Cognitive Domain</b> (Bloom, 1956)	<b>Affective Domain</b> (Krathwohl, Bloom, & Masia, 1973)	<b>Psychomotor Domain</b> (Simpson, 1972)
Lecture, reading, audio/visual, demonstration, or guided observations, question and answer period	1. Knowledge	1. Receiving phenomena	1. Perception  2. Set
Discussions, multimedia CBT, Socratic didactic method, reflection. Activities such as surveys, role playing, case studies, fishbowls, etc.	2. Comprehension  3. Application	2. Responding to phenomena	3. Guided response  4. Mechanism
On-the-Job-Training (OJT), practice by doing (some direction or coaching is required), simulated job settings (to include CBT simulations)	4. Analysis	3. Valuing	5. Complex response
Use in real situations. Also may be trained by using several high level activities coupled with OJT.	5. Synthesis	4. Organize values into priorities	6. Adaptation
Normally developed on own (informal learning) through self-study or learning through mistakes, but mentoring and coaching can speed the process.	6. Evaluation	5. Internalizing values	7. Origination



The chart does not cover all possibilities, but most activities should fit in. For example, self-study could fall under reading, audio visual, and/or activities, depending upon the type of program you design.

(Extracted from <http://www.nwlink.com/~donclark/hrd/strategy.html>, accessed 19 Sep 2010)

**Annex A2 – Evidence Sources Checklist (Oral questioning shall not be allowed to be used to complement/replace the written assessment used in the Summative assessment, unless otherwise advised)**

<b>Name of Candidate and Organisation</b>	
<b>Name of Assessor</b>	
<b>Date &amp; Venue of Assessment</b>	

<b>Summary of evidence sources for the Competency Unit(s)</b>		
<b>Competency Unit(s): Apply Workplace Safety and Health In Process Plant</b>		
<b>Performance Criteria (PC)</b>	<b>Evidence Sources</b>	
	<b>Written / Oral Questioning</b>	<b>Practical Performance</b>
PC1.1 Comply with the requirements of WSH Act		
PC1.2 Participate in a tool box meeting		
PC1.3 Select and use the appropriate personal protective equipment provided for the work in compliance with WSH Act		
PC1.4 Maintain and store personal protective equipment provided in accordance with organizational procedures		
PC1.5 Interpret and follow safety signs and instructions at workplace		
PC1.6 Follow road safety signs		
PC1.7 Identify safety devices and emergency equipment		
PC1.8 Carry out housekeeping of workplace in accordance with organizational procedures		
PC2.1 Identify fire hazards associated with the workplace and report to appropriate person in accordance with organisational procedures.		
PC2.2 Interpret the types of fire safety signs and instructions		
PC3.2 Raise and comply with a Permit-to-Work system		
PC2.3 Check safety signs and instructions at workplace for inadequacy and report to appropriate person in accordance with organisational procedures.		

PC2.4 Work in accordance with an issued permit-to-work		
PC2.5 Follow safe work procedures for hot work		
PC2.6 Follow organisational procedures to respond to a fire emergency detection instruments		
PC2.7 Report unsafe working conditions and potential fire hazards to appropriate person in accordance with organisational procedures		
PC2.8 Select and use the correct solvents for chemical cleaning		
PC2.9 Store and control chemicals safely		
PC3.1 Use the correct method for manually handling of loads		
PC3.2 Carry out proper use of machine equipment		
PC3.3 Follow rules and procedures when operating mechanical lifting equipment manhole/confined space works are properly prepared, stored and maintained		
PC3.4 Comply with the safe rigging and slinging method of lifting		
PC3.5 Coordinate the use of lifting machines /equipment		
PC3.6 Select and use the correct PPE for manual handling harness correctly when required		
PC4.1 Identify and recognize common mechanical and electrical hazards		
PC4.2 Follow hazards control prevention measures		
PC4.3 Select and use the correct PPE for electrical work		
PC4.4 Comply with procedures when using and maintaining the machinery		
PC 4.5 Proper use and storage of hand tools		
PC 4.6 Selection and proper use of hearing protection		
PC 5.1 Recognize hazards associated with <i>specialized operations</i>		
PC 5.2 Follow preventive measures when working with radiation, steam, gases and chemicals		
PC5.3 Use and read gas detectors		
PC5.4 Work and comply with the Permit –to-Work System		
PC5.5 Use Lock Out Tag Out (LOTO)		
PC5.6 Apply safe work procedures when handling chemicals and related biological materials		
PC5.7 Minimizing the effects of prolong exposure to working under the sun		
PC5.8 Follow safety measures for transporting workers on lorries		
PC5.9 Follow the safety use of asbestos		
PC6.1 Select the correct fall protection equipment for the work		
PC6.2 Safe use of fall protection equipment		
PC6.3 Correct way of using and maintenance the ladder at workplace		
PC6.4 Correct way of anchorage at height		
PC6.5 Follow procedures for rescue at height		
PC6.6 Proper disposal of debris and housekeeping while working at height		
PC6.7 Correct use of ladder		

