Skills for Employment Investment Program (SEIP)

ASSESSMENT TOOL

FOR

WELDING

(LIGHT ENGINEERING SECTOR)

Finance Division, Ministry of Finance
Government of the People's Republic of Bangladesh

Table of Contents

PART A – THE ASSESSOR **4**

Instructions to Assessor 4

Assessment Evidence Guide 8

Assessment Evidence Plan 9

PART B – THE CANDIDATE **23**

Instructions to Candidate 23

Self-Assessment Guide 25

PART C – THE ASSESSMENT **32**

Assessment Agreement – Welding 32

PART D – ASSESSMENT TOOLS **35**

Specific Instructions to Assessor 35

Specific Instructions to Candidate 37

Written Test 39

Written Test - Answers 43

Set A: Practical Demonstration 1 46

Set A: Practical Demonstration 1 – Observation Checklist 48

Set A: Practical Demonstration 2 51

Set A: Practical Demonstration 2 – Observation Checklist 53

Set A: Practical Demonstration 3 56

Set A: Practical Demonstration 3 – Observation Checklist 58

Set A: Practical Demonstration 4 61

Set A: Practical Demonstration 4 – Observation Checklist 63

Set B: Practical Demonstration 1 66

Set B: Practical Demonstration 1 – Observation Checklist 68

Set B: Practical Demonstration 2 71

Set B: Practical Demonstration 2 – Observation Checklist 73

Set B: Practical Demonstration 3 76

Set B: Practical Demonstration 3 – Observation Checklist 78

Set B: Practical Demonstration 4 81

Set B: Practical Demonstration 4 – Observation Checklist 83

Set C: Practical Demonstration 1 86

Set C: Practical Demonstration 1 – Observation Checklist 88

Set C: Practical Demonstration 2 91

Set C: Practical Demonstration 2 – Observation Checklist 93

Set C: Practical Demonstration 3 96

Set C: Practical Demonstration 3 – Observation Checklist 98

Set C: Practical Demonstration 4 101

Set C: Practical Demonstration 4 – Observation Checklist 103
Oral Questions (Optional) 106
Oral Questioning Guideline 109
Oral Questions (Optional) - Answers 110
Assessment Evidence Summary Sheet 114
Assessment Validation Map 116

PART A – THE ASSESSOR

Instructions to Assessor

Assessment is the process of identifying a candidate's skills and knowledge set against the industry established standards in the workplace. It requires the candidate to consistently and over time demonstrate skills, knowledge and attitude that enable confident completion of workplace tasks in a variety of situations.

In judging assessment evidence, the assessor must ensure that the evidence is:

- authentic (the candidate's own work)
- valid (directly related to the current version of the endorsed competency standard)
- reliable (show that the candidate consistently meets the endorsed unit of competency)
- current (reflects the candidate's current capacity to perform the aspect of work covered by the endorsed unit of competency)
- sufficient (covers the full range of elements in the relevant unit of competency)

There are a number of assessment methods that may be employed including but not limited to:

- written examination
- oral questioning
- practical demonstration

A single unit of competency may be assessed or a group of units of competency may be assessed, either in an actual workplace or a simulated workplace environment.

Conducting Assessment

Prior to commencement of assessment, candidates must have the tasks clearly explained to them. Also, the assessor should provide candidates with clear advice and information about the:

- date, time and place for assessment
- structure of assessment
- number of times performance must be demonstrated or observed
- amount or type of assistance candidates can expect
- assessment environment
- resources required for assessment
- performance standards or benchmarks relevant to the qualification

As well as informing the candidate of what they will be required to do during the assessment, the assessor will also need to explain what evidence they will need to provide in response to the various assessment tasks.

If a candidate is required to submit evidence, any explanation must include specific guidance on:

- what to include as evidence
- how to present the evidence
- how to submit the evidence and to whom

Assessing Competence

Competency-based assessment does not award grades, but simply identifies if the candidate has the skills, knowledge and attitudes to undertake the required task to the specified standard.

Therefore, when assessing competency an assessor has two possible results (assessment decisions) that can be awarded:

- Competent (C)
- Not Yet Competent (NYC)

Competent (C)

If the candidate is able to successfully answer and demonstrate what is required to the expected standard of the assessment criteria, they will be deemed as 'Competent'.

The assessor will award 'Competent' if they feel the candidate has the necessary skills, knowledge and attitudes in all assessment tasks for a given package.

Not Yet Competent (NYC)

If the candidate is unable to answer and demonstrate competency to the expected standard, they will be deemed to be 'Not Yet Competent'.

This does not mean the candidate will need to complete all the assessment tasks again. When applying for reassessment, the focus will be on the specific assessment tasks that were not performed to the required standard.

The candidate may be required to:

(a) undertake further training or instruction

(b) undertake the specific assessment task again until they are deemed to be competent

Recording Assessment Information

When all assessment tasks are concluded, the evidence summary sheet should be completed, signed by all parties, and any outstanding activities or issues actioned.

The assessor should ensure that all appropriate forms are completed and signed by all parties.

CHECKLIST FOR ASSESSOR		
Prior to the assessment I have:	**Tick (✓)**	**Remarks**
Ensured the candidate is informed about the venue and schedule of assessment.		
Received current copies of the assessment criteria to be assessed, assessment plan and evidence plan.		
Reviewed the assessment criteria and evidence plan to ensure I clearly understood the instructions and the requirements of the assessment process.		
Identified and accommodated any special needs of the candidate.		
Checked the set-up and resources for the assessment.		
During the assessment I have:		
Introduced myself and confirmed identities of candidates.		
Collected the admission slips.		
Put candidates at ease by being friendly and helpful.		
Checked completed self-assessment guide.		
Explained to candidates the purpose, context and benefits of the assessment.		
Ensured candidates understood the assessment process and the assessment procedure.		
Provided candidates with an overview of the assessment criteria to be used.		
Gave specific and clear instructions to the candidates.		
Observed carefully the specified time limits provided in the assessment package.		
Stayed at the assessment area during the entire duration of the assessment activity.		
Ensured notes are made on unusual conditions or situations during the assessment and include these in the report.		
Did not provide any assistance during the assessment or indicated in any way whether the candidate is or is not performing the activity correctly (intervened only for health and safety reasons).		

Implemented the evidence gathering process and ensured its validity, reliability, fairness and flexibility.		
Collected appropriate evidence and matched relevance to the elements, performance criteria, range of variables and evidence guide in the relevant units of competency.		
Explained the results reporting procedure to the candidate.		
Encouraged candidates to seek clarifications if in doubt about the pre- and post-assessment activity procedures.		
Asked candidates for feedback on the assessment.		
Explained legal, health and safety, and ethical issues, if applicable.		
After the assessment I have:		
Provided feedback on the assessment decision. This includes the following: ▪ clear and constructive feedback on the assessment decision ▪ information on ways of addressing any identified gaps in competency revealed by the assessment ▪ opportunity to discuss the assessment process and outcome ▪ information on reassessment process (if necessary) ▪ information on appeal (if necessary)		
Prepared the necessary assessment reports. This includes the following: ▪ record the assessment decision using the prescribed rating sheet ▪ maintain records of the assessment procedures, evidence collected and assessment decision ▪ endorse assessment decision to BTEB ▪ prepare recommendations for the issuance of certificate		
Thanked candidate for participating in the assessment.		

Assessment Evidence Guide

The purpose of assessment is to confirm that an individual can perform to the standards expected by in the workplace, as expressed in the competency standards.

To attain the certificate of **Welding**, a candidate must demonstrate competent skill and knowledge in all the units of competency listed below. Upon successful completion of all assessment activities, a candidate shall be awarded with a certificate.

CODE	UNIT OF COMPETENCY
Generic Competencies	
SEIP-LE-WEL-01-G	Use basic mathematical concepts
SEIP-LE-WEL-02-G	Carry out workplace interaction
SEIP-LE-WEL-03-G	Operate in a team environment
SEIP-LE-WEL-04-G	Apply basic IT skills
Sector-specific Competencies	
SEIP-LE-WEL-01-S	Apply occupational health and safety (OHS) practice in the workplace
SEIP-LE-WEL-02-S	Read and interpret sketches and drawings
SEIP-LE-WEL-03-S	Use hand and power tools
SEIP-LE-WEL-04-S	Apply quality system
Occupation-specific Competencies	
SEIP-LE-WEL-01-O	Apply fundamentals of welding metallurgy
SEIP-LE-WEL-02-O	Carry out shielded metal arc welding
SEIP-LE-WEL-03-O	Perform gas welding, gas cutting, brazing and soldering
SEIP-LE-WEL-04-O	Carry out gas tungsten arc welding
SEIP-LE-WEL-05-O	Carry out gas metal arc welding

Assessment Evidence Plan

An assessment evidence plan is a document that assists in establishing what evidence needs to be collected by the assessor to ensure that the candidate meets all the appropriate requirements of the competency standard. It usually contains a record of:

- evidence requirements as set out in the competency standard
- who will collect the evidence
- time period needed to collect the evidence

Occupation:	Welding				
Unit Name:	Use basic mathematical concepts				
Unit Code:	SEIP-LE-WEL-01-G				
Assessment Method:	**P**	**O**	**W**		
	Performance *(including demonstration and observation)*	Oral questioning	Written examination *(including short-answer, multiple choice, and true or false questions)*		
Element	**Performance Criteria**			**P**	**O**	**W**
1. Identify calculation requirements in the workplace	**1.1.** Calculation requirements are identified from workplace information.			√		√
	1.2. Mathematical problems are constructed from workplace.			√		
2. Select appropriate mathematical methods/concepts for the calculation	**2.1.** Appropriate method is selected to carry out calculation requirements.			√		√
	2.2. Constructed mathematical problems are solved with appropriate method.			√		√
3. Use tools and instrument to perform calculations	**3.1.** Tools and instruments required for computation are identified.			√		√
	3.2. Calculation is performed using appropriate tools and equipment accurately.			√		√

Occupation:	Welding				
Unit Name:	Carry out workplace interaction				
Unit Code:	SEIP-LE-WEL-02-G				
Assessment Method:	**P**	**O**	**W**		
	Performance *(including demonstration and observation)*	Oral questioning	Written examination *(including short-answer, multiple choice, and true or false questions)*		
Element	**Performance Criteria**			**P**	**O**	**W**
1. Interpret workplace communication and etiquette	**1.1.** Workplace codes of conduct are interpreted as per organisational guidelines.				√	
	1.2. Appropriate lines of communication are			√		

	maintained with supervisors and colleagues.			
	1.3. Workplace interactions are conducted in a courteous manner to gather and convey information.	√	√	
	1.4. Workplace procedures and matters are comprehended.	√		
2. Read and understand workplace documents	**2.1.** Workplace documents are interpreted correctly.	√		
	2.2. Visual information/symbols/signage are understood correctly and followed.	√		
	2.3. Specific and relevant information are accessed from appropriate sources.	√		
	2.4. Appropriate medium is used to transfer information and ideas.	√		
3. Participate in workplace meetings and discussions	**3.1.** Team meetings are attended on time.		√	
	3.2. Meeting procedures and etiquette are followed.		√	
	3.3. Active participation is ensured, opinions are expressed and heard.	√		
	3.4. Inputs are provided and interpreted in line with the meeting purpose.	√		
4. Practice professional ethics at work	**4.1.** Responsibilities as a team member are performed.	√		
	4.2. Tasks are performed in accordance with workplace procedures.	√		
	4.3. Confidentiality is maintained.	√		
	4.4. Inappropriate and conflicting situations are avoided.		√	

Occupation:	Welding		
Unit Name:	Operate in a team environment		
Unit Code:	SEIP-LE-WEL-03-G		
Assessment Method:	**P**	**O**	**W**
	Performance *(including demonstration and observation)*	Oral questioning	Written examination *(including short-answer, multiple choice, and true or false questions)*

Element	**Performance Criteria**	**P**	**O**	**W**
1. Identify team goals and work processes	**1.1.** Roles and objectives of the team are identified and interpreted.		√	
	1.2. Roles and responsibilities of team members are identified and interpreted.			√

2. Identify own role and responsibilities within team	**2.1.** Personal role and responsibilities are identified within the team environment.	√		
	2.2. Reporting relationships are interpreted within team and external to team.		√	
3. Communicate and co-operate with team members	**3.1.** Other teammates' tasks are identified and support provided when requested.	√		
	3.2. The team is encouraged through sharing information or expertise, working together to solve problems, and putting team success first.	√		
	3.3. Views and opinions of other team members are interpreted and respected.	√	√	
4. Practice problem solving within the team	**4.1.** Problems faced at the individual and team level are identified and showed insight into the root-causes of the problems.			√
	4.2. A range of solutions and courses of action are identified together with benefits, costs, and risks associated with each.			√
	4.3. The good ideas of others to help develop solutions are recognised and advice sought from those who have solved similar problems.			√
	4.4. It is looked beyond the obvious and not stopped at the first answers.		√	

Occupation:	Welding		
Unit Name:	Apply basic IT skills		
Unit Code:	SEIP-LE-WEL-04-G		
Assessment Method:	**P**	**O**	**W**
	Performance *(including demonstration and observation)*	Oral questioning	Written examination *(including short-answer, multiple choice, and true or false questions)*

Element	**Performance Criteria**	**P**	**O**	**W**
1. Identify and use most commonly used IT tools	**1.1.** History of information technology (IT) is identified and summarised.		√	√
	1.2. Commonly used IT tools are identified and described.		√	
2. Understand use of computer	**2.1.** Basic parts of a computer are identified.		√	
	2.2. Turning on and off technique of a computer is performed.	√		
	2.3. Working environment, functions and features of operating system is interpreted.		√	
	2.4. Simple trouble-shooting techniques are applied.	√		

3. Work with word processing application	**3.1.** Word processing application appropriate to perform activity is operated.		√	
	3.2. Basic typing technique to document is applied.			√
	3.3. Word processing techniques to document are employed.		√	
	3.4. Personal CV writing using suitable word processing techniques is practiced.			√
	3.5. Saving and retrieving technique of a document is used.		√	
4. Work with spreadsheets	**4.1.** Spreadsheet working environment, functions and features are identified and interpreted.		√	
	4.2. Data entry on spreadsheet appropriate to perform activity is performed.		√	
	4.3. Data manipulation techniques to spreadsheet document are applied.			√
	4.4. Spreadsheet document is created and saved.		√	
5. Access email and search the internet	**5.1.** Use of email account in online environment is explained.		√	
	5.2. Writing and sending of workplace emails is completed.			√
	5.3. Different browsers to work online are identified and selected.		√	
	5.4. Browse different web portals and apply proper search techniques.		√	

Occupation:	Welding				
Unit Name:	Apply occupational health and safety (OHS) practice in the workplace				
Unit Code:	SEIP-LE-WEL-01-S				
Assessment Method:	**P**	**O**	**W**		
	Performance *(including demonstration and observation)*	Oral questioning	Written examination *(including short-answer, multiple choice, and true or false questions)*		
Element	**Performance Criteria**			**P**	**O**	**W**
1. Identify OHS policies and procedures	**1.1.** OHS policies and safe operating procedures are interpreted.					√
	1.2. Safety signs and symbols are identified and followed.			√	√	
	1.3. Response, evacuation procedures and other contingency measures are interpreted correctly.				√	
2. Apply personal health and safety	**2.1.** OHS policies and procedures are applied in the workplace including personal protective			√		

practices	equipment (PPE).			
	2.2. Common health issues are recognised.		√	
	2.3. Common safety issues are identified.	√		
3. Report hazards and risks	**3.1.** Hazards and risks are identified.	√		
	3.2. Hazards and risks assessment and controls are interpreted.	√		
4. Respond to emergencies	**4.1.** Respond to alarms and warning devices.		√	
	4.2. Emergency response plans and procedures are responded to.		√	
	4.3. First aid procedures during emergency situations are identified.		√	

Occupation:	Welding				
Unit Name:	Read and interpret sketches and drawings				
Unit Code:	SEIP-LE-WEL-02-S				
Assessment Method:	**P**	**O**	**W**		
	Performance *(including demonstration and observation)*	Oral questioning	Written examination *(including short-answer, multiple choice, and true or false questions)*		
Element	**Performance Criteria**			**P**	**O**	**W**
1. Interpret information and specifications	**1.1.** Appropriate manuals for work activity are identified and collected.			√		
	1.2. Information and specifications in the manuals is interpreted and applied.			√		
2. Read and interpret sketches and drawings	**2.1.** Relevant sketches and drawings are identified for job requirement.			√		
	2.2. Key terms and abbreviations are identified and interpreted.			√		
	2.3. Signs and symbols are identified and interpreted.			√	√	
	2.4. Schedules, dimensions, sketches, drawings and specifications are correctly read and interpreted.			√		

Occupation:	Welding		
Unit Name:	Use hand and power tools		
Unit Code:	SEIP-LE-WEL-03-S		
Assessment Method:	**P**	**O**	**W**
	Performance	Oral questioning	Written examination

	(including demonstration and observation)		*(including short-answer, multiple choice, and true or false questions)*		
Element	**Performance Criteria**		**P**	**O**	**W**
1. Identify and inspect hand and power tools	**1.1.** Appropriate hand and power tools are identified.		√		
	1.2. Application of hand and power tools is recognised.			√	
	1.3. Usability of hand and power tools is checked and verified.		√		
2. Use hand tools properly and safely	**2.1.** Appropriate hand tools are selected.		√		
	2.2. Safety precautions are ensured before using hand tools.		√		
	2.3. Unsafe or faulty hand tools are identified and marked for repair.		√		
	2.4. Measuring tools are checked and calibrated before use.		√		
	2.5. Use hand tools properly and safely to perform work activity.		√		
3. Operate power tools properly and safely	**3.1.** Appropriate power tools are selected.		√		
	3.2. Power supply outlet and electrical cord are inspected and confirmed safe for use in accordance with established workplace safety requirements.		√		
	3.3. Safety precautions are ensured before using power tools in accordance with manufacturer's operating specification.		√		
	3.4. Proper sequence of operation applied for using power tools.		√		
	3.5. Unsafe or faulty power tools are identified and marked for repair.		√		
	3.6. Operate power tools properly and safely to perform work activity.		√		
4. Clean and maintain hand and power tools	**4.1.** Dust and foreign matter is removed from hand and power tools in accordance to workplace standards.		√		
	4.2. Condition of hand and power tools is checked after use and reported.		√		
	4.3. Appropriate lubricant is applied after use and prior to storage.		√		
	4.4. Measuring tools are checked and calibrated after use.		√		
	4.5. Defective hand and power tools are inspected and repaired or replaced.		√		