PC6.8 Caring and maintaining fall protection equipment		
PC7.1 Recognize what constitutes a confined space		
PC7.2 Identify hazards when working in a confined space		
PC7.3 Follow measures to prevent and control hazards when working in confined space		
PC7.4 Check and read gas meter		
PC7.5 Perform rescue for confined space		
PC7.6 Select and use the correct PPE for confined space		
PC7.7 Follow emergency procedures for evacuation		

## Annex B

### Performance Criteria Checklist

<b>Name of Candidate and Organisation</b>	
<b>Name of Assessor</b>	
<b>Date &amp; Venue of Assessment</b>	
<b>Competency Unit(s)</b>	<b>Apply Workplace Safety and Health In Process Plant</b>

Assessment Strategy		Performance Criteria Assessed	Result		Remarks
			C	NYC	
1.	<b>Written / Oral Questioning (Oral questioning shall <u>not</u> be allowed to be used to complement/re place the written assessment used in the Summative assessment, unless otherwise advised.)</b>	PC1.1 Comply with the requirements of WSH Act			
		PC1.2 Participate in a tool box meeting			
		PC1.3 Select and use the appropriate personal protective equipment provided for the work in compliance with WSH Act			
		PC1.4 Maintain and store personal protective equipment provided in accordance with organizational procedures			
		PC1.5 Interpret and follow safety signs and instructions at workplace			
		PC1.6 Follow road safety signs			
		PC1.7 Identify safety devices and emergency equipment			
		PC1.8 Carry out housekeeping of workplace in accordance with organizational procedures			
		PC2.1 Identify fire hazards associated with the workplace and report to appropriate person in accordance with organisational procedures.			
		PC2.2 Interpret the types of fire safety signs and instructions entry and how the elements of the programme relate to the various WSH regulations			

		PC3.2 Raise and comply with a Permit-to-Work system			
		PC2.3 Check safety signs and instructions at workplace for inadequacy and report to appropriate person in accordance with organisational procedures.			
		PC2.4 Work in accordance with an issued permit-to-work			
		PC2.5 Follow safe work procedures for hot work normal atmospheric condition and abnormal condition			
		PC2.6 Follow organisational procedures to respond to a fire emergency detection instruments			
		PC2.7 Report unsafe working conditions and potential fire hazards to appropriate person in accordance with organisational procedures			
		PC2.8 Select and use the correct solvents for chemical cleaning and use the proper PPE for work/entry into manhole/confined space			
		PC2.9 Store and control chemicals safely			
		PC3.1 Use the correct method for manually handling of loads			
		PC3.2 Carry out proper use of machine equipment.			
		PC3.3 Follow rules and procedures when operating mechanical lifting equipment manhole/confined space works are properly prepared, stored and maintained			
		PC3.4 Comply with the safe rigging and slinging method of lifting accordance with the organizational procedure			
		PC3.5 Coordinate the use of lifting machines /equipment Response Plan			
		PC3.6 Select and use the correct PPE for manual handling harness correctly when required			
		PC4.1 Identify and recognize common mechanical and electrical hazards			
		PC4.2 Follow hazards control prevention measures			
		PC4.3 Select and use the correct PPE for electrical work			