	4.6. Hand and power tools are stored and secured in accordance with workplace requirements.	√		

Occupation:	Welding					
Unit Name:	Apply quality system					
Unit Code:	SEIP-LE-WEL-04-S					
Assessment Method:	**P**	**O**	**W**			
	Performance *(including demonstration and observation)*	Oral questioning	Written examination *(including short-answer, multiple choice, and true or false questions)*			
Element	**Performance Criteria**			**P**	**O**	**W**
1. Work within a quality system	**1.1.** Instructions and procedures are strictly followed in accordance with quality improvement system.			√		
	1.2. Duties are performed in accordance with demand of quality improvement system.			√		
	1.3. Defects are detected and reported according to standard operating procedures.			√		
	1.4. Quality service is ensured and delivered to customer in providing a product or service.			√		
2. Apply and monitor quality system improvement	**2.1.** Performance measurement systems are identified.				√	
	2.2. Specifications and standard operating procedure are identified and established.				√	
	2.3. Performance is assessed at regular intervals.			√		
	2.4. Defects are detected and reported to authority according to standard operating procedure.			√		
	2.5. Process improvement procedures are contributed to and implemented.			√		
	2.6. Improvement of internal/external customer and supplier relationships is contributed to.				√	
	2.7. Performance of operation or quality of product or service is monitored to ensure customer satisfaction.			√		
3. Apply standard procedures for each job	**3.1.** Concept of supplying product or service to meet the customer's requirements is understood and applied accordingly.			√		
	3.2. Responsibility is taken for quality of own work.			√		
	3.3. Quality system procedures for each job are followed.			√		
	3.4. Conformance to specification is ensured in every case at all situations.			√		

Occupation:	Welding				
Unit Name:	Apply fundamentals of welding metallurgy				
Unit Code:	SEIP-LE-WEL-01-O				
Assessment Method:	**P**	**O**	**W**		
	Performance *(including demonstration and observation)*	Oral questioning	Written examination *(including short-answer, multiple choice, and true or false questions)*		
Element	**Performance Criteria**			**P**	**O**	**W**
1. Identify the mechanical properties of metals	**1.1.** Structure of metals and alloys are identified.				√	
	1.2. Mechanical properties of metals are identified.				√	
	1.3. Steel micro-structure is explained.				√	
2. Explain the chemical properties of steel	**2.1.** Chemical properties of steel are explained.					√
	2.2. Types of carbon steel are identified.			√		
	2.3. Application of the different types of carbon steels are described in relation to welding processes.			√		
3. Describe the effects of heat to the chemical properties in steels	**3.1.** Chemical effects of elements to steel properties are described.				√	
	3.2. Affected elements in steel are identified.			√		
	3.3. Iron carbon diagram is explained.				√	
4. Demonstrate application of heat treatment processes	**4.1.** Application of heat treatment is explained.					√
	4.2. Heat treatment processes are described.					√
	4.3. Annealing of carbon steel is performed in accordance with workplace procedures.			√		
	4.4. Hardening of carbon steel is carried out in accordance with workplace procedures.			√		
	4.5. Tempering of carbon steel is performed in accordance with workplace procedure.			√		
	4.6. Heat treatment tools and equipment are identified.			√		
	4.7. PPE are selected and used when performing heat treatment processes.			√		
5. Clean and store the tools and equipment	**5.1.** Hand tools and equipment are maintained and cleaned as per instruction manual.			√		
	5.2. Work place is cleaned in accordance with environmental requirement.			√		
	5.3. Tools and equipment are stored safely in appropriate location according to standard workshop procedures.			√		
	5.4. Waste materials are disposed in proper place.			√		

Occupation:	Welding				
Unit Name:	Carry out shielded metal arc welding				
Unit Code:	SEIP-LE-WEL-02-O				
Assessment Method:	**P**	**O**	**W**		
	Performance *(including demonstration and observation)*	Oral questioning	Written examination *(including short-answer, multiple choice, and true or false questions)*		
1. Identify and prepare work requirements	**1.1.** Drawings are interpreted to shielded metal arc welding conforming to the specifications.			√	
	1.2. Welding machine, tools and equipment are selected according to the requirements of the welding works.			√	
	1.3. Base metal/plates and electrodes are selected according to requirements of the job.			√	
	1.4. PPE is selected and used.			√	
	1.5. Base metals are prepared as per requirement.			√	
	1.6. Welding machine operations are demonstrated as per requirement.			√	
	1.7. Welding joint, position and process are demonstrated according to the job requirement.			√	
	1.8. Safe work practices are observed and personal protective equipment (PPE) are worn as required for the work performed.			√	
2. Select welding job, equipment and job holding devices	**2.1.** Welding equipment and holding devices are set up and adjusted in accordance with the job requirements.			√	
	2.2. Welding area guards, work table/floor, dust collection devices are checked according to worksite procedure.			√	
	2.3. Welding machine is prepared and bead practices indifferent positions are carried out.			√	
3. Perform welding job	**3.1.** Welding machine performance is checked conforming to the job requirement.			√	
	3.2. Butt, lap, tee and corner joints in different positions.			√	
	3.3. Welds are cleaned, checked for quality and defects are identified.			√	
	3.4. Defects are rectified to meet the standards of job specifications.			√	
4. Clean/maintain the workplace	**4.1.** Tools, equipment and machine are cleaned.			√	
	4.2. Workplace is cleaned.			√	

	4.3. Waste materials are disposed in its designated/proper place.	√		
	4.4. Tools, equipment and finished job are stored safely in appropriate location according to standard place and procedures.	√		

Occupation:	Welding					
Unit Name:	Perform gas welding, gas cutting, brazing and soldering					
Unit Code:	SEIP-LE-WEL-03-O					
Assessment Method:	**P**	**O**	**W**			
	Performance *(including demonstration and observation)*	Oral questioning	Written examination *(including short-answer, multiple choice, and true or false questions)*			
Element	**Performance Criteria**			**P**	**O**	**W**
1. Prepare for gas welding	**1.1.** Tools, welding equipment and materials are selected and collected in accordance with work requirements for gas welding.			√		
	1.2. Gas welding sets and accessories are gathered and set up according to the job specifications.			√		
	1.3. Drawings are interpreted to produce component to the job specifications.			√		
	1.4. PPE is selected and used.			√		
	1.5. Jig, fixture and positioner are set up for gas welding, gas cutting and brazing.			√		
	1.6. Sequence of operation is determined to produce component to the specifications of requirement.			√		
	1.7. Safe work practices are observed and personal protective equipment (PPE) are worn as required for the work performed.			√		
2. Carry out fusion welding	**2.1.** Thin sheet metal is prepared for fusion welding.			√		
	2.2. Gas welding torch is prepared for making oxy acetylene flame.			√		
	2.3. Base metal is set on welding workplace.			√		
	2.4. Fusion welding is performed according to the job requirement.			√		
	2.5. Welds are cleaned, checked for quality and defects are identified.			√		
	2.6. Defects are rectified to meet the standards of job specifications.			√		
3. Perform gas welding	**3.1.** Gas welding torch is adjusted to perform different types of flame for welding.			√		

	3.2. Gas welding set performance is checked conforming to the job requirement.	√		
	3.3. Gas welding is performed in different welding joint (butt, lap, tee and corner) and position (flat and horizontal).	√		
	3.4. Welds are cleaned, checked for quality and defects are identified.	√		
	3.5. Defects are rectified to meet the standards of job	√		
4. Perform brazing and soldering	**4.1.** Gas welding torch is set to making flame for brazing.	√		
	4.1. Flux and brazing filler rods are used for brazing work.	√		
	4.1. Gas welding set performance is checked conforming to the job requirement.	√		
	4.2. Brazing is performed as per the job requirement and the work is brazed in lap, butt joints and fillet joint.	√		
	4.3. Soldering is performed as per the requirement and the job is soldered in lap, butt and fillet joint and used hard solder materials.	√		
	4.4. Brazed and soldered surface is cleaned, checked for quality and defects are identified.	√		
	4.5. Defects are rectified to meet the standards of job specifications.	√		
5. Perform gas cutting	**5.1.** Gas cutting torch is set for cutting materials as per job thickness.	√		
	5.2. Gas cutting set performance is checked conforming to the job requirement.	√		
	5.3. Gas cutting is performed as per the job requirement (straight, zig zag and round cutting).	√		
	5.4. Cut pieces rough edges are removed, cleaned, checked for quality and defects are identified and corrective action is taken according to standard cutting procedures.	√		
6. Clean and store tools and equipment	**6.1.** Tools, equipment and cutting torch are cleaned.	√		
	6.2. Work place is cleaned.	√		
	6.3. Waste materials are disposed in proper place.	√		
	6.4. Tools, equipment and finished job are stored safely in appropriate location according to standard place and procedures.	√		

Occupation:	Welding				
Unit Name:	Carry out gas tungsten arc welding				
Unit Code:	SEIP-LE-WEL-04-O				
Assessment Method:	**P**	**O**	**W**		
	Performance *(including demonstration and observation)*	Oral questioning	Written examination *(including short-answer, multiple choice, and true or false questions)*		
Element	**Performance Criteria**			**P**	**O**	**W**
1. Identify and prepare work requirements	**1.1.** Gas tungsten arc welding drawings are interpreted and confirm specifications.			√		
	1.2. PPE are selected and used.			√		
	1.3. Safe work practices are observed and personal protective equipment (PPE) worn as required for the work performed.			√		
	1.4. TIG welding machine, tools and equipment are selected according to the requirements.			√		
	1.5. Base metals/ plate, filler metal, tungsten electrodes and shielding gas are selected according to requirements of the job.			√		
	1.6. Base metals and GTAW welds area are prepared as per requirement.			√		
	1.7. TIG welding machine operation are demonstrated as per requirement.			√		
	1.8. Welding joint and position are demonstrated according to the job requirement.			√		
2. Select welding job, equipment and job holding devices	**2.1.** Routine maintenance is performed and prepared the TIG welding machine for requirement of the welds job.			√		
	2.2. Welding equipment and holding devices are set up and adjusted in accordance with the job requirements.			√		
3. Perform GTAW or TIG welding job	**3.1.** TIG welding machine and welding torch performance is checked conforming to the job requirement.			√		
	3.2. Amperage and gas flow is set according to the welds plate thickness and gas flow cup sizes.			√		
	3.3. Welding is performed as per the job requirement and welds in different joint and position.			√		
	3.4. Welds are cleaned, checked for quality test and defects are identified.			√		
	3.5. Defects are rectified to meet the standards of job specifications.			√		
4. Clean/maintain the workplace	**4.1.** Tools, equipment and machine are cleaned.			√		

	4.2. Workplace is cleaned.	√		
	4.3. Handle carefully to walk cup when performed the welding.	√		
	4.4. Waste materials are disposed in its designated/proper place.	√		
	4.5. Tools, equipment and finished job are stored safely in appropriate location according to standard place and procedures.	√		

Occupation:	Welding		
Unit Name:	Carry out gas metal arc welding		
Unit Code:	SEIP-LE-WEL-05-O		
Assessment Method:		**O**	**W**
	Performance *(including demonstration and observation)*	Oral questioning	Written examination *(including short-answer, multiple choice, and true or false questions)*

Element	**Performance Criteria**	**P**	**O**	**W**
1. Identify and prepare work requirements	**1.1.** GMAW or MIG welding drawings are interpreted.	√		
	1.2. MIG welding machine, tools and equipment are selected according to the requirements.	√		
	1.3. PPE are selected and used.	√		
	1.4. Safe work practices are observed and personal protective equipment (PPE) are worn as required for the work to be performed.	√		
	1.5. Base metal/ plates, wire electrode sizes and shielding gas are selected according to requirements of the job.	√		
	1.6. Base metals and GMAW weld area are prepared as per requirement.	√		
	1.7. MIG welding machine operations is demonstrated.	√		
	1.8. Welding joint and position are demonstrated according to the job requirement.	√		
2. Select welding job, equipment and job holding devices	**2.1.** Routine maintenance is performed and the MIG welding machine is prepared as per job requirement	√		
	2.2. Welding equipment and holding devices are set up and adjusted in accordance with the job requirements.	√		
3. Perform GMAW or MIG welding job	**3.1.** MIG welding machine and welding torch performance is checked in accordance with the job requirement.	√		

	3.2. Amperage and gas flow is set in accordance with work piece plate thickness.	√		
	3.3. Welding is performed in butt and tee joints in flat and horizontal positions	√		
	3.4. Welds are cleaned, checked for quality test and defects are identified.	√		
	3.5. Defects are rectified to meet the standards of job specifications.	√		
4. Clean/maintain the workplace	**4.1.** Tools, equipment and machine are cleaned.	√		
	4.2. Workplace is cleaned.	√		
	4.3. Handle carefully to walk cup when performed the welding.	√		
	4.4. Waste materials are disposed in its designated proper place.	√		
	4.5. Tools, equipment and finished job are stored safely in appropriate location .according to standard place and procedures	√		

PART B – THE CANDIDATE

Instructions to Candidate

To be assessed as competent, you must provide evidence which demonstrates that you can perform to the necessary standard the various elements of this unit of competency that comprise of the Certificate in Welding. Assessment of competency requires you to consistently demonstrate skill, knowledge and aptitude (through a variety of assessment tools such as multiple choice, short-answer questions, oral questioning, workplace observation, and practical demonstration) that enables confident completion of workplace tasks in a variety of situations.

In judging the evidence, your assessor must ensure that the evidence is:

- authentic (your own work)
- valid (directly related to the current version of the units of competency)
- reliable (consistently demonstrates of your knowledge and skill)
- current (shows your current capacity to perform the work)
- sufficient (covers the full range of elements comprised within the units of competency)

Furthermore, the assessment process must:

- provide for valid, reliable, flexible and fair assessment
- provide for judgment to be made on the basis of sufficient evidence
- offer valid, authentic and current evidence
- include workplace requirements

There are two types of assessment:

1. Knowledge Assessment - is designed to enable assessment against the various *elements* contained within the units of competency through a variety of activities such as multiple choice, short-answer questions, oral questioning. It is essentially examining your theoretical knowledge.

   This provides the assessor with substantial evidence of your knowledge and aptitude to perform the work relating to the specific unit of competency, in conjunction with other assessment tools such as workplace observation.

   You should complete the knowledge assessment as directed by the assessor and follow all instructions as and when given. If you are unable to complete the knowledge assessment, please speak to the assessor about alternative assessment solutions.

2. Skill Assessment - is designed to enable assessment against the various *performance criteria* contained within the units of competency through, for example, demonstration of skill in a simulated or actual work environment. In essence, it is an examination of your practical ability.

   This provides the assessor with substantial evidence of your ability to perform the work relating to the specific unit of competency to the standard expected by industry (the benchmark).

   You should complete the skill assessment as directed by the assessor and follow all instructions as and when given, ensuring your own health and safety.

Once you have been assessed as competent against all of the units of competency comprising of the qualification being undertaken, you will be awarded your certificate.

You assessor will discuss in more detail the requirements for assessment for each unit of competency at the appropriate time.

And please do not panic if you are not assessed as competent on any part of your qualification at your first attempt. Your assessor will discuss with you any identified skill and knowledge gaps, work through those with you and assist you as much as possible in attaining competency.

Self-Assessment Guide

Before undertaking any assessment, you should review the list of skills, knowledge and aptitudes relating to the assessment (drawn from the units of competency, its various elements and performance criteria) to determine whether you have current competency in these areas.

If you believe you can demonstrate the skills and knowledge required and can successfully complete the various assessment activities, you should then proceed to discuss your assessment with the assessor and complete Assessment Agreement.

However, should you not believe, for whatever reason, that you are not able to successfully complete the various assessment activities, then speak with the assessor. The assessor will assist you in identifying any skill and knowledge gaps, work through those with you and assist you as much as possible in attaining competency.

Please complete the self-assessment checklist below and discuss with the assessor.

Qualification:	**Welding**
Units of competency:	**Generic units:** Use basic mathematical concepts Carry out workplace interaction Operate in a team environment Apply basic IT skills **Sector-specific units:** Apply occupational health and safety (OHS) practice in the workplace Read and interpret sketches and drawings Use hand and power tools Apply quality system **Occupation-specific units:** Apply fundamentals of welding metallurgy Carry out shielded metal arc welding Perform gas welding, gas cutting, brazing and soldering Carry out gas tungsten arc welding Carry out gas metal arc welding

Instructions:

- Read each of the questions in the left-hand column of the chart
- Place a tick (√) in the appropriate box opposite each question to indicate your answer

Can I?	**YES**	**NO**
▪ Identify calculation requirements from workplace information		
▪ Construct mathematical problems from workplace		
▪ Select appropriate method to carry out calculation requirement		
▪ Solve constructed mathematical problems with appropriate method		

▪ Identify tools and instruments required for computation		
▪ Perform calculation using appropriate tools and equipment		
▪ Interpret workplace codes of conduct as per organizational guidelines		
▪ Maintain appropriate lines of communication with supervisors and colleagues.		
▪ Conduct workplace interactions in a courteous manner to gather and convey information		
▪ Comprehend workplace procedures and matters		
▪ Interpret correctly workplace documents		
▪ Understand correctly and follow visual information/symbol/signage		
▪ Access specific and relevant information from appropriate sources		
▪ Use appropriate medium to transfer information and ideas		
▪ Attend team meetings on time to ensure active participation		
▪ Follow meeting procedures and etiquette		
▪ Ensure active participation, express and hear opinions		
▪ Respect opinions and ideas of others and their importance in the development of relationships		
▪ Provide and interpret inputs in line with the meeting purpose		
▪ Perform responsibilities as a team member		
▪ Perform tasks in accordance with workplace procedures		
▪ Maintain confidentiality		
▪ Avoid inappropriate and conflicting situations		
▪ Interpret roles and objectives of the team		
▪ Interpret roles and responsibilities of the team members		
▪ Identify personal role and responsibilities within the team environment		
▪ Interpret reporting relationships within team and external to team		
▪ Identify and provide support to other teammates tasks		
▪ Encourage the team through sharing information or expertise, working together to solve problems putting team success first		
▪ Interpret and respect views and opinions of other team members		
▪ Identify problems faced at the individual and team level and shows insight into the root-causes of the problems		
▪ Identify a range of solutions and courses of action together with benefits, costs, and risks associated with each		
▪ Recognise the good ideas of others to help develop solutions and seek advice from those who've solved similar problems		
▪ Look beyond the obvious and not stop at the first answers		
▪ Identify and summarise history of information technology (IT)		
▪ Identify and describe commonly used IT tools		

▪ Identify basic parts of a computer		
▪ Perform turning on and off technique of a computer		
▪ Interpret working environment, functions and features of operating system		
▪ Apply simple trouble-shooting techniques		
▪ Operate word processing application appropriate to perform activity		
▪ Apply basic typing technique to document		
▪ Employ word processing techniques to document		
▪ Practice personal CV writing using suitable word processing techniques		
▪ Use saving and retrieving techniques of a document		
▪ Explain use of email account in online environment		
▪ Complete writing and sending of workplace emails		
▪ Identify different browsers to work online		
▪ Browse different web portals and apply proper search techniques		
▪ Interpret OSH policies and safe operating procedures		
▪ Identify and follow safety signs and symbols		
▪ Interpret response, evacuation procedures and other contingency measures correctly.		
▪ Apply OSH policies and procedures in the workplace including personal protective equipment (PPE)		
▪ Recognise common health issues		
▪ Identify common safety issues		
▪ Identify hazards and risks		
▪ Interpret hazards and risks assessment		
▪ Respond to alarms and warning devices		
▪ Respond to emergency response plans and procedures		
▪ Identify first aid procedures during emergency situations		
▪ Identify and collect appropriate manuals for work activity		
▪ Interpret and apply information and specifications in the manuals		
▪ Identify relevant sketches and drawings for job requirement		
▪ Identify and interpret key terms and abbreviations		
▪ Identify and interpret key terms and techniques		
▪ Read and interpret schedules, dimensions, sketches, drawings and specification correctly		
▪ Identify appropriate hand and power tools		
▪ Recognise application of hand and power tools		
▪ Read and interpret specifications and instructions		
▪ Identify and select appropriate personal protective equipment		

▪ Identify structure of metals and alloys		
▪ Identify mechanical properties of metals		
▪ Explain steel micro-structure		
▪ Explain chemical properties of steel		
▪ Identify types of carbon steel		
▪ Describe application of the different types of carbon steels in relation to welding processes		
▪ Describe chemical effects of elements to steel properties		
▪ Identify affected elements in steel		
▪ Explain iron carbon diagram		
▪ Explain application of heat treatment		
▪ Describe heat treatment processes		
▪ Perform annealing of carbon steel in accordance with workplace procedures		
▪ Carry out hardening of carbon steel in accordance with workplace procedures		
▪ Perform tempering of carbon steel in accordance with workplace procedure		
▪ Identify heat treatment tools and equipment		
▪ Select and use PPE when performing heat treatment processes		
▪ Maintain and clean hand tools and equipment as per instruction manual		
▪ Clean work place in accordance with environmental requirement		
▪ Store tools and equipment safely in appropriate location according to standard workshop procedures		
▪ Dispose waste materials in proper place		
▪ Interpret drawings to shielded metal arc welding conforming to the specifications		
▪ Select welding machine, tools and equipment according to the requirements of the welding works		
▪ Select base metal/plates and electrodes according to requirements of the job		
▪ Select and use PPE		
▪ Prepare base metals as per requirement		
▪ Demonstrate welding machine operations as per requirement		
▪ Demonstrate welding joint, position and process according to the job requirement		
▪ Observe safe work practices and ware personal protective equipment (PPE) as required for the work performed		
▪ Set up and adjust welding equipment and holding devices in accordance with the job requirements		
▪ Check welding area guards, work table/floor, dust collection devices according to worksite procedure		

▪ Prepare welding machine and bead practices indifferent positions are carried out		
▪ Check welding machine performance conforming to the job requirement		
▪ Perform butt, lap, tee and corner joints in different positions		
▪ Cleaned, checked welds for quality and defects are identified		
▪ Rectify defects to meet the standards of job specifications		
▪ Clean tools, equipment, machine and workplace		
▪ Dispose waste materials in its designated/proper place		
▪ Store tools, equipment and finished job safely in appropriate location according to standard place and procedures		
▪ Select and collect tools, welding equipment and materials in accordance with work requirements for gas welding		
▪ Gather and set up gas welding sets and accessories according to the job specifications		
▪ Interpret drawings to produce component to the job specifications		
▪ Set up jig, fixture and positioner for gas welding, gas cutting and brazing		
▪ Determine sequence of operation to produce component to the specifications of requirement		
▪ Observe safe work practices and ware personal protective equipment (PPE) as required for the work performed		
▪ Prepare thin sheet metal for fusion welding		
▪ Prepare gas welding torch for making oxy acetylene flame		
▪ Set on base metal is welding work place		
▪ Perform fusion welding according to the job requirement		
▪ Clean and check welds for quality and defects		
▪ Rectify defects to meet the standards of job specifications		
▪ Adjust gas welding torch to perform different types of flame for welding		
▪ Check gas welding set performance conforming to the job requirement		
▪ Perform gas welding in different welding joint (butt, lap, tee and corner) and position (flat and horizontal)		
▪ Clean and check welds for quality and defects are identified		
▪ Rectify defects to meet the standards of job		
▪ Set gas welding torch to making flame for brazing		
▪ Use flux and brazing filler rods for brazing work		
▪ Check gas welding set performance conforming to the job requirement		
▪ Perform brazing as per the job requirement and the work is brazed in lap, butt joints and fillet joint		
▪ Perform soldering as per the requirement and the job is soldered in lap, butt and fillet joint and used hard solder materials		

▪ Clean and check brazed and soldered surface for quality and defects are identified		
▪ Rectify defects to meet the standards of job specifications		
▪ Set gas cutting torch for cutting materials as per job thickness		
▪ Check gas cutting set performance conforming to the job requirement		
▪ Perform gas cutting as per the job requirement (straight, zig zag and round cutting)		
▪ Remove, clean and check cut pieces rough edges for quality and defects are identified and corrective action is taken according to standard cutting procedures		
▪ Clean tools, equipment, cutting torch and workplace		
▪ Disposed waste materials in proper place		
▪ Store tools, equipment and finished job safely in appropriate location according to standard place and procedures		
▪ Interpret gas tungsten arc welding drawings and confirm specifications		
▪ Select TIG welding machine, tools and equipment according to the requirements		
▪ Select base metals/plate, filler metal, tungsten electrodes and shielding gas according to requirements of the job		
▪ Prepared base metals and GTAW welds area as per requirement		
▪ TIG welding machine operation are demonstrated as per requirement		
▪ Demonstrate welding joint and position according to the job requirement		
▪ Perform and prepare routine maintenance the TIG welding machine for requirement of the welds job		
▪ Set up and adjust welding equipment and holding devices in accordance with the job requirements		
▪ Check TIG welding machine and welding torch performance conforming to the job requirement		
▪ Set amperage and gas flow according to the welds plate thickness and gas flow cup sizes		
▪ Perform welding as per the job requirement and welds in different joint and position		
▪ Clean, check welds for quality test and identify defects		
▪ Rectify defects to meet the standards of job specifications		
▪ Clean tools, equipment, machine and workplace		
▪ Interpret GMAW or MIG welding drawings		
▪ Select MIG welding machine, tools and equipment according to the requirements		
▪ Select base metal/ plates, wire electrode sizes and shielding gas according to requirements of the job		
▪ Prepare base metals and GMAW weld area as per requirement		

▪ Demonstrate MIG welding machine operations		
▪ Demonstrate welding joint and position according to the job requirement		
▪ Perform routine maintenance and prepare the MIG welding machine as per job requirement		
▪ Set up and adjust welding equipment and holding devices in accordance with the job requirements		
▪ Check MIG welding machine and welding torch performance in accordance with the job requirement		
▪ Set Amperage and gas flow in accordance with work piece plate thickness		
▪ Perform welding in butt and tee joints in flat and horizontal positions		
▪ Clean, check welds for quality test and identify defects		
▪ Rectify defects to meet the standards of job specifications		
▪ Dispose waste materials in its designated proper place		
▪ Store tools, equipment and finished job safely in appropriate location according to standard place and procedures		
I agree to undertake assessment in the knowledge that the information gathered will only be used for educational and professional development purposes and can only be accessed by concerned assessment personnel and my manager/supervisor.		
Candidate's signature:		**Date:**

PART C – THE ASSESSMENT

Assessment Agreement – Welding

The purpose of assessment is to confirm that you can perform to the standards expected in the workplace of an occupation, as expressed in the competency standards (after completion of self-assessment and in agreement with assessor).

To help achieve this, an assessment agreement is required to navigate both you and the assessor through the assessment process.

The assessment agreement is designed to provide a clear understanding of what and how you will be assessed and to nominate the tools that may be used to collect the assessment evidence.

You, the assessor and/or workplace supervisor should agree on the assessment requirements, dates and deadlines.

Therefore, to attain the Certificate of Welding, you must demonstrate competence in the following units, as established in the assessment agreement:

After successful completion of learning and assessment, you shall be awarded with a certificate.

CODE	UNIT OF COMPETENCY
Generic Competencies	
SEIP-LE-WEL-01-G	Use basic mathematical concepts
SEIP-LE-WEL-02-G	Carry out workplace interaction
SEIP-LE-WEL-03-G	Operate in a team environment
SEIP-LE-WEL-04-G	Apply basic IT skills
Sector-specific Competencies	
SEIP-LE-WEL-01-S	Apply occupational health and safety (OHS) practice in the workplace
SEIP-LE-WEL-02-S	Read and interpret sketches and drawings
SEIP-LE-WEL-03-S	Use hand and power tools
SEIP-LE-WEL-04-S	Apply quality system
Occupation-specific Competencies	
SEIP-LE-WEL-01-O	Apply fundamentals of welding metallurgy
SEIP-LE-WEL-02-O	Carry out shielded metal arc welding
SEIP-LE-WEL-03-O	Perform gas welding, gas cutting, brazing and soldering
SEIP-LE-WEL-04-O	Carry out gas tungsten arc welding
SEIP-LE-WEL-05-O	Carry out gas metal arc welding

After successful completion of learning and assessment, you shall be awarded with a certificate.

Assessment Agreement	
Occupation:	Welding
Assessment Centre:	
Candidate Name:	
Assessor Name:	
Unit of Competency	
Generic Competencies	
SEIP-LE-WEL-01-G	Use basic mathematical concepts
SEIP-LE- WEL-02-G	Carry out workplace interaction
SEIP-LE- WEL-03-G	Operate in a team environment
SEIP-LE- WEL-04-G	Apply basic IT skills
Sector-specific Competencies	
SEIP-LE-WEL-01-S	Apply occupational health and safety (OHS) practice in the workplace
SEIP-LE-WEL-02-S	Read and interpret sketches and drawings
SEIP-LE-WEL-03-S	Use hand and power tools
SEIP-LE-WEL-04-S	Apply quality system
Occupation-specific Competencies	
SEIP-LE-WEL-01-O	Apply fundamentals of welding metallurgy
SEIP-LE-WEL-02-O	Carry out shielded metal arc welding
SEIP-LE-WEL-03-O	Perform gas welding, gas cutting, brazing and soldering
SEIP-LE-WEL-04-O	Carry out gas tungsten arc welding
SEIP-LE-WEL-05-O	Carry out gas metal arc welding

Resources Required for Assessment

Candidates must have access to the following:

- copies of activities, questions, projects nominated by the assessor
- relevant organisational policies, protocols and procedural documents (if required)
- devices or tools to record answers
- appropriate actual or simulated workplace
- all necessary tools and equipment used in performance of the work-based task
- any other resources normally used in the workplace

Assessment Instructions

Candidates should respond to the formative and summative assessments either verbally or in writing as agreed with the assessor. Written responses can be recorded in the spaces provided (if more space is required attach additional pages) or submitted in a word-processed document.

If candidates answer verbally, the assessor should record their answers in detail.

Candidates should also undertake observable tasks that provide evidence of performance. The assessor must provide instruction to candidates on what is expected during observation and arrange a

suitable time and location for demonstration of these skills.

Candidates must fully understand what they are required to do to complete these assessment tasks successfully, then sign the declaration.

Performance Standards

To receive a **satisfactory** result for the assessments, candidates must complete all activities, questions, projects, and tasks nominated by the assessor, to the required standard.

Completion of all tasks for a unit of competency, to a satisfactory level, will contribute to an assessment of competence for that specific individual unit (or units if holistic assessment approach is taken).

Successful completion of all the units of competency that comprise of the qualification Welding, will result in the candidate being issued with the relevant, nationally recognised certificate.

Assessors must clearly explain the required performance standards.

Declaration

I declare that:

- the assessment requirements have been clearly explained to me
- all the work completed towards assessment will be my own
- cheating and plagiarism are unacceptable

Candidate Signature:		**Date:**	
Assessor Signature:		**Date:**	

PART D – ASSESSMENT TOOLS

Specific Instructions to Assessor

Please read carefully and prepare as necessary:

1. The assessor shall (practical demonstration assessment activities):

   - provide the candidate with the necessary tools, equipment, machinery and materials for completion of one (1) set of the following practical demonstration activities:

     - Set A:

       - Carry out arc welding for butt joint
       - Prepare butt joint with mild steel strips using brazing technique
       - Carry out TIG welding for butt joint
       - Carry out MIG welding for butt joint

     - Set B:

       - Carry out arc welding for lap joint
       - Prepare scarfed joint with mild steel strips using brazing technique
       - Carry out TIG welding for lap joint
       - Carry out MIG welding for lap joint

     - Set C:

       - Carry out arc welding for tee joint
       - Prepare tee joint with mild steel strips using brazing technique
       - Carry out TIG welding for tee joint
       - Carry out MIG welding for tee joint

   - provide the candidate with the copy of the specific instruction to candidate
   - allow each practical demonstration to be performed within two (2) hours including preparation of the materials
   - ensure that the candidate **FULLY** understands the instructions before proceeding to the performance of the assessment activity
   - allow fifteen (15) minutes for the candidate to familiarise themselves with the resources to be used during the practical demonstrations
   - ensure that the candidate is wearing appropriate personal protective equipment (PPE) before allowing them to proceed with the assessment activity

2. Assessment shall be based on the performance criteria in each of the units of competency. The evidence gathering method shall be comprised of:

   (a) Written Test (1 hour) – **knowledge evidence**

   (b) Practical Demonstration (8 hours) – **performance evidence**

   The welding practical demonstration activities will be divided into four (4) tasks (contained in one set):

   (i) Practical Demonstration 1 (2 hours)
   (ii) Practical Demonstration 2 (2 hours)
   (iii) Practical Demonstration 3 (2 hours)
   (iv) Practical Demonstration 4 (2 hours)

3. Final assessment is your responsibility as the accredited/certified assessor.

4. At the conclusion of each assessment activity, you will provide feedback to the candidate of the assessment result. The feedback will indicate whether the candidate is:

❑ **COMPETENT**

❑ **NOT YET COMPETENT**

5. The list of tools, equipment, machinery and materials to be provided for completion of the practical demonstration assessment activities can be found at:

- Set A – Practical Demonstration 1: page 47
- Set A – Practical Demonstration 2: page 52
- Set A – Practical Demonstration 3: page 57
- Set A – Practical Demonstration 4: page 62
- Set B – Practical Demonstration 1: page 67
- Set B – Practical Demonstration 2: page 72
- Set B – Practical Demonstration 3: page 77
- Set B – Practical Demonstration 4: page 82
- Set C – Practical Demonstration 1: page 87
- Set C – Practical Demonstration 2: page 92
- Set C – Practical Demonstration 3: page 97
- Set C – Practical Demonstration 4: page 102

Specific Instructions to Candidate

You should respond to the assessment either in writing or verbally as agreed with the assessor. Written responses can be recorded in the spaces provided; if more space is required attach additional pages) or submit a word-processed document.

If you answer verbally, the assessor should record your answers in detail. Please check your recorded answers carefully and thoroughly to ensure that they are accurate.

You may also be undertaking observable activities (i.e. practical demonstration) that provide evidence of performance. The assessor must provide you with clear instructions on what is expected during this type of assessment and arrange a suitable time and location for demonstration of these skills.

To receive a satisfactory result for the assessments, you must complete all of the assessment activities; including questions, projects and tasks nominated by the assessor, to the required standard.

This assessment is based upon the units of competency in Welding. Using the performance criteria as a benchmark, evidence will be gathered through:

1. Written Test (1 hour) – a variety of multiple-choice, true of false and short answer theory questions to support your competence with regard to the required knowledge (**knowledge evidence**).