		PC4.4 Comply with procedures when using and maintaining the machinery			
		PC 4.5 Proper use and storage of hand tools			
		PC 4.6 Selection and proper use of hearing protection			
		PC 5.1 Recognize hazards associated with <i>specialized operations</i>			
		PC 5.2 Follow preventive measures when working with radiation, steam, gases and chemicals			
		PC5.3 Use and read gas detectors			
		PC5.4 Work and comply with the Permit –to-Work System			
		PC5.5 Use Lock Out Tag Out (LOTO)			
		PC5.6 Apply safe work procedures when handling chemicals and related biological materials			
		PC5.7 Minimizing the effects of prolong exposure to working under the sun			
		PC5.8 Follow safety measures for transporting workers on lorries			
		PC5.9 Follow the safety use of asbestos			
		PC6.1 Select the correct fall protection equipment for the work			
		PC6.2 Safe use of fall protection equipment			
		PC6.3 Correct way of using and maintenance the ladder at workplace			
		PC6.4 Correct way of anchorage at height			
		PC6.5 Follow procedures for rescue at height			
		PC6.6 Proper disposal of debris and housekeeping while working at height			
		PC6.7 Correct use of ladder			
		PC6.8 Caring and maintaining fall protection equipment			
		PC7.1 Recognize what constitutes a confined space			
		PC7.2 Identify hazards when working in a confined space			
		PC7.3 Follow measures to prevent and control hazards when working in confined space			
		PC7.4 Check and read gas meter			
		PC7.5 Perform rescue for confined space			

		PC7.6 Select and use the correct PPE for confined space			
		PC7.7 Follow emergency procedures for evacuation			
2	<b>Practical Performance</b>	PC6.1 Select the correct fall protection equipment for the work			
		PC6.2 Safe use of fall protection equipment			



## Annex C

**Evidence Checklist (Oral questioning shall not be allowed to be used to complement/replace the written assessment used in the Summative assessment, unless otherwise advised.)**

Evidence Plan		
<b>Name of candidate &amp; Organisation</b>		
<b>Name of assessor</b>		
<b>Competency Unit(s)</b>	<b>Apply Workplace Safety and Health In Process Plant</b>	
<b>Sources of Evidence</b>	<b>Expected Evidence</b>	<b>Received</b>
Written / Oral Questioning		<b>o</b>
Practical Performance		<b>o</b>
<b>Skills development activities</b>		
<b>Arrangements</b>		
<b>Agreement</b>		
<b>o Evidence to be submitted by:</b> <b>o Interview date:</b> <b>o I agree to the evidence plan:</b>		
<b>o Candidate</b>  	<b>(name</b>  <b>)</b>	<b>(signature)</b>  
<b>o Assessor</b>  	<b>(name</b>  <b>)</b>	<b>(signature)</b>  



## Annex D

**Verbal /Knowledge Assessment Checklist (Verbal assessment shall not be allowed to be used to complement/replace the written assessment used in the Summative assessment, unless otherwise advised)**

Record of Interview Questions			
Name of Candidate & Organisation			
Name of assessor			
Date and Venue of Assessment			
Competency Unit(s)		Apply Workplace Safety and Health In Process Plant	
Questions	Satisfactory Response		Remarks
	Yes	No	
UK 1 Legal Principles of the new Workplace Safety and Health (WSH) Framework	<input type="radio"/>	<input type="radio"/>	
UK 2 Duties and responsibilities of a worker under the WSH Act	<input type="radio"/>	<input type="radio"/>	
UK 3 Penalties for non-compliance involved in manhole/ confined space work	<input type="radio"/>	<input type="radio"/>	
UK 4 Roles and activities of the Workplace Safety and Health Committee	<input type="radio"/>	<input type="radio"/>	
UK 5 Purpose and agenda of a toolbox meeting	<input type="radio"/>	<input type="radio"/>	
UK 6 Types of personal protective equipment	<input type="radio"/>	<input type="radio"/>	
UK 7 Common hazards associated with the misuse of PPE	<input type="radio"/>	<input type="radio"/>	
UK 8 Types of safety signs and instructions relating to the use of PPE, their importance and purposes	<input type="radio"/>	<input type="radio"/>	
UK 9 Types of safety devices and emergency	<input type="radio"/>	<input type="radio"/>	
UK 10 Importance of road safety and road safety signs	<input type="radio"/>	<input type="radio"/>	
UK 11 Workplace housekeeping procedures	<input type="radio"/>	<input type="radio"/>	
UK 12 Workplace equipment, machinery and safety	<input type="radio"/>	<input type="radio"/>	
UK 13 Fire triangle and the chemistry of fire	<input type="radio"/>	<input type="radio"/>	
UK 14 Basic properties of flammable gases and	<input type="radio"/>	<input type="radio"/>	
UK 15 Types of combustible material	<input type="radio"/>	<input type="radio"/>	
UK 16 Types of fire hazards at workplace and sources of ignition	<input type="radio"/>	<input type="radio"/>	
UK 17 Permit-to-Work System	<input type="radio"/>	<input type="radio"/>	