2. Practical Demonstration (8 hours) – observable tasks outlined in the elements and performance criteria of the units of competency, completed to support a judgement of satisfactory performance to the required standard (**performance evidence**).

   There will be one (1) set of practical demonstration activities to complete. The assessor will direct you as to which 'set' you will be required to complete out of the following:

   - Set A:
     - Carry out arc welding for butt joint (2 hours)
     - Prepare butt joint with mild steel strips using brazing technique (2 hours)
     - Carry out TIG welding for butt joint (2 hours)
     - Carry out MIG welding for butt joint (2 hours)
   - Set B:
     - Carry out arc welding for lap joint (2 hours)
     - Prepare scarfed joint with mild steel strips using brazing technique (2 hours)
     - Carry out TIG welding for lap joint (2 hours)
     - Carry out MIG welding for lap joint (2 hours)
   - Set C:
     - Carry out arc welding for tee joint (2 hours)
     - Prepare tee joint with mild steel strips using brazing technique (2 hours)
     - Carry out TIG welding for tee joint (2 hours)
     - Carry out MIG welding for tee joint (2 hours)

3. The assessor will provide all necessary tools, equipment, machinery and materials required to complete each assessment activity.

4. These assessments cover all units of competency for Welding.

5. The assessor will provide you with feedback of your performance after completion of each assessment activity. This feedback shall indicate whether you are:

   ❑ **COMPETENT**

   ❑ **NOT YET COMPETENT**

6. Complete of all assessment activities, to a satisfactory level, will contribute to a final assessment of competence.

Written Test

WRITTEN TEST - INSTRUCTIONS	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Unit of Competency	
Generic Competencies	
SEIP-LE-WEL-01-G	Use basic mathematical concepts
SEIP-LE-WEL-02-G	Carry out workplace interaction
SEIP-LE-WEL-03-G	Operate in a team environment
SEIP-LE-WEL-04-G	Apply basic IT skills
Sector-specific Competencies	
SEIP-LE-WEL-01-S	Apply occupational health and safety (OHS) practice in the workplace
SEIP-LE-WEL-02-S	Read and interpret sketches and drawings
SEIP-LE-WEL-03-S	Use hand and power tools
SEIP-LE-WEL-04-S	Apply quality system
Occupation-specific Competencies	
SEIP-LE-WEL-01-O	Apply fundamentals of welding metallurgy
SEIP-LE-WEL-02-O	Carry out shielded metal arc welding
SEIP-LE-WEL-03-O	Perform gas welding, gas cutting, brazing and soldering
SEIP-LE-WEL-04-O	Carry out gas tungsten arc welding
SEIP-LE-WEL-05-O	Carry out gas metal arc welding
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	
Instructions:	
Read and understand the directions carefully: ▪ this written examination is based on the performance criteria from all the units of competency in Welding ▪ this assessment activity will be used to measure your underpinning knowledge ▪ write your answers on the paper provided ▪ answer all the questions as best as possible ▪ you have 1 (one) hour to complete this test	

WRITTEN TEST		
Multiple Choice		
This is a **multiple-choice** of test. Choose the appropriate answer and circle the letter that corresponds with your answer.		
1.	Which flame is suitable for welding of ferrous metals, Cu and Al alloys?	a. Oxidising b. Carburising c. Neutral d. None of the above
2.	Which flame is suitable for cutting operations?	a. Oxidising b. Carburising c. Neutral d. None of the above
3.	The temperature of a welding arc is?	a. 2000°C b. 2600°C c. 3000°C d. 3600°C
4.	How many grams of raw materials do you have in 25,000 kilograms?	a. 250,000,000 b. 250,000 c. 2,500,000 d. 25,000,000
5.	Which of the following gas mixtures is not used in gas tungsten arc welding (TIG)?	a. Argon-helium b. Argon-nitrogen c. Argon-hydrogen d. Argon-carbon dioxide
6.	In the arc welding process, the high-quality alternator functions at what frequency?	a. 250 Hz b. 300 Hz c. 350 Hz d. 400 Hz
7.	The distance from the centre of the arc to the tip of the electrode is called?	a. Distance b. Length c. Crater d. Depth
8.	A gap of _____ is maintained for producing sound weld	a. 1 mm b. 3 mm c. 5 mm d. 7 mm
9.	_____ is the length of the arc generally.	a. 1mm – 2mm b. 2mm – 3mm c. 3mm – 4mm d. 4mm – 5mm

10.	TIG welding is best suited for what type of welding?	a. Mild welding b. Stainless steel c. Carbon steel d. Aluminium
True or False Quiz		
Tick (√) the box corresponding to the correct answer.		
11.	Low carbon steels need not be pre-heated before welding.	True ☐ False ☐
12.	Carbon steels can be fusion welded.	True ☐ False ☐
13.	In gas welding, the joint can be made even much stronger than the original.	True ☐ False ☐
Fill in the Missing Blanks		
Write the word or group of words needed to complete the following sentences.		
14.	Arc-welding uses _____ electric supply.	
15.	Distortion in welding occurs due to _____.	
Short Answer		
Write a short answer in the space provided (not to exceed more than approximately twenty-five (25) words).		
16.	What service temperature can most brazing alloys withstand?	
17.	What is the function of a gas welding torch?	
18.	Arc welding uses a coated electrode. What is the purpose of this coating?	
19.	What, in general, are the common hazards associated with welding?	

20.	Why is pre-heating done on some pipes before starting welding?	
Feedback to candidate:		
Assessment decision for this assessment activity: ☐ **Competent** ☐ **Not Yet Competent**		

Candidate Signature:		**Date:**	
Assessor Signature:		**Date:**	

Written Test - Answers

Answers are highlighted in **bold** and *italics*.

Multiple Choice		
1.	Which flame is suitable for welding of ferrous metals, Cu and Al alloys?	a. Oxidising b. Carburising c. ***Neutral*** d. None of the above
2.	Which flame is suitable for cutting operations?	*a.* ***Oxidising*** *b.* Carburising *c.* Neutral *d.* None of the above
3.	The temperature of a welding arc is?	a. 2000°C b. 2600°C c. 3000°C d. ***3600°C***
4.	How many grams of raw materials do you have in 25,000 kilograms?	a. 250,000,000 b. 250,000 c. 2,500,000 d. ***25,000,000***
5.	Which of the following gas mixtures is not used in gas tungsten arc welding (TIG)?	a. Argon-helium b. ***Argon-nitrogen*** c. Argon-hydrogen d. Argon-carbon dioxide
6.	In the arc welding process, the high-quality alternator functions at what frequency?	a. 250 Hz b. 300 Hz c. 350 Hz d. ***400 Hz***
7.	The distance from the centre of the arc to the tip of the electrode is called?	a. Arc distance b. ***Arc length*** c. Arc crater d. Arc depth
8.	A gap of _____ is maintained for producing sound weld	a. 1 mm b. ***3 mm*** c. 5 mm d. 7 mm
9.	_____ is the length of the arc generally.	a. 1mm – 2mm b. 2mm – 3mm c. ***3mm – 4mm*** d. 4mm – 5mm
10.	TIG welding is best suited for what type of welding?	a. Mild welding b. Stainless steel

		c. Carbon steel d. ***Aluminium***
True or False Quiz		
11.	Low carbon steels need not be pre-heated before welding.	***True*** √ False ☐
12.	Carbon steels can be fusion welded.	*True* ☐ ***False*** √
13.	In gas welding, the joint can be made even much stronger than the original.	***True*** √ False ☐
Fill in the Missing Blanks		
14.	Arc-welding uses ***both AC and DC*** electric supply.	
15.	Distortion in welding occurs due to ***improper clamping methods***.	
Short Answer		
16.	What service temperature can most brazing alloys withstand?	***The melting range for a brazing alloy is defined by the minimum temperature at which the alloy will start to melt ("solidus") and the temperature at which the alloy is 100% liquid (liquidus). For most purposes, the actual brazing temperature is 50°F to 200°F (30°C to 110°C) above the liquidus.***
17.	What is the function of a gas welding torch?	***In gas welding, a welding torch is mainly used for mixing oxygen and acetylene in the desired proportions. It is also used for burning the mixture at the end of the tip, and also provides a mean for moving and directing the flame front. Welding torch can be of high-pressure type or low-pressure type.***
18.	Arc welding uses a coated electrode. What is the purpose of this coating?	***The electrode is coated in a metal mixture called flux, which gives off gases as it decomposes to prevent weld contamination, introduces deoxidizers to purify the weld, causes weld-protecting slag to form, improves the arc stability, and provides alloying elements to improve the weld quality.***
19.	What, in general, are the common hazards associated with welding?	***Health hazards associated with welding, cutting, and brazing operations include exposures to metal fumes and to ultraviolet (UV) radiation. Safety hazards associated with these processes include burns, eye damage, electrical shock, cuts, and injury to toes and fingers. Many of these hazards can be controlled with engineering controls, work practices and personal protective equipment (PPE).***
20.	Why is pre-heating done on some pipes before starting welding?	➢ ***It slows the cooling rate in the weld metal and base metal, producing a more ductile metallurgical structure with greater resistance to cracking;*** ➢ ***The slower cooling rate provides an***

		opportunity for hydrogen that may be present to diffuse out harmlessly, reducing the potential for cracking; ➢ ***It reduces the shrinkage stresses in the weld and adjacent base metal, which is especially important in highly restrained joints; and*** ➢ ***It raises some steels above the temperature at which brittle fracture would occur in fabrication***

Set A: Practical Demonstration 1

PRACTICAL DEMONSTRATION 1	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Carry out arc welding for butt joint
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	

Instructions:

Read and understand the directions carefully:

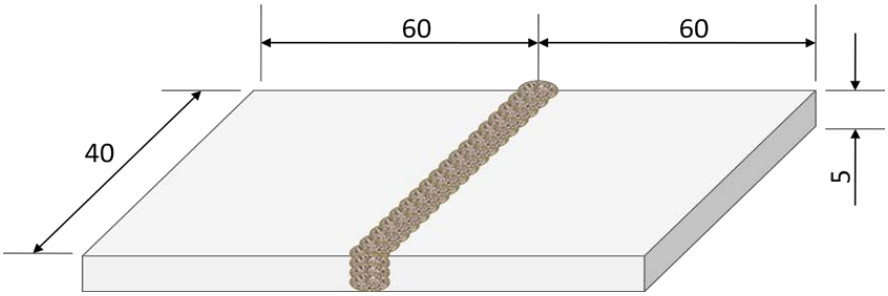
- this practical demonstration is based on the performance criteria from all or some of the units of competency in Welding
- this assessment activity will be used to measure your underpinning skills
- you will have fifteen (15) minutes to familiarise yourself with the resources to be used
- you have two (2) hours to complete this demonstration

Procedure:

- observe and wear personal protective equipment (PPE) as required for the task to be performed
- read the job specification information provided
- collect all materials needed to complete the task
- perform the task within the given time
- observe and follow all health and safety (OHS) requirements at all times

Job Specification Information:

1. Identify, read and interpret job specifications, drawings and other workplace documents.
2. Identify and collect required tools, equipment and materials for task.
3. Inspect worksite for hazards and implement appropriate controls (if necessary).
4. Identify and collect appropriate PPE.
5. Calculate quantity of materials required as per job specification.
6. Perform measurements and calculations as per job specifications.
7. Inspect and check tools and equipment.
8. Inspect and check materials.
9. Identify quality/performance standard of work to be performed.
10. Set up work area and bench in accordance with job specifications.
11. Clean mild steel flats to be joined by wire brush.
12. Arrange flat pieces providing gap for full penetration for butt joint (gap ½ thickness of flats).
13. Set welding current and voltage.
14. Strike the arc and make tacks at the both ends to hold the metal pieces together.
15. Lay beads along joint maintaining proper speed and arc length (speed 100-150 mm/min).
16. Carry out welding as per job specifications.
17. Clean welded zone.
18. Clean, maintain and store tools and equipment.

19. Clean workplace and dispose of waste materials.	
Drawing, Plan, Diagram or Sketch:	
 *All dimensions are in mm*	
Resources Required:	
Tools:	Wire brush Tongs
Equipment:	Welding unit
Machinery:	N/A
Materials:	Mild steel (AISI 1040 steel) Mild steel flats (140 x 25 x 5 mm) Consumable mild steel wire Protecting gas
PPE:	Apron Mask Gloves Safety shoes Safety goggles

Set A: Practical Demonstration 1 – Observation Checklist

PRACTICAL DEMONSTRATION 1 – OBSERVATION CHECKLIST	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Carry out arc welding for butt joint
Assessment Centre:	
Date of Assessment:	
Instructions:	The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate. Performance can be observed in an actual workplace or in a simulated working environment. If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject. The assessment activity (practical demonstration) should: ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate

OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	**No**
Workplace documents are interpreted correctly.	☐	☐
Accessed specific and relevant information form appropriate sources.	☐	☐
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	☐	☐
Common safety issues are identified.	☐	☐
Hazards and risks are identified.	☐	☐
Hazards and risks assessment and controls are interpreted.	☐	☐
Identified and followed safety signs and symbols.	☐	☐
Identified, selected and prepared hand and power tools.	☐	☐
Calculated amount of materials required.	☐	☐
Selected and collected job materials in accordance with job requirements.	☐	☐
Read and interpreted drawings and job specifications.	☐	☐
Determined application of tools to job requirements.	☐	☐
Identified welding joint, position and process as per job	☐	☐

requirement.		
Set welding current and voltage.	☐	☐
Maintained correct gap between flat pieces.	☐	☐
Maintained proper arc speed and length.	☐	☐
Carried out welding as per standard operating procedure.	☐	☐
Performed butt joint weld as per job specifications.	☐	☐
Cleaned and checked weld for quality and identified defects.	☐	☐
Used appropriate hand and power tools for the job.	☐	☐
Checked and measured work piece in conformance to job specification.	☐	☐
Tools and equipment are cleaned, maintained and stored.	☐	☐
Defects are detected and reported according to standard operating procedure.	☐	☐
Workplace is cleaned and waste material disposed of.	☐	☐
Instructions and procedures are strictly followed in accordance with quality improvement system.	☐	☐
Performance is assessed at regular intervals.	☐	☐
Responsibility is taken for quality of own work.	☐	☐
Conformance to specification is ensured in every case at all situations.	☐	☐
Appropriate lines of communication are maintained with supervisors and colleagues.	☐	☐
Workplace interactions are conducted in courteous manner to gather and convey information.	☐	☐
Used appropriate medium to transfer information and ideas.	☐	☐
Responsibilities as a team member are performed.	☐	☐
Tasks are performed in accordance with workplace procedures.	☐	☐
Other teammates' tasks are identified and provided support.	☐	☐
Active participation is ensured, opinions are expressed and heard.	☐	☐
Inputs are provided and interpreted in line with the meeting purpose.	☐	☐
Confidentiality is maintained.	☐	☐
Inappropriate and conflicting situations are avoided.	☐	☐
The team is encouraged through sharing information or expertise, working together to solve problems, and putting team success first.	☐	☐
Feedback to candidate:		

Assessment decision for this assessment activity: ☐ **Competent** ☐ **Not Yet Competent**			
Candidate Signature:		**Date:**	
Assessor Signature:		**Date:**	

Set A: Practical Demonstration 2

PRACTICAL DEMONSTRATION 2	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Prepare butt joint with mild steel strips using brazing technique
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	

Instructions:

Read and understand the directions carefully:

- this practical demonstration is based on the performance criteria from all or some of the units of competency in Welding
- this assessment activity will be used to measure your underpinning skills
- you will have fifteen (15) minutes to familiarise yourself with the resources to be used
- you have one (2) hours to complete this demonstration

Procedure:

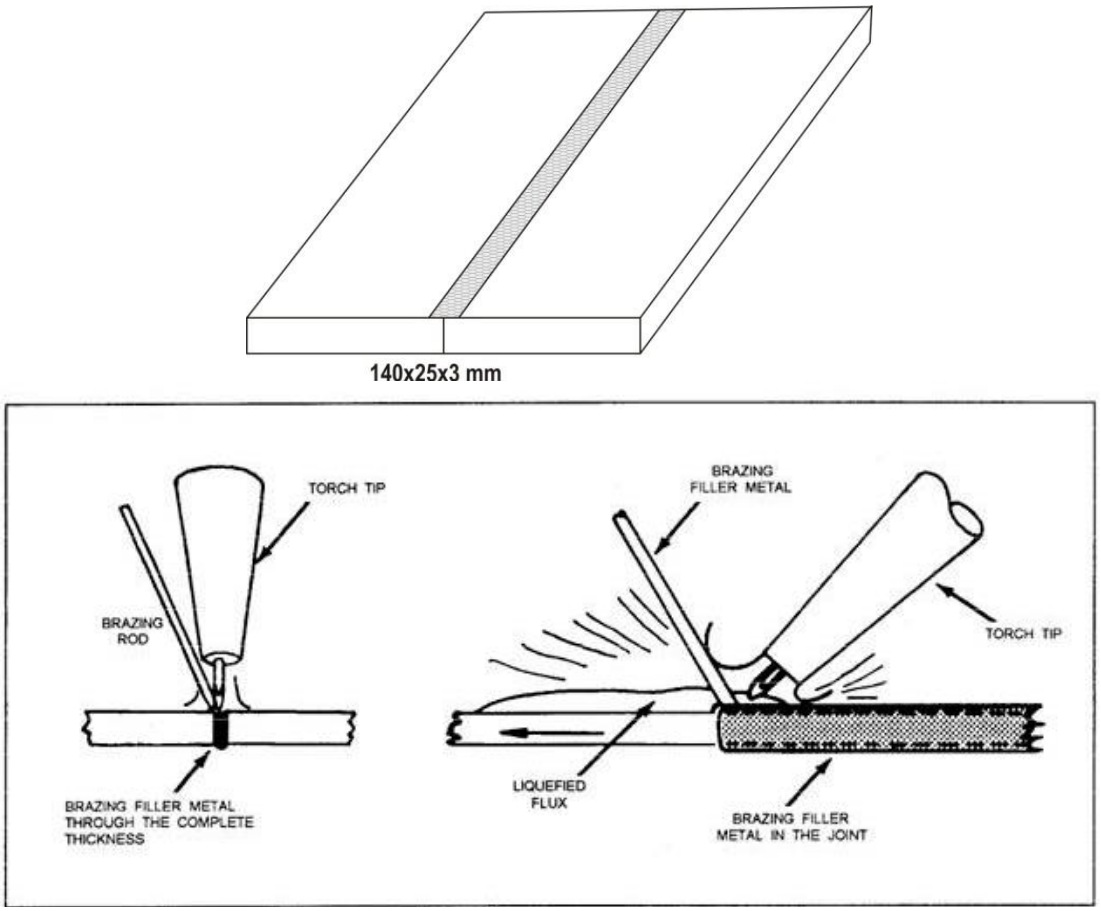
- observe and wear personal protective equipment (PPE) as required for the task to be performed
- read the specification information provided
- collect all materials needed to complete the task
- perform the task within the given time
- observe and follow all health and safety (OHS) requirements at all times

Job Specification Information:

1. Identify, read and interpret job specifications, drawings and other workplace documents.
2. Identify and collect required tools, equipment and materials for the task.
3. Inspect worksite for hazards and implement appropriate controls (if necessary).
4. Identify and collect appropriate PPE.
5. Inspect and check tools and equipment.
6. Calculate quantity of materials required as per job specification.
7. Inspect and check materials as per job specification.
8. Identify and confirm quality requirements.
9. Clean mild steel strip removing the oxide layer and flatten it.
10. Carry out gas cutting of mild steel strip as per job specifications.
11. Identify cutting defects and take corrective action (if needed).
12. Clean and remove slag on cut ends.
13. Keep the metal strip in butt position.
14. Tack at the two ends.
15. Lay brazing metal at joint maintaining proper speed and feed.
16. Carry out brazing as per job requirements.
17. Perform soldering as per standard operating procedure.
18. Clean and check joint for quality and defects.

19. Rectify any identified defects.
20. Clean, maintain and store tools and equipment.
21. Clean workplace and dispose of waste materials.

Drawing, Plan, Diagram or Sketch:



Resources Required:

Tools:	Wire brush Tongs
Equipment:	Gas welding set
Machinery:	N/A
Materials:	Mild steel strips (140 x 25 x 3 mm) Brazing wire Fluxes
PPE:	Apron Mask Gloves Safety shoes Safety goggles

Set A: Practical Demonstration 2 – Observation Checklist

PRACTICAL DEMONSTRATION 2 – OBSERVATION CHECKLIST	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Prepare butt joint with mild steel strips using brazing technique
Assessment Centre:	
Date of Assessment:	
Instructions:	The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate. Performance can be observed in an actual workplace or in a simulated working environment. If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject. The assessment activity (practical demonstration) should: ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate

OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	**No**
Workplace documents are interpreted correctly.	☐	☐
Accessed specific and relevant information form appropriate sources.	☐	☐
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	☐	☐
Common safety issues are identified.	☐	☐
Hazards and risks are identified.	☐	☐
Hazards and risks assessment and controls are interpreted.	☐	☐
Identified and followed safety signs and symbols.	☐	☐
Identified, selected and prepared hand and power tools.	☐	☐
Calculated amount of materials required.	☐	☐
Selected and collected job materials in accordance with job requirements.	☐	☐
Determined application of tools to job requirements.	☐	☐
Identified welding joint, position and process as per job requirement.	☐	☐

Carried out gas cutting as per standard operating procedure.	☐	☐
Identified cutting defects and took corrective action.	☐	☐
Clean and removed slag from cut ends.	☐	☐
Set flame on welding torch as per brazing requirements.	☐	☐
Used appropriate brazing flux and filler rods.	☐	☐
Performed brazing as per job specifications.	☐	☐
Cleaned and checked brazed surface for quality and identified defects.	☐	☐
Carried out soldering as per standard operating procedure.	☐	☐
Cleaned and checked soldered surface for quality and identified defects.	☐	☐
Used appropriate hand and power tools for the job.	☐	☐
Checked and measured work piece in conformance to job specification.	☐	☐
Tools and equipment are cleaned, maintained and stored.	☐	☐
Defects are detected and reported according to standard operating procedure.	☐	☐
Workplace is cleaned and waste material disposed of.	☐	☐
Instructions and procedures are strictly followed in accordance with quality improvement system.	☐	☐
Performance is assessed at regular intervals.	☐	☐
Responsibility is taken for quality of own work.	☐	☐
Conformance to specification is ensured in every case at all situations.	☐	☐
Appropriate lines of communication are maintained with supervisors and colleagues.	☐	☐
Workplace interactions are conducted in courteous manner to gather and convey information.	☐	☐
Used appropriate medium to transfer information and ideas.	☐	☐
Responsibilities as a team member are performed.	☐	☐
Tasks are performed in accordance with workplace procedures.	☐	☐
Other teammates' tasks are identified and provided support.	☐	☐
Active participation is ensured, opinions are expressed and heard.	☐	☐
Inputs are provided and interpreted in line with the meeting purpose.	☐	☐
Confidentiality is maintained.	☐	☐
Inappropriate and conflicting situations are avoided.	☐	☐
The team is encouraged through sharing information or expertise, working together to solve problems, and putting team success first.	☐	☐
Feedback to candidate:		

Assessment decision for this assessment activity: ☐ **Competent** ☐ **Not Yet Competent**			
Candidate Signature:		**Date:**	
Assessor Signature:		**Date:**	

Set A: Practical Demonstration 3

PRACTICAL DEMONSTRATION 3	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Carry out TIG welding for butt joint
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	

Instructions:

Read and understand the directions carefully:

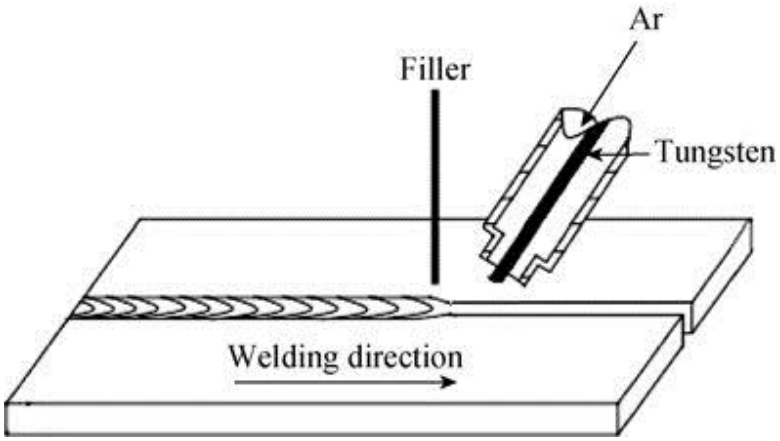
- this practical demonstration is based on the performance criteria from all or some of the units of competency in Welding
- this assessment activity will be used to measure your underpinning skills
- you will have fifteen (15) minutes to familiarise yourself with the resources to be used
- you have two (2) hours to complete this demonstration

Procedure:

- observe and wear personal protective equipment (PPE) as required for the task to be performed
- read the specification information provided
- collect all materials needed to complete the task
- perform the task within the given time
- observe and follow all health and safety (OHS) requirements at all times

Job Specification Information:

1. Identify, read and interpret job specifications, drawings and other workplace documents.
2. Identify and collect required tools, equipment and materials for the task.
3. Inspect worksite for hazards and implement appropriate controls (if necessary).
4. Identify and collect appropriate PPE.
5. Inspect and check tools and equipment.
6. Calculate quantity of materials required as per job specification.
7. Inspect and check materials as per job specification.
8. Identify and confirm quality requirements.
9. Clean mild steel flats to be joined with wire brush.
10. Arrange flat pieces providing gap for full penetration for butt joint (gap ½ thickness of flats).
11. Choose correct wire gage based on type of material and thickness of weld.
12. Set wire speed and thickness dials to appropriate settings.
13. Turn on TIG welder.
14. Open valve to form an inert gas shield.
15. Ground welder to table using clamp.
16. Turn ventilation fan on.
17. Carry out TIG welding.
18. Clean, maintain and store tools and equipment.
19. Clean workplace and dispose of waste materials.

Drawing, Plan, Diagram or Sketch:	
	
Resources Required:	
Tools:	Wire brush Tongs
Equipment:	TIG welding unit
Machinery:	N/A
Materials:	Mild steel (AISI 1040 steel) Mild steel flats Consumable mild steel wire Protecting gas
PPE:	Apron Mask Gloves Safety shoes Safety goggles

Set A: Practical Demonstration 3 – Observation Checklist

PRACTICAL DEMONSTRATION 3 – OBSERVATION CHECKLIST	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Carry out TIG welding for butt joint
Assessment Centre:	
Date of Assessment:	
Instructions:	The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate. Performance can be observed in an actual workplace or in a simulated working environment. If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject. The assessment activity (practical demonstration) should: ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate

OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	**No**
Workplace documents are interpreted correctly.	☐	☐
Accessed specific and relevant information form appropriate sources.	☐	☐
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	☐	☐
Common safety issues are identified.	☐	☐
Hazards and risks are identified.	☐	☐
Hazards and risks assessment and controls are interpreted.	☐	☐
Identified and followed safety signs and symbols.	☐	☐
Identified, selected and prepared hand and power tools.	☐	☐
Base metals/plate, filler metal, tungsten electrodes and shielding gas are selected according to job requirements.	☐	☐
Calculated amount of materials required.	☐	☐
Selected and collected job materials in accordance with job requirements.	☐	☐
Read and interpreted drawings and job specifications.	☐	☐

Determined application of tools to job requirements.	☐	☐
Identified welding joint, position and process as per job requirement.	☐	☐
Prepared base metals and GTAW weld area.	☐	☐
Set-up welding equipment and holding devices as per job requirements	☐	☐
Performed routine maintenance (if required).	☐	☐
Set amperage and gas flow according to weld plate thickness and gas flow cup sizes.	☐	☐
Carried out TIG welding machine operation as per standard operating procedure.	☐	☐
Cleaned and checked weld for quality and identified defects.	☐	☐
Defects are rectified according to standard operating procedure.	☐	☐
Used appropriate hand and power tools for the job.	☐	☐
Checked and measured work piece in conformance to job specification.	☐	☐
Tools and equipment are cleaned, maintained and stored.	☐	☐
Workplace is cleaned and waste material disposed of.	☐	☐
Instructions and procedures are strictly followed in accordance with quality improvement system.	☐	☐
Performance is assessed at regular intervals.	☐	☐
Responsibility is taken for quality of own work.	☐	☐
Conformance to specification is ensured in every case at all situations.	☐	☐
Appropriate lines of communication are maintained with supervisors and colleagues.	☐	☐
Workplace interactions are conducted in courteous manner to gather and convey information.	☐	☐
Used appropriate medium to transfer information and ideas.	☐	☐
Responsibilities as a team member are performed.	☐	☐
Tasks are performed in accordance with workplace procedures.	☐	☐
Other teammates' tasks are identified and provided support.	☐	☐
Active participation is ensured, opinions are expressed and heard.	☐	☐
Inputs are provided and interpreted in line with the meeting purpose.	☐	☐
Confidentiality is maintained.	☐	☐
Inappropriate and conflicting situations are avoided.	☐	☐
The team is encouraged through sharing information or expertise, working together to solve problems, and putting team success first.	☐	☐
Feedback to candidate:		

Assessment decision for this assessment activity: ☐ **Competent** ☐ **Not Yet Competent**			
Candidate Signature:		**Date:**	
Assessor Signature:		**Date:**	

Set A: Practical Demonstration 4

PRACTICAL DEMONSTRATION 4	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Carry out MIG welding for butt joint
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	

Instructions:

Read and understand the directions carefully:

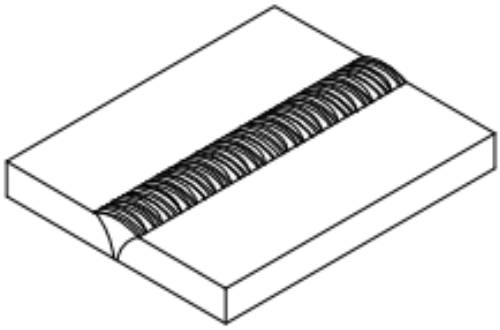
- this practical demonstration is based on the performance criteria from all or some of the units of competency in Welding
- this assessment activity will be used to measure your underpinning skills
- you will have fifteen (15) minutes to familiarise yourself with the resources to be used
- you have two (2) hours to complete this demonstration

Procedure:

- observe and wear personal protective equipment (PPE) as required for the task to be performed
- read the specification information provided
- collect all materials needed to complete the task
- perform the task within the given time
- observe and follow all health and safety (OHS) requirements at all times

Job Specification Information:

1. Identify, read and interpret job specifications, drawings and other workplace documents.
2. Identify and collect required tools, equipment and materials for the task.
3. Inspect worksite for hazards and implement appropriate controls (if necessary).
4. Identify and collect appropriate PPE.
5. Inspect and check tools and equipment.
6. Calculate quantity of materials required as per job specification.
7. Inspect and check materials as per job specification.
8. Identify and confirm quality requirements.
9. Clean mild steel flats to be joined with wire brush.
10. Arrange flat pieces providing gap for full penetration for butt joint (gap ½ thickness of flats).
11. Choose correct wire gage based on type of material and thickness of weld.
12. Set wire speed and thickness dials to appropriate settings.
13. Turn on MIG welder.
14. Open valve to form an inert gas shield.
15. Ground welder to table using clamp.
16. Turn ventilation fan on.
17. Carry out MIG welding.
18. Clean, maintain and store tools and equipment.

19. Clean workplace and dispose of waste materials.	
Drawing, Plan, Diagram or Sketch:	
	
Resources Required:	
Tools:	Wire brush Tongs
Equipment:	MIG welding unit
Machinery:	N/A
Materials:	Mild steel (AISI 1040 steel) Mild steel flats Consumable mild steel wire Gas
PPE:	Apron Mask Gloves Safety shoes Safety goggles

Set A: Practical Demonstration 4 – Observation Checklist

PRACTICAL DEMONSTRATION 4 – OBSERVATION CHECKLIST	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Carry out MIG welding for butt joint
Assessment Centre:	
Date of Assessment:	
Instructions:	The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate. Performance can be observed in an actual workplace or in a simulated working environment. If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject. The assessment activity (practical demonstration) should: ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate

OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	**No**
Workplace documents are interpreted correctly.	☐	☐
Accessed specific and relevant information form appropriate sources.	☐	☐
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	☐	☐
Common safety issues are identified.	☐	☐
Hazards and risks are identified.	☐	☐
Hazards and risks assessment and controls are interpreted.	☐	☐
Identified and followed safety signs and symbols.	☐	☐
Identified, selected and prepared hand and power tools.	☐	☐
Base metals/plate, wire electrode sizes shielding gas are selected according to job requirements.	☐	☐
Calculated amount of materials required.	☐	☐
Selected and collected job materials in accordance with job requirements.	☐	☐
Read and interpreted drawings and job specifications.	☐	☐

Determined application of tools to job requirements.	☐	☐
Identified welding joint, position and process as per job requirement.	☐	☐
Prepared base metals and GMAW weld area.	☐	☐
Set-up welding equipment and holding devices as per job requirements	☐	☐
Performed routine maintenance (if required).	☐	☐
Set amperage and gas flow according to weld plate thickness and gas flow cup sizes.	☐	☐
Carried out MIG welding machine operation as per standard operating procedure.	☐	☐
Cleaned and checked weld for quality and identified defects.	☐	☐
Defects are rectified according to standard operating procedure.	☐	☐
Used appropriate hand and power tools for the job.	☐	☐
Checked and measured work piece in conformance to job specification.	☐	☐
Tools and equipment are cleaned, maintained and stored.	☐	☐
Workplace is cleaned and waste material disposed of.	☐	☐
Instructions and procedures are strictly followed in accordance with quality improvement system.	☐	☐
Performance is assessed at regular intervals.	☐	☐
Responsibility is taken for quality of own work.	☐	☐
Conformance to specification is ensured in every case at all situations.	☐	☐
Appropriate lines of communication are maintained with supervisors and colleagues.	☐	☐
Workplace interactions are conducted in courteous manner to gather and convey information.	☐	☐
Used appropriate medium to transfer information and ideas.	☐	☐
Responsibilities as a team member are performed.	☐	☐
Tasks are performed in accordance with workplace procedures.	☐	☐
Other teammates' tasks are identified and provided support.	☐	☐
Active participation is ensured, opinions are expressed and heard.	☐	☐
Inputs are provided and interpreted in line with the meeting purpose.	☐	☐
Confidentiality is maintained.	☐	☐
Inappropriate and conflicting situations are avoided.	☐	☐
The team is encouraged through sharing information or expertise, working together to solve problems, and putting team success first.	☐	☐
Feedback to candidate:		

Assessment decision for this assessment activity: ☐ **Competent** ☐ **Not Yet Competent**			
Candidate Signature:		**Date:**	
Assessor Signature:		**Date:**	

Set B: Practical Demonstration 1

PRACTICAL DEMONSTRATION 1	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Carry out arc welding for lap joint
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	

Instructions:

Read and understand the directions carefully:

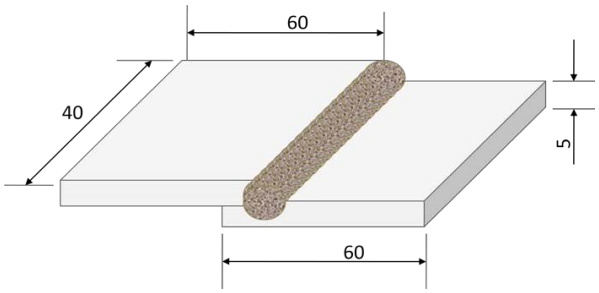
- this practical demonstration is based on the performance criteria from all or some of the units of competency in Welding
- this assessment activity will be used to measure your underpinning skills
- you will have fifteen (15) minutes to familiarise yourself with the resources to be used
- you have two (2) hours to complete this demonstration

Procedure:

- observe and wear personal protective equipment (PPE) as required for the task to be performed
- read the specification information provided
- collect all materials needed to complete the task
- perform the task within the given time
- observe and follow all health and safety (OHS) requirements at all times

Job Specification Information:

1. Identify, read and interpret job specifications, drawings and other workplace documents.
2. Identify and collect required tools, equipment and materials for task.
3. Inspect worksite for hazards and implement appropriate controls (if necessary).
4. Identify and collect appropriate PPE.
5. Calculate quantity of materials required as per job specification.
6. Perform measurements and calculations as per job specifications.
7. Inspect and check tools and equipment.
8. Inspect and check materials.
9. Identify quality/performance standard of work to be performed.
10. Set up work area and bench in accordance with job specifications.
11. Clean mild steel flats to be joined by wire brush.
12. Arrange flat pieces providing gap for full penetration for lap joint (gap ½ thickness of flats).
13. Set welding current and voltage.
14. Strike the arc and make tacks at the both ends to hold the metal pieces together.
15. Lay beads along joint maintaining proper speed and arc length (speed 100-150 mm/min).
16. Carry out welding as per job specifications.
17. Clean welded zone.
18. Clean, maintain and store tools and equipment.