UK 18 Types of firefighting equipment	o	o
UK 19 Reporting procedures for fire hazards at	o	o
UK 20 Procedures to respond to fire emergency	o	o
UK 21 Types of solvents for chemical cleaning	o	o
UK 22 The need for authorized use of machine and equipment and the dangers of unauthorized use	o	o
UK 23 Methods of manual handling of load and prevention measures	o	o
UK 24 Methods of mechanical lifting	o	o
UK 25 Terms used in lifting operations	o	o
UK 26 Roles, responsibilities and duties of rigger and signalman	o	o
UK 27 Crane operations and lifting equipment	o	o
UK 28 Dangers and hazards associated with dangerous lifting of metal structures	o	o
UK 29 Importance of good housekeeping of materials	o	o
UK 30 Common mechanical and electrical hazards	o	o
UK 31 Dangers of electricity and the effect on the	o	o
UK 32 Preventive and control measures against mechanical hazards	o	o
UK 33 Preventive and control measures against electrical hazards, including types of PPE for electrical work	o	o
UK 34 Safe work practices for mechanical and	o	o
UK 35 Common noise hazards, consequences and types of hearing protection	o	o
UK 36 Types of specialized operations	o	o
UK 37 Chemical and biological hazards and their consequences	o	o
UK 38 Types, effects and dangers of radiation	o	o
UK 39 Hazards when working under the sun for	o	o
UK 40 Common safe work procedures at workplace for handling specialized operations	o	o
UK 41 The importance of Permit-to-Work System and types of permit	o	o
UK 42 Measures to enhance the safety of workers transported on lorry	o	o
UK 43 Responsibilities of the worker and authorized person in working at height	o	o
UK 44 Competent person authorized to erect scaffold and platform	o	o
UK 45 Safe means of access and egress at workplace	o	o
UK 46 Preventive measures for working at height	o	o
UK 47 Types of fall protection equipment	o	o

UK 48 Ladder safety	<input type="radio"/>	<input type="radio"/>
UK 49 Types of confined space	<input type="radio"/>	<input type="radio"/>
UK 50 Common hazards when working in confined	<input type="radio"/>	<input type="radio"/>
UK 51 Common causes of oxygen enrichment	<input type="radio"/>	<input type="radio"/>
UK 52 Ventilation for confined space and testing of atmosphere	<input type="radio"/>	<input type="radio"/>
UK 53 Responsibilities of persons when working in confined space	<input type="radio"/>	<input type="radio"/>
UK 54 Permit-to-work system for confined space	<input type="radio"/>	<input type="radio"/>
UK 55 Preventive measures for working in confined	<input type="radio"/>	<input type="radio"/>
UK 56 Confined space entry and safe work practices	<input type="radio"/>	<input type="radio"/>
UK 57 Emergency procedures while working in	<input type="radio"/>	<input type="radio"/>
UK 58 Importance of a buddy system	<input type="radio"/>	<input type="radio"/>
<b>The candidate's underpinning knowledge and understanding was:</b> <b>Satisfactory    <input type="radio"/>                      Not satisfactory                      <input type="radio"/></b>		
<b>Signed by the candidate:</b> _____ <b>Date:</b> _____		
<b>Signed by the assessor:</b> _____ <b>Date:</b> _____		
<b>Feedback to candidate:</b>       		

## Annex E

### Format of Safety Pass

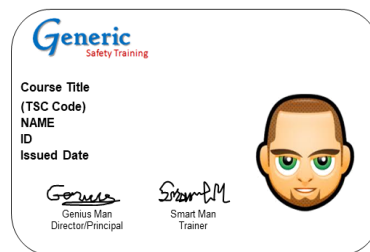
The safety pass is to be issued by SSG Training Providers to all trainees who are certified competent.

Do note that the reference below is intended only to present the format of the pass and should not be used as an actual template for direct printing.