19. Clean workplace and dispose of waste materials.	
Drawing, Plan, Diagram or Sketch:	
 *All dimensions are in mm*	
Resources Required:	
Tools:	Wire brush Tongs
Equipment:	Welding unit
Machinery:	N/A
Materials:	Mild steel (AISI 1040 steel) Mild steel flats (60 x 40 x 5 mm) Consumable mild steel wire Protecting gas
PPE:	Apron Mask Gloves Safety shoes Safety goggles

Set B: Practical Demonstration 1 – Observation Checklist

PRACTICAL DEMONSTRATION 1 – OBSERVATION CHECKLIST	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Carry out arc welding for lap joint
Assessment Centre:	
Date of Assessment:	
Instructions:	The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate. Performance can be observed in an actual workplace or in a simulated working environment. If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject. The assessment activity (practical demonstration) should: ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate

OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	**No**
Workplace documents are interpreted correctly.	☐	☐
Accessed specific and relevant information form appropriate sources.	☐	☐
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	☐	☐
Common safety issues are identified.	☐	☐
Hazards and risks are identified.	☐	☐
Hazards and risks assessment and controls are interpreted.	☐	☐
Identified and followed safety signs and symbols.	☐	☐
Identified, selected and prepared hand and power tools.	☐	☐
Calculated amount of materials required.	☐	☐
Selected and collected job materials in accordance with job requirements.	☐	☐
Read and interpreted drawings and job specifications.	☐	☐
Determined application of tools to job requirements.	☐	☐
Identified welding joint, position and process as per job	☐	☐

requirement.		
Set welding current and voltage.	☐	☐
Maintained correct gap between flat pieces.	☐	☐
Maintained proper arc speed and length.	☐	☐
Carried out welding as per standard operating procedure.	☐	☐
Performed butt joint weld as per job specifications.	☐	☐
Cleaned and checked weld for quality and identified defects.	☐	☐
Used appropriate hand and power tools for the job.	☐	☐
Checked and measured work piece in conformance to job specification.	☐	☐
Tools and equipment are cleaned, maintained and stored.	☐	☐
Defects are detected and reported according to standard operating procedure.	☐	☐
Workplace is cleaned and waste material disposed of.	☐	☐
Instructions and procedures are strictly followed in accordance with quality improvement system.	☐	☐
Performance is assessed at regular intervals.	☐	☐
Responsibility is taken for quality of own work.	☐	☐
Conformance to specification is ensured in every case at all situations.	☐	☐
Appropriate lines of communication are maintained with supervisors and colleagues.	☐	☐
Workplace interactions are conducted in courteous manner to gather and convey information.	☐	☐
Used appropriate medium to transfer information and ideas.	☐	☐
Responsibilities as a team member are performed.	☐	☐
Tasks are performed in accordance with workplace procedures.	☐	☐
Other teammates' tasks are identified and provided support.	☐	☐
Active participation is ensured, opinions are expressed and heard.	☐	☐
Inputs are provided and interpreted in line with the meeting purpose.	☐	☐
Confidentiality is maintained.	☐	☐
Inappropriate and conflicting situations are avoided.	☐	☐
The team is encouraged through sharing information or expertise, working together to solve problems, and putting team success first.	☐	☐
Feedback to candidate:		

Assessment decision for this assessment activity: ☐ **Competent** ☐ **Not Yet Competent**			
Candidate Signature:		**Date:**	
Assessor Signature:		**Date:**	

Set B: Practical Demonstration 2

PRACTICAL DEMONSTRATION 2	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Prepare scarfed joint with mild steel strips using brazing technique
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	

Instructions:

Read and understand the directions carefully:

- this practical demonstration is based on the performance criteria from all or some of the units of competency in Welding
- this assessment activity will be used to measure your underpinning skills
- you will have fifteen (15) minutes to familiarise yourself with the resources to be used
- you have one (2) hours to complete this demonstration

Procedure:

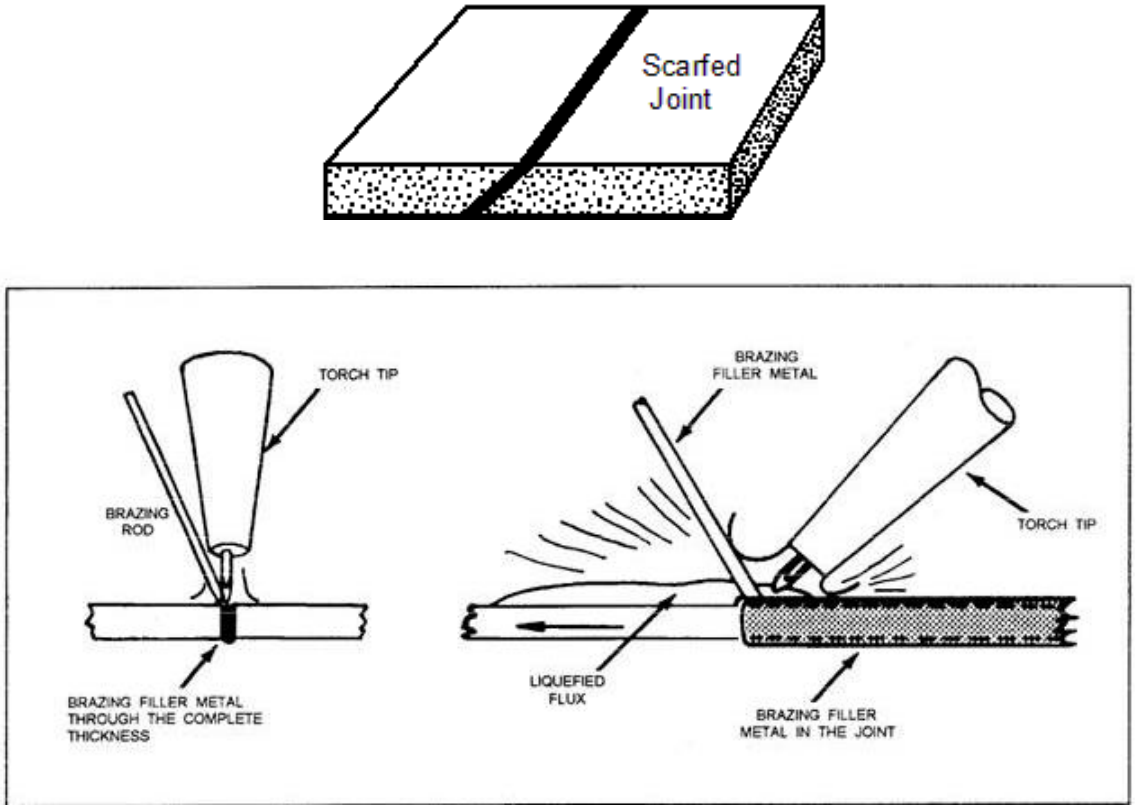
- observe and wear personal protective equipment (PPE) as required for the task to be performed
- read the specification information provided
- collect all materials needed to complete the task
- perform the task within the given time
- observe and follow all health and safety (OHS) requirements at all times

Job Specification Information:

1. Identify, read and interpret job specifications, drawings and other workplace documents.
2. Identify and collect required tools, equipment and materials for the task.
3. Inspect worksite for hazards and implement appropriate controls (if necessary).
4. Identify and collect appropriate PPE.
5. Inspect and check tools and equipment.
6. Calculate quantity of materials required as per job specification.
7. Inspect and check materials as per job specification.
8. Identify and confirm quality requirements.
9. Clean mild steel strip removing the oxide layer and flatten it.
10. Carry out gas cutting of mild steel strip as per job specifications.
11. Identify cutting defects and take corrective action (if needed).
12. Clean and remove slag on cut ends.
13. Keep the metal strip in lap position.
14. Tack at the two ends.
15. Lay brazing metal at joint maintaining proper speed and feed.
16. Carry out brazing as per job requirements.
17. Perform soldering as per standard operating procedure.
18. Clean and check joint for quality and defects.

19. Rectify any identified defects.
20. Clean, maintain and store tools and equipment.
21. Clean workplace and dispose of waste materials.

Drawing, Plan, Diagram or Sketch:



Resources Required:

Tools:	Wire brush Tongs
Equipment:	Gas welding set
Machinery:	N/A
Materials:	Mild steel strips (140 x 25 x 3 mm) Brazing wire Fluxes
PPE:	Apron Mask Gloves Safety shoes Safety goggles

Set B: Practical Demonstration 2 – Observation Checklist

PRACTICAL DEMONSTRATION 2 – OBSERVATION CHECKLIST	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Prepare scarfed joint with mild steel strips using brazing technique
Assessment Centre:	
Date of Assessment:	
Instructions:	The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate. Performance can be observed in an actual workplace or in a simulated working environment. If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject. The assessment activity (practical demonstration) should: ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate

OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	**No**
Workplace documents are interpreted correctly.	☐	☐
Accessed specific and relevant information form appropriate sources.	☐	☐
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	☐	☐
Common safety issues are identified.	☐	☐
Hazards and risks are identified.	☐	☐
Hazards and risks assessment and controls are interpreted.	☐	☐
Identified and followed safety signs and symbols.	☐	☐
Identified, selected and prepared hand and power tools.	☐	☐
Calculated amount of materials required.	☐	☐
Selected and collected job materials in accordance with job requirements.	☐	☐
Determined application of tools to job requirements.	☐	☐
Identified welding joint, position and process as per job requirement.	☐	☐

Carried out gas cutting as per standard operating procedure.	☐	☐
Identified cutting defects and took corrective action.	☐	☐
Clean and removed slag from cut ends.	☐	☐
Set flame on welding torch as per brazing requirements.	☐	☐
Used appropriate brazing flux and filler rods.	☐	☐
Performed brazing as per job specifications.	☐	☐
Cleaned and checked brazed surface for quality and identified defects.	☐	☐
Carried out soldering as per standard operating procedure.	☐	☐
Cleaned and checked soldered surface for quality and identified defects.	☐	☐
Used appropriate hand and power tools for the job.	☐	☐
Checked and measured work piece in conformance to job specification.	☐	☐
Tools and equipment are cleaned, maintained and stored.	☐	☐
Defects are detected and reported according to standard operating procedure.	☐	☐
Workplace is cleaned and waste material disposed of.	☐	☐
Instructions and procedures are strictly followed in accordance with quality improvement system.	☐	☐
Performance is assessed at regular intervals.	☐	☐
Responsibility is taken for quality of own work.	☐	☐
Conformance to specification is ensured in every case at all situations.	☐	☐
Appropriate lines of communication are maintained with supervisors and colleagues.	☐	☐
Workplace interactions are conducted in courteous manner to gather and convey information.	☐	☐
Used appropriate medium to transfer information and ideas.	☐	☐
Responsibilities as a team member are performed.	☐	☐
Tasks are performed in accordance with workplace procedures.	☐	☐
Other teammates' tasks are identified and provided support.	☐	☐
Active participation is ensured, opinions are expressed and heard.	☐	☐
Inputs are provided and interpreted in line with the meeting purpose.	☐	☐
Confidentiality is maintained.	☐	☐
Inappropriate and conflicting situations are avoided.	☐	☐
The team is encouraged through sharing information or expertise, working together to solve problems, and putting team success first.	☐	☐
Feedback to candidate:		

Assessment decision for this assessment activity: ☐ **Competent** ☐ **Not Yet Competent**			
Candidate Signature:		**Date:**	
Assessor Signature:		**Date:**	

Set B: Practical Demonstration 3

PRACTICAL DEMONSTRATION 3	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Carry out TIG welding for lap joint
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	

Instructions:

Read and understand the directions carefully:

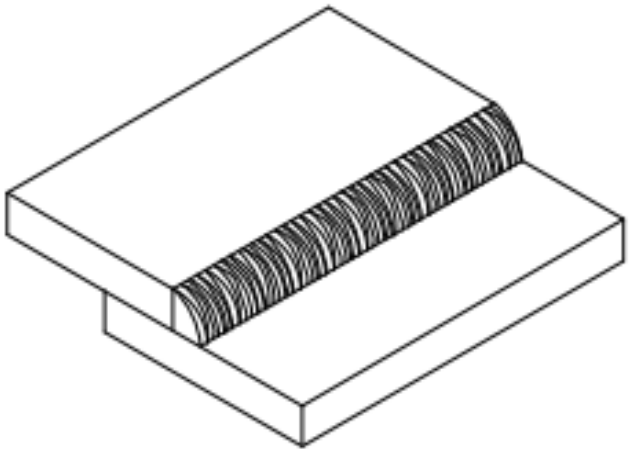
- this practical demonstration is based on the performance criteria from all or some of the units of competency in Welding
- this assessment activity will be used to measure your underpinning skills
- you will have fifteen (15) minutes to familiarise yourself with the resources to be used
- you have two (2) hours to complete this demonstration

Procedure:

- observe and wear personal protective equipment (PPE) as required for the task to be performed
- read the specification information provided
- collect all materials needed to complete the task
- perform the task within the given time
- observe and follow all health and safety (OHS) requirements at all times

Job Specification Information:

1. Identify, read and interpret job specifications, drawings and other workplace documents.
2. Identify and collect required tools, equipment and materials for the task.
3. Inspect worksite for hazards and implement appropriate controls (if necessary).
4. Identify and collect appropriate PPE.
5. Inspect and check tools and equipment.
6. Calculate quantity of materials required as per job specification.
7. Inspect and check materials as per job specification.
8. Identify and confirm quality requirements.
9. Clean mild steel flats to be joined with wire brush.
10. Arrange flat pieces providing gap for full penetration for lap joint (gap ½ thickness of flats).
11. Choose correct wire gage based on type of material and thickness of weld.
12. Set wire speed and thickness dials to appropriate settings.
13. Turn on TIG welder.
14. Open valve to form an inert gas shield.
15. Ground welder to table using clamp.
16. Turn ventilation fan on.
17. Carry out TIG welding.
18. Clean, maintain and store tools and equipment.

19. Clean workplace and dispose of waste materials.	
Drawing, Plan, Diagram or Sketch:	
	
Resources Required:	
Tools:	Wire brush Tongs
Equipment:	TIG welding unit
Machinery:	N/A
Materials:	Mild steel (AISI 1040 steel) Mild steel flats Consumable mild steel wire Protecting gas
PPE:	Apron Mask Gloves Safety shoes Safety goggles

Set B: Practical Demonstration 3 – Observation Checklist

PRACTICAL DEMONSTRATION 3 – OBSERVATION CHECKLIST	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Carry out TIG welding for lap joint
Assessment Centre:	
Date of Assessment:	
Instructions:	The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate. Performance can be observed in an actual workplace or in a simulated working environment. If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject. The assessment activity (practical demonstration) should: ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate

OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	**No**
Workplace documents are interpreted correctly.	☐	☐
Accessed specific and relevant information form appropriate sources.	☐	☐
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	☐	☐
Common safety issues are identified.	☐	☐
Hazards and risks are identified.	☐	☐
Hazards and risks assessment and controls are interpreted.	☐	☐
Identified and followed safety signs and symbols.	☐	☐
Identified, selected and prepared hand and power tools.	☐	☐
Base metals/plate, filler metal, tungsten electrodes and shielding gas are selected according to job requirements.	☐	☐
Calculated amount of materials required.	☐	☐
Selected and collected job materials in accordance with job requirements.	☐	☐
Read and interpreted drawings and job specifications.	☐	☐

Determined application of tools to job requirements.	☐	☐
Identified welding joint, position and process as per job requirement.	☐	☐
Prepared base metals and GTAW weld area.	☐	☐
Set-up welding equipment and holding devices as per job requirements	☐	☐
Performed routine maintenance (if required).	☐	☐
Set amperage and gas flow according to weld plate thickness and gas flow cup sizes.	☐	☐
Carried out TIG welding machine operation as per standard operating procedure.	☐	☐
Cleaned and checked weld for quality and identified defects.	☐	☐
Defects are rectified according to standard operating procedure.	☐	☐
Used appropriate hand and power tools for the job.	☐	☐
Checked and measured work piece in conformance to job specification.	☐	☐
Tools and equipment are cleaned, maintained and stored.	☐	☐
Workplace is cleaned and waste material disposed of.	☐	☐
Instructions and procedures are strictly followed in accordance with quality improvement system.	☐	☐
Performance is assessed at regular intervals.	☐	☐
Responsibility is taken for quality of own work.	☐	☐
Conformance to specification is ensured in every case at all situations.	☐	☐
Appropriate lines of communication are maintained with supervisors and colleagues.	☐	☐
Workplace interactions are conducted in courteous manner to gather and convey information.	☐	☐
Used appropriate medium to transfer information and ideas.	☐	☐
Responsibilities as a team member are performed.	☐	☐
Tasks are performed in accordance with workplace procedures.	☐	☐
Other teammates' tasks are identified and provided support.	☐	☐
Active participation is ensured, opinions are expressed and heard.	☐	☐
Inputs are provided and interpreted in line with the meeting purpose.	☐	☐
Confidentiality is maintained.	☐	☐
Inappropriate and conflicting situations are avoided.	☐	☐
The team is encouraged through sharing information or expertise, working together to solve problems, and putting team success first.	☐	☐
Feedback to candidate:		

Assessment decision for this assessment activity: ☐ **Competent** ☐ **Not Yet Competent**			
Candidate Signature:		**Date:**	
Assessor Signature:		**Date:**	

Set B: Practical Demonstration 4

PRACTICAL DEMONSTRATION 4	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Carry out MIG welding for lap joint
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	

Instructions:

Read and understand the directions carefully:

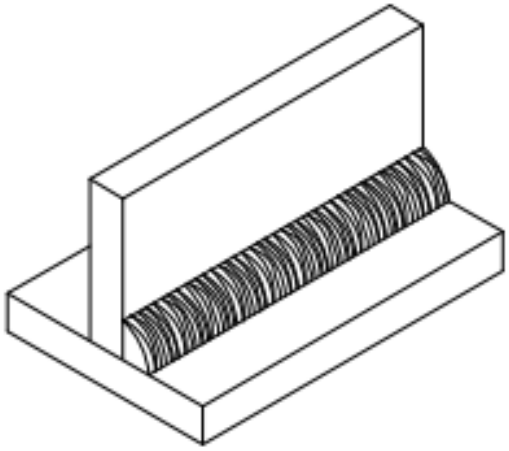
- this practical demonstration is based on the performance criteria from all or some of the units of competency in Welding
- this assessment activity will be used to measure your underpinning skills
- you will have fifteen (15) minutes to familiarise yourself with the resources to be used
- you have two (2) hours to complete this demonstration

Procedure:

- observe and wear personal protective equipment (PPE) as required for the task to be performed
- read the specification information provided
- collect all materials needed to complete the task
- perform the task within the given time
- observe and follow all health and safety (OHS) requirements at all times

Job Specification Information:

1. Identify, read and interpret job specifications, drawings and other workplace documents.
2. Identify and collect required tools, equipment and materials for the task.
3. Inspect worksite for hazards and implement appropriate controls (if necessary).
4. Identify and collect appropriate PPE.
5. Inspect and check tools and equipment.
6. Calculate quantity of materials required as per job specification.
7. Inspect and check materials as per job specification.
8. Identify and confirm quality requirements.
9. Clean mild steel flats to be joined with wire brush.
10. Arrange flat pieces providing gap for full penetration for lap joint (gap ½ thickness of flats).
11. Choose correct wire gage based on type of material and thickness of weld.
12. Set wire speed and thickness dials to appropriate settings.
13. Turn on MIG welder.
14. Open valve to form an inert gas shield.
15. Ground welder to table using clamp.
16. Turn ventilation fan on.
17. Carry out MIG welding.
18. Clean, maintain and store tools and equipment.

19. Clean workplace and dispose of waste materials.	
Drawing, Plan, Diagram or Sketch:	
	
Resources Required:	
Tools:	Wire brush Tongs
Equipment:	MIG welding unit
Machinery:	N/A
Materials:	Mild steel (AISI 1040 steel) Mild steel flats Consumable mild steel wire Gas
PPE:	Apron Mask Gloves Safety shoes Safety goggles

Set B: Practical Demonstration 4 – Observation Checklist

PRACTICAL DEMONSTRATION 4 – OBSERVATION CHECKLIST	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Carry out MIG welding for lap joint
Assessment Centre:	
Date of Assessment:	
Instructions:	The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate. Performance can be observed in an actual workplace or in a simulated working environment. If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject. The assessment activity (practical demonstration) should: ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate

OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	**No**
Workplace documents are interpreted correctly.	☐	☐
Accessed specific and relevant information form appropriate sources.	☐	☐
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	☐	☐
Common safety issues are identified.	☐	☐
Hazards and risks are identified.	☐	☐
Hazards and risks assessment and controls are interpreted.	☐	☐
Identified and followed safety signs and symbols.	☐	☐
Identified, selected and prepared hand and power tools.	☐	☐
Base metals/plate, wire electrode sizes shielding gas are selected according to job requirements.	☐	☐
Calculated amount of materials required.	☐	☐
Selected and collected job materials in accordance with job requirements.	☐	☐
Read and interpreted drawings and job specifications.	☐	☐

Determined application of tools to job requirements.	☐	☐
Identified welding joint, position and process as per job requirement.	☐	☐
Prepared base metals and GMAW weld area.	☐	☐
Set-up welding equipment and holding devices as per job requirements	☐	☐
Performed routine maintenance (if required).	☐	☐
Set amperage and gas flow according to weld plate thickness and gas flow cup sizes.	☐	☐
Carried out MIG welding machine operation as per standard operating procedure.	☐	☐
Cleaned and checked weld for quality and identified defects.	☐	☐
Defects are rectified according to standard operating procedure.	☐	☐
Used appropriate hand and power tools for the job.	☐	☐
Checked and measured work piece in conformance to job specification.	☐	☐
Tools and equipment are cleaned, maintained and stored.	☐	☐
Workplace is cleaned and waste material disposed of.	☐	☐
Instructions and procedures are strictly followed in accordance with quality improvement system.	☐	☐
Performance is assessed at regular intervals.	☐	☐
Responsibility is taken for quality of own work.	☐	☐
Conformance to specification is ensured in every case at all situations.	☐	☐
Appropriate lines of communication are maintained with supervisors and colleagues.	☐	☐
Workplace interactions are conducted in courteous manner to gather and convey information.	☐	☐
Used appropriate medium to transfer information and ideas.	☐	☐
Responsibilities as a team member are performed.	☐	☐
Tasks are performed in accordance with workplace procedures.	☐	☐
Other teammates' tasks are identified and provided support.	☐	☐
Active participation is ensured, opinions are expressed and heard.	☐	☐
Inputs are provided and interpreted in line with the meeting purpose.	☐	☐
Confidentiality is maintained.	☐	☐
Inappropriate and conflicting situations are avoided.	☐	☐
The team is encouraged through sharing information or expertise, working together to solve problems, and putting team success first.	☐	☐
Feedback to candidate:		

Assessment decision for this assessment activity: ☐ **Competent** ☐ **Not Yet Competent**			
Candidate Signature:		**Date:**	
Assessor Signature:		**Date:**	

Set C: Practical Demonstration 1

PRACTICAL DEMONSTRATION 1	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Carry out arc welding for tee joint
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	

Instructions:

Read and understand the directions carefully:

- this practical demonstration is based on the performance criteria from all or some of the units of competency in Welding
- this assessment activity will be used to measure your underpinning skills
- you will have fifteen (15) minutes to familiarise yourself with the resources to be used
- you have two (2) hours to complete this demonstration

Procedure:

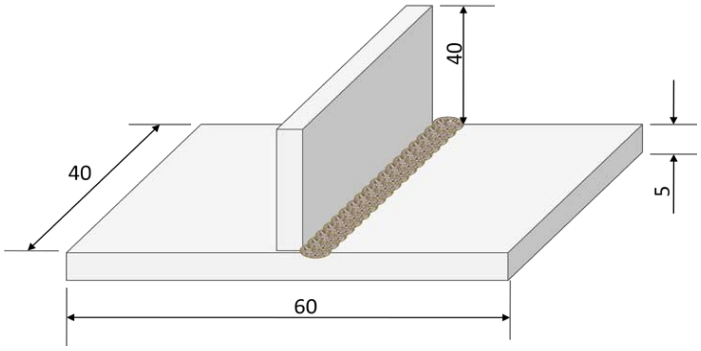
- observe and wear personal protective equipment (PPE) as required for the task to be performed
- read the specification information provided
- collect all materials needed to complete the task
- perform the task within the given time
- observe and follow all health and safety (OHS) requirements at all times

Job Specification Information:

1. Identify, read and interpret job specifications, drawings and other workplace documents.
2. Identify and collect required tools, equipment and materials for task.
3. Inspect worksite for hazards and implement appropriate controls (if necessary).
4. Identify and collect appropriate PPE.
5. Calculate quantity of materials required as per job specification.
6. Perform measurements and calculations as per job specifications.
7. Inspect and check tools and equipment.
8. Inspect and check materials.
9. Identify quality/performance standard of work to be performed.
10. Set up work area and bench in accordance with job specifications.
11. Clean mild steel flats to be joined by wire brush.
12. Arrange flat pieces providing gap for full penetration for tee joint (gap ½ thickness of flats).
13. Set welding current and voltage.
14. Strike the arc and make tacks at the both ends to hold the metal pieces together.
15. Lay beads along joint maintaining proper speed and arc length (speed 100-150 mm/min).
16. Carry out welding as per job specifications.
17. Clean welded zone.
18. Clean, maintain and store tools and equipment.

19. Clean workplace and dispose of waste materials.

Drawing, Plan, Diagram or Sketch:



All dimensions are in mm

Resources Required:

Tools:	Wire brush Tongs
Equipment:	Welding unit
Machinery:	N/A
Materials:	Mild steel (AISI 1040 steel) Mild steel flats (60 x 40 x 5 mm) Consumable mild steel wire Protecting gas
PPE:	Apron Mask Gloves Safety shoes Safety goggles

Set C: Practical Demonstration 1 – Observation Checklist

PRACTICAL DEMONSTRATION 1 – OBSERVATION CHECKLIST	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Carry out arc welding for tee joint
Assessment Centre:	
Date of Assessment:	
Instructions:	The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate. Performance can be observed in an actual workplace or in a simulated working environment. If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject. The assessment activity (practical demonstration) should: ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate

OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	**No**
Workplace documents are interpreted correctly.	☐	☐
Accessed specific and relevant information form appropriate sources.	☐	☐
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	☐	☐
Common safety issues are identified.	☐	☐
Hazards and risks are identified.	☐	☐
Hazards and risks assessment and controls are interpreted.	☐	☐
Identified and followed safety signs and symbols.	☐	☐
Identified, selected and prepared hand and power tools.	☐	☐
Calculated amount of materials required.	☐	☐
Selected and collected job materials in accordance with job requirements.	☐	☐
Read and interpreted drawings and job specifications.	☐	☐
Determined application of tools to job requirements.	☐	☐
Identified welding joint, position and process as per job	☐	☐

requirement.		
Set welding current and voltage.	☐	☐
Maintained correct gap between flat pieces.	☐	☐
Maintained proper arc speed and length.	☐	☐
Carried out welding as per standard operating procedure.	☐	☐
Performed butt joint weld as per job specifications.	☐	☐
Cleaned and checked weld for quality and identified defects.	☐	☐
Used appropriate hand and power tools for the job.	☐	☐
Checked and measured work piece in conformance to job specification.	☐	☐
Tools and equipment are cleaned, maintained and stored.	☐	☐
Defects are detected and reported according to standard operating procedure.	☐	☐
Workplace is cleaned and waste material disposed of.	☐	☐
Instructions and procedures are strictly followed in accordance with quality improvement system.	☐	☐
Performance is assessed at regular intervals.	☐	☐
Responsibility is taken for quality of own work.	☐	☐
Conformance to specification is ensured in every case at all situations.	☐	☐
Appropriate lines of communication are maintained with supervisors and colleagues.	☐	☐
Workplace interactions are conducted in courteous manner to gather and convey information.	☐	☐
Used appropriate medium to transfer information and ideas.	☐	☐
Responsibilities as a team member are performed.	☐	☐
Tasks are performed in accordance with workplace procedures.	☐	☐
Other teammates' tasks are identified and provided support.	☐	☐
Active participation is ensured, opinions are expressed and heard.	☐	☐
Inputs are provided and interpreted in line with the meeting purpose.	☐	☐
Confidentiality is maintained.	☐	☐
Inappropriate and conflicting situations are avoided.	☐	☐
The team is encouraged through sharing information or expertise, working together to solve problems, and putting team success first.	☐	☐
Feedback to candidate:		

Assessment decision for this assessment activity: ☐ **Competent** ☐ **Not Yet Competent**			
Candidate Signature:		**Date:**	
Assessor Signature:		**Date:**	

Set C: Practical Demonstration 2

PRACTICAL DEMONSTRATION 2	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Prepare tee joint with mild steel strips using brazing technique
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	

Instructions:

Read and understand the directions carefully:

- this practical demonstration is based on the performance criteria from all or some of the units of competency in Welding
- this assessment activity will be used to measure your underpinning skills
- you will have fifteen (15) minutes to familiarise yourself with the resources to be used
- you have one (2) hours to complete this demonstration

Procedure:

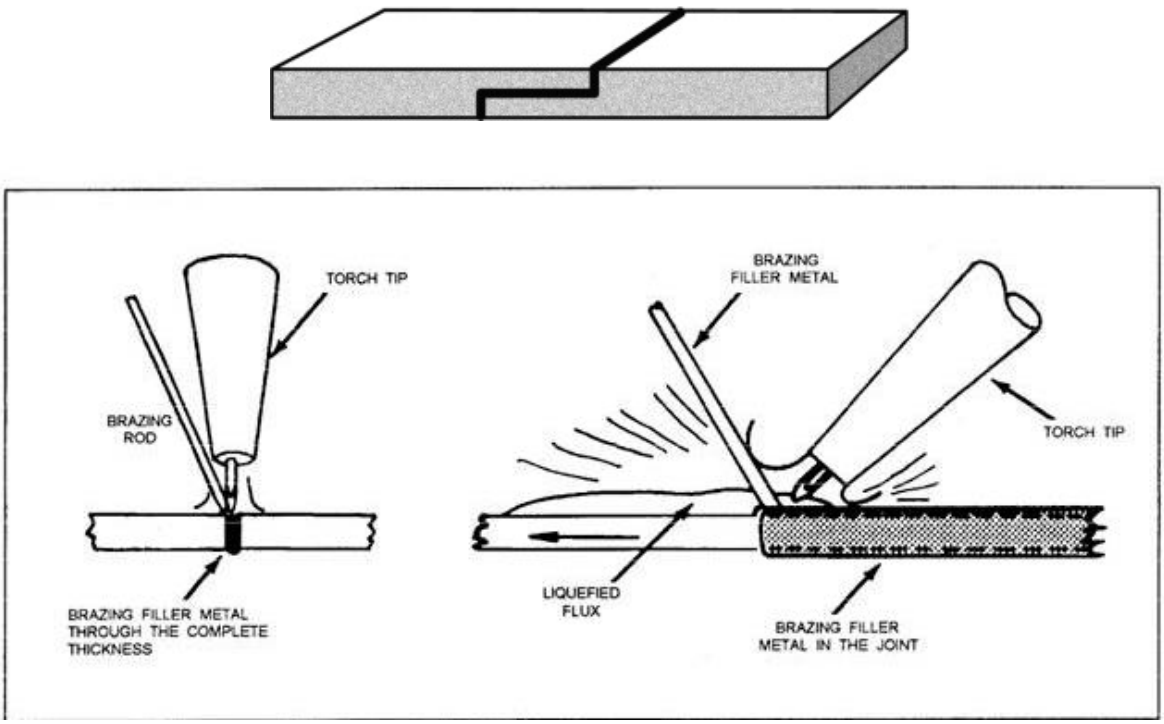
- observe and wear personal protective equipment (PPE) as required for the task to be performed
- read the specification information provided
- collect all materials needed to complete the task
- perform the task within the given time
- observe and follow all health and safety (OHS) requirements at all times

Job Specification Information:

1. Identify, read and interpret job specifications, drawings and other workplace documents.
2. Identify and collect required tools, equipment and materials for the task.
3. Inspect worksite for hazards and implement appropriate controls (if necessary).
4. Identify and collect appropriate PPE.
5. Inspect and check tools and equipment.
6. Calculate quantity of materials required as per job specification.
7. Inspect and check materials as per job specification.
8. Identify and confirm quality requirements.
9. Clean mild steel strip removing the oxide layer and flatten it.
10. Carry out gas cutting of mild steel strip as per job specifications.
11. Identify cutting defects and take corrective action (if needed).
12. Clean and remove slag on cut ends.
13. Keep the metal strip in tee position.
14. Tack at the two ends.
15. Lay brazing metal at joint maintaining proper speed and feed.
16. Carry out brazing as per job requirements.
17. Perform soldering as per standard operating procedure.
18. Clean and check joint for quality and defects.

19. Rectify any identified defects.
20. Clean, maintain and store tools and equipment.
21. Clean workplace and dispose of waste materials.