#### Guidelines for the credit card size pass for MOM WSH courses by TPs

3  $\frac{3}{8}$  × 2  $\frac{1}{8}$  inch (85.60 × 53.98 mm)

Front view



Font Type: Arial  
Font size (Course title): Recommended 8pt or larger  
Font size (Others): Recommended 6pt or larger  
Photo size: 3.1cm X 2.4cm

- Pass should contain no less than the information depicted in the guide
- TP may use their own reference format for serial number
- Course Title should be the title as indicated in the WSQ Framework (CS/CTAG). The Technical Skills and Competency (TSC) Code and Title, should also be printed in parentheses ( ) aligned to the title reflected in either the Competency Standards (CS) or TSC. However, it is not required to print the TSC Course name if it is the same as the SC/CTAG title
- ID should be FIN, NRIC Passport Number or any unique official identifier
- Course Venue should reflect address of training centre (not business office, etc) which pass holder attended
- Trainer signature should reflect the trainer that conducted the course

## Back view

1. Use of card is governed by terms and conditions of < Name of Training Provider>
2. < Name of Training Providers> is a SkillsFuture Singapore Agency's Training Provider at the date of issuance of the pass
3. This card is not transferrable
4. The course is conducted @ < Course venue>
5. Holder of the card has been certified competent in the <Course Title> on the issued date as indicated in front.
6. This card will expire <xx> years from the date of issue.
7. This card is the property of < Name of Training Provider> and must be returned on request.
8. Card shall be retained if it has been tampered with, misused or replaced.
9. This card is issued by < Name of Training Provider>. If found, please return to < Name of Training Provider>. at <Address of < Name of Training Provider>.
10. For enquiries, please contact < Name of Training Provider>. > at <hotline>

Font Type: Arial

Font size : Recommended 6pt or larger

## Annex F

### Format of Certificate of Successful Completion

The issue of Certificate by SSG Training Providers to all trainees who are certified competent is Optional.

Do note that the reference below is intended only to present the format of the certificate and should not be used as an actual template for direct printing.

3 inch  
10pt  
20pt  
10pt  
16pt  
12pt  
10pt  
16pt  
10pt  
12pt  
10pt  
10pt  
1 inch

<Official Logo/Name of TP>      Serial Number: <xxx>

**CERTIFICATE OF SUCCESSFUL COMPLETION**

is awarded to

**<Name of Trainee>**

**< ID >**

for successful completion of the

**<Course Title>**

**<TSC Title/Code>**

**< Name of TP >**


<TP approved by SkillsFuture Singapore>

**@& < Training venue>**


from

**<Training Date/s>**

**Validity: < x Years from last date of course/ NA>**



**Genius Man**  
Director / Principal  
Training Division  
<Name of TP> /  
Company Stamp



**Smart Man**  
Trainer  
Training Division  
<Name of TP>

<Name of TP> [UEN: <XXX> | <Office Address>  
Tel: <xxx> Fax: <xxx> |Website: <xxx> |Email: <xxx>

- Certificate should contain no less than the information depicted in the guide
- TP may use their own reference format for serial number
- ID should be FIN, NRIC Passport Number or any unique official identifier
- For TP Course, Course Title should be the corresponding title as indicated in WSQ System Framework(CS/CTAG). The Technical Skills and Competency (TSC) Code and Title should be printed in parentheses ( ) aligned to the title reflected in either the Competency Standards (CS) or TSC. However, it is not required to print the TSC course name if it is the same as the CS/CTAG Title
- Course Venue should reflect address of training centre (not business office, etc) which pass holder attended
- Certificate should indicate that <<Name of TP>> is a Training Provider (TP) approved by SkillsFuture Singapore for <<Course Title of corresponding course>>
- Trainer signature should reflect the trainer that conducted the course
- Management of safety certificate should be in accordance to the requirements under TP scheme



## Annex G

### Suggested Format for Recording and Reporting Assessment

<b>Competency Unit(s)</b>	<b>Apply Workplace Safety and Health In Process Plant</b>
<b>Name of Candidate &amp; Organisation</b>	
<b>Name of assessor</b>	
<b>Date and Venue of Assessment</b>	

<b>Assessment Criteria For...</b>	<b>Competent</b>	<b>Not Yet Competent</b>
<b>Feedback to participant:</b>		
<b>Assessor's Signature :</b> _____ <b>Date:</b> _____		

#### Re-assessment information

<b>Date of re-assessment</b> _____	<b>Competent</b>	<b>Not Yet Competent</b>
<b>Item/s to be re-assessed</b>		
<b>Assessor's Signature :</b> _____ <b>Date:</b> _____		