Drawing, Plan, Diagram or Sketch:



Resources Required:

Tools:	Wire brush Tongs
Equipment:	Gas welding set
Machinery:	N/A
Materials:	Mild steel strips (140 x 25 x 3 mm) Brazing wire Fluxes
PPE:	Apron Mask Gloves Safety shoes Safety goggles

Set C: Practical Demonstration 2 – Observation Checklist

PRACTICAL DEMONSTRATION 2 – OBSERVATION CHECKLIST	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Prepare tee joint with mild steel strips using brazing technique
Assessment Centre:	
Date of Assessment:	
Instructions:	The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate. Performance can be observed in an actual workplace or in a simulated working environment. If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject. The assessment activity (practical demonstration) should: ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate

OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	**No**
Workplace documents are interpreted correctly.	☐	☐
Accessed specific and relevant information form appropriate sources.	☐	☐
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	☐	☐
Common safety issues are identified.	☐	☐
Hazards and risks are identified.	☐	☐
Hazards and risks assessment and controls are interpreted.	☐	☐
Identified and followed safety signs and symbols.	☐	☐
Identified, selected and prepared hand and power tools.	☐	☐
Calculated amount of materials required.	☐	☐
Selected and collected job materials in accordance with job requirements.	☐	☐
Determined application of tools to job requirements.	☐	☐
Identified welding joint, position and process as per job requirement.	☐	☐

Carried out gas cutting as per standard operating procedure.	☐	☐
Identified cutting defects and took corrective action.	☐	☐
Clean and removed slag from cut ends.	☐	☐
Set flame on welding torch as per brazing requirements.	☐	☐
Used appropriate brazing flux and filler rods.	☐	☐
Performed brazing as per job specifications.	☐	☐
Cleaned and checked brazed surface for quality and identified defects.	☐	☐
Carried out soldering as per standard operating procedure.	☐	☐
Cleaned and checked soldered surface for quality and identified defects.	☐	☐
Used appropriate hand and power tools for the job.	☐	☐
Checked and measured work piece in conformance to job specification.	☐	☐
Tools and equipment are cleaned, maintained and stored.	☐	☐
Defects are detected and reported according to standard operating procedure.	☐	☐
Workplace is cleaned and waste material disposed of.	☐	☐
Instructions and procedures are strictly followed in accordance with quality improvement system.	☐	☐
Performance is assessed at regular intervals.	☐	☐
Responsibility is taken for quality of own work.	☐	☐
Conformance to specification is ensured in every case at all situations.	☐	☐
Appropriate lines of communication are maintained with supervisors and colleagues.	☐	☐
Workplace interactions are conducted in courteous manner to gather and convey information.	☐	☐
Used appropriate medium to transfer information and ideas.	☐	☐
Responsibilities as a team member are performed.	☐	☐
Tasks are performed in accordance with workplace procedures.	☐	☐
Other teammates' tasks are identified and provided support.	☐	☐
Active participation is ensured, opinions are expressed and heard.	☐	☐
Inputs are provided and interpreted in line with the meeting purpose.	☐	☐
Confidentiality is maintained.	☐	☐
Inappropriate and conflicting situations are avoided.	☐	☐
The team is encouraged through sharing information or expertise, working together to solve problems, and putting team success first.	☐	☐
Feedback to candidate:		

Assessment decision for this assessment activity: ☐ **Competent** ☐ **Not Yet Competent**			
Candidate Signature:		**Date:**	
Assessor Signature:		**Date:**	

Set C: Practical Demonstration 3

PRACTICAL DEMONSTRATION 3	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Carry out TIG welding for tee joint
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	

Instructions:

Read and understand the directions carefully:

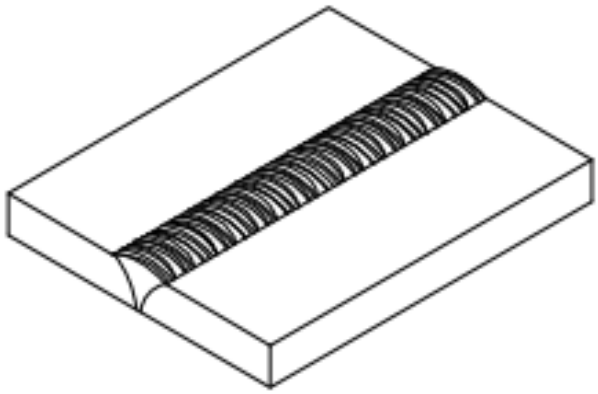
- this practical demonstration is based on the performance criteria from all or some of the units of competency in Welding
- this assessment activity will be used to measure your underpinning skills
- you will have fifteen (15) minutes to familiarise yourself with the resources to be used
- you have two (2) hours to complete this demonstration

Procedure:

- observe and wear personal protective equipment (PPE) as required for the task to be performed
- read the specification information provided
- collect all materials needed to complete the task
- perform the task within the given time
- observe and follow all health and safety (OHS) requirements at all times

Job Specification Information:

1. Identify, read and interpret job specifications, drawings and other workplace documents.
2. Identify and collect required tools, equipment and materials for the task.
3. Inspect worksite for hazards and implement appropriate controls (if necessary).
4. Identify and collect appropriate PPE.
5. Inspect and check tools and equipment.
6. Calculate quantity of materials required as per job specification.
7. Inspect and check materials as per job specification.
8. Identify and confirm quality requirements.
9. Clean mild steel flats to be joined with wire brush.
10. Arrange flat pieces providing gap for full penetration for tee joint (gap ½ thickness of flats).
11. Choose correct wire gage based on type of material and thickness of weld.
12. Set wire speed and thickness dials to appropriate settings.
13. Turn on TIG welder.
14. Open valve to form an inert gas shield.
15. Ground welder to table using clamp.
16. Turn ventilation fan on.
17. Carry out TIG welding.
18. Clean, maintain and store tools and equipment.

19. Clean workplace and dispose of waste materials.	
Drawing, Plan, Diagram or Sketch:	
	
Resources Required:	
Tools:	Wire brush Tongs
Equipment:	TIG welding unit
Machinery:	N/A
Materials:	Mild steel (AISI 1040 steel) Mild steel flats Consumable mild steel wire Protecting gas
PPE:	Apron Mask Gloves Safety shoes Safety goggles

Set C: Practical Demonstration 3 – Observation Checklist

PRACTICAL DEMONSTRATION 3 – OBSERVATION CHECKLIST	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Carry out TIG welding for tee joint
Assessment Centre:	
Date of Assessment:	
Instructions:	The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate. Performance can be observed in an actual workplace or in a simulated working environment. If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject. The assessment activity (practical demonstration) should: ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate

OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	**No**
Workplace documents are interpreted correctly.	☐	☐
Accessed specific and relevant information form appropriate sources.	☐	☐
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	☐	☐
Common safety issues are identified.	☐	☐
Hazards and risks are identified.	☐	☐
Hazards and risks assessment and controls are interpreted.	☐	☐
Identified and followed safety signs and symbols.	☐	☐
Identified, selected and prepared hand and power tools.	☐	☐
Base metals/plate, filler metal, tungsten electrodes and shielding gas are selected according to job requirements.	☐	☐
Calculated amount of materials required.	☐	☐
Selected and collected job materials in accordance with job requirements.	☐	☐
Read and interpreted drawings and job specifications.	☐	☐

Determined application of tools to job requirements.	☐	☐
Identified welding joint, position and process as per job requirement.	☐	☐
Prepared base metals and GTAW weld area.	☐	☐
Set-up welding equipment and holding devices as per job requirements	☐	☐
Performed routine maintenance (if required).	☐	☐
Set amperage and gas flow according to weld plate thickness and gas flow cup sizes.	☐	☐
Carried out TIG welding machine operation as per standard operating procedure.	☐	☐
Cleaned and checked weld for quality and identified defects.	☐	☐
Defects are rectified according to standard operating procedure.	☐	☐
Used appropriate hand and power tools for the job.	☐	☐
Checked and measured work piece in conformance to job specification.	☐	☐
Tools and equipment are cleaned, maintained and stored.	☐	☐
Workplace is cleaned and waste material disposed of.	☐	☐
Instructions and procedures are strictly followed in accordance with quality improvement system.	☐	☐
Performance is assessed at regular intervals.	☐	☐
Responsibility is taken for quality of own work.	☐	☐
Conformance to specification is ensured in every case at all situations.	☐	☐
Appropriate lines of communication are maintained with supervisors and colleagues.	☐	☐
Workplace interactions are conducted in courteous manner to gather and convey information.	☐	☐
Used appropriate medium to transfer information and ideas.	☐	☐
Responsibilities as a team member are performed.	☐	☐
Tasks are performed in accordance with workplace procedures.	☐	☐
Other teammates' tasks are identified and provided support.	☐	☐
Active participation is ensured, opinions are expressed and heard.	☐	☐
Inputs are provided and interpreted in line with the meeting purpose.	☐	☐
Confidentiality is maintained.	☐	☐
Inappropriate and conflicting situations are avoided.	☐	☐
The team is encouraged through sharing information or expertise, working together to solve problems, and putting team success first.	☐	☐
Feedback to candidate:		

Assessment decision for this assessment activity: ☐ **Competent** ☐ **Not Yet Competent**			
Candidate Signature:		**Date:**	
Assessor Signature:		**Date:**	

Set C: Practical Demonstration 4

PRACTICAL DEMONSTRATION 4	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Carry out MIG welding for tee joint
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	

Instructions:

Read and understand the directions carefully:

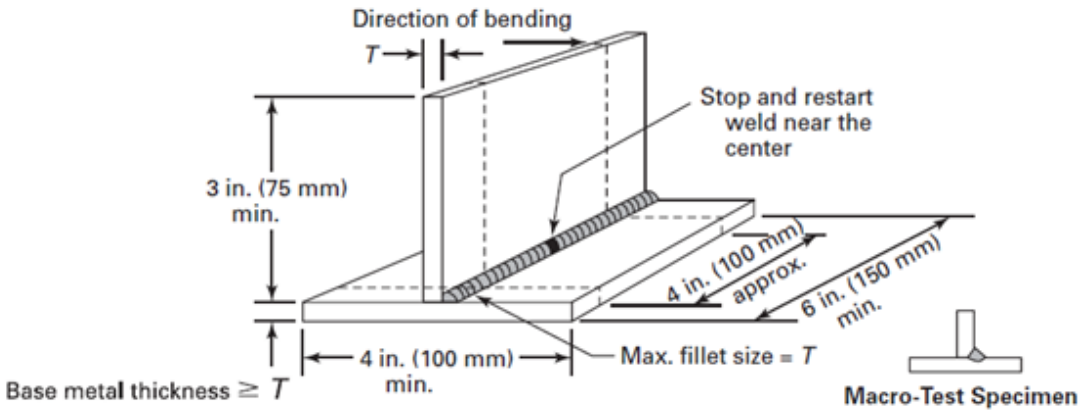
- this practical demonstration is based on the performance criteria from all or some of the units of competency in Welding
- this assessment activity will be used to measure your underpinning skills
- you will have fifteen (15) minutes to familiarise yourself with the resources to be used
- you have two (2) hours to complete this demonstration

Procedure:

- observe and wear personal protective equipment (PPE) as required for the task to be performed
- read the specification information provided
- collect all materials needed to complete the task
- perform the task within the given time
- observe and follow all health and safety (OHS) requirements at all times

Job Specification Information:

1. Identify, read and interpret job specifications, drawings and other workplace documents.
2. Identify and collect required tools, equipment and materials for the task.
3. Inspect worksite for hazards and implement appropriate controls (if necessary).
4. Identify and collect appropriate PPE.
5. Inspect and check tools and equipment.
6. Calculate quantity of materials required as per job specification.
7. Inspect and check materials as per job specification.
8. Identify and confirm quality requirements.
9. Clean mild steel flats to be joined with wire brush.
10. Arrange flat pieces providing gap for full penetration for tee joint (gap ½ thickness of flats).
11. Choose correct wire gage based on type of material and thickness of weld.
12. Set wire speed and thickness dials to appropriate settings.
13. Turn on MIG welder.
14. Open valve to form an inert gas shield.
15. Ground welder to table using clamp.
16. Turn ventilation fan on.
17. Carry out MIG welding.
18. Clean, maintain and store tools and equipment.

19. Clean workplace and dispose of waste materials.	
Drawing, Plan, Diagram or Sketch:	
	
Resources Required:	
Tools:	Wire brush Tongs
Equipment:	MIG welding unit
Machinery:	N/A
Materials:	Mild steel (AISI 1040 steel) Mild steel flats Consumable mild steel wire Gas
PPE:	Apron Mask Gloves Safety shoes Safety goggles

Set C: Practical Demonstration 4 – Observation Checklist

PRACTICAL DEMONSTRATION 4 – OBSERVATION CHECKLIST	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Task:	Carry out MIG welding for tee joint
Assessment Centre:	
Date of Assessment:	
Instructions:	The tasks listed on the observation checklist of the practical demonstration will provide performance evidence of the candidate. Performance can be observed in an actual workplace or in a simulated working environment. If performance of particular tasks cannot be observed, you may ask the candidate to explain a procedure or enter into a discussion on the subject. The assessment activity (practical demonstration) should: ▪ fit industry requirements in which the assessment will be conducted ▪ adhere, where possible, to reasonable adjustment practices ▪ ensure that suitable performance benchmarks are applied and explained to the candidate

OBSERVATION RECORD		
Performance Criteria	Place a ✓ to show if evidence has been demonstrated competently	
	Yes	**No**
Workplace documents are interpreted correctly.	☐	☐
Accessed specific and relevant information form appropriate sources.	☐	☐
OHS policies and procedures are applied in the workplace including personal protective equipment (PPE).	☐	☐
Common safety issues are identified.	☐	☐
Hazards and risks are identified.	☐	☐
Hazards and risks assessment and controls are interpreted.	☐	☐
Identified and followed safety signs and symbols.	☐	☐
Identified, selected and prepared hand and power tools.	☐	☐
Base metals/plate, wire electrode sizes shielding gas are selected according to job requirements.	☐	☐
Calculated amount of materials required.	☐	☐
Selected and collected job materials in accordance with job requirements.	☐	☐
Read and interpreted drawings and job specifications.	☐	☐

Determined application of tools to job requirements.	☐	☐
Identified welding joint, position and process as per job requirement.	☐	☐
Prepared base metals and GMAW weld area.	☐	☐
Set-up welding equipment and holding devices as per job requirements	☐	☐
Performed routine maintenance (if required).	☐	☐
Set amperage and gas flow according to weld plate thickness and gas flow cup sizes.	☐	☐
Carried out MIG welding machine operation as per standard operating procedure.	☐	☐
Cleaned and checked weld for quality and identified defects.	☐	☐
Defects are rectified according to standard operating procedure.	☐	☐
Used appropriate hand and power tools for the job.	☐	☐
Checked and measured work piece in conformance to job specification.	☐	☐
Tools and equipment are cleaned, maintained and stored.	☐	☐
Workplace is cleaned and waste material disposed of.	☐	☐
Instructions and procedures are strictly followed in accordance with quality improvement system.	☐	☐
Performance is assessed at regular intervals.	☐	☐
Responsibility is taken for quality of own work.	☐	☐
Conformance to specification is ensured in every case at all situations.	☐	☐
Appropriate lines of communication are maintained with supervisors and colleagues.	☐	☐
Workplace interactions are conducted in courteous manner to gather and convey information.	☐	☐
Used appropriate medium to transfer information and ideas.	☐	☐
Responsibilities as a team member are performed.	☐	☐
Tasks are performed in accordance with workplace procedures.	☐	☐
Other teammates' tasks are identified and provided support.	☐	☐
Active participation is ensured, opinions are expressed and heard.	☐	☐
Inputs are provided and interpreted in line with the meeting purpose.	☐	☐
Confidentiality is maintained.	☐	☐
Inappropriate and conflicting situations are avoided.	☐	☐
The team is encouraged through sharing information or expertise, working together to solve problems, and putting team success first.	☐	☐
Feedback to candidate:		

Assessment decision for this assessment activity: ☐ **Competent** ☐ **Not Yet Competent**			
Candidate Signature:		**Date:**	
Assessor Signature:		**Date:**	

Oral Questions (Optional)

ORAL QUESTIONS - INSTRUCTIONS	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Welding
Unit of Competency	
Generic Competencies	
SEIP-LE-WEL-01-G	Use basic mathematical concepts
SEIP-LE-WEL-02-G	Carry out workplace interaction
SEIP-LE-WEL-03-G	Operate in a team environment
SEIP-LE-WEL-04-G	Apply basic IT skills
Sector-specific Competencies	
SEIP-LE-WEL-01-S	Apply occupational health and safety (OHS) practice in the workplace
SEIP-LE-WEL-02-S	Read and interpret sketches and drawings
SEIP-LE-WEL-03-S	Use hand and power tools
SEIP-LE-WEL-04-S	Apply quality system
Occupation-specific Competencies	
SEIP-LE-WEL-01-O	Apply fundamentals of welding metallurgy
SEIP-LE-WEL-02-O	Carry out shielded metal arc welding
SEIP-LE-WEL-03-O	Perform gas welding, gas cutting, brazing and soldering
SEIP-LE-WEL-04-O	Carry out gas tungsten arc welding
SEIP-LE-WEL-05-O	Carry out gas metal arc welding
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	
Instructions:	
Read and understand the directions carefully: ▪ these oral questions are based on the performance criteria from all the units of competency in Welding ▪ oral questions are designed to enable additional assessment of your underpinning knowledge ▪ you should present your responses as directed by the assessor ▪ answer all the questions asked by the assessor as best as possible	

ORAL QUESTIONS			
Question		Place a ✓ in the appropriate box to show if evidence has been demonstrated competently	
		Yes	**No**
1.	What are the different filler materials or alloys used in brazing?	☐	☐
2.	Which power source is used for TIG welding?	☐	☐
3.	Which GMAW mode of metal transfer is best suited for all-position welding?	☐	☐
4.	What is the difference between AC and DC arc welding?	☐	☐
5.	Which are the functions of flux used in brazing?	☐	☐
6.	What are the three types of flames that are used in gas welding?	☐	☐
7.	In TIG welding what does the shielding gas prevent?	☐	☐
8.	What is the difference between welding and brazing?	☐	☐
9.	What type of electrode is AWS-A5.5?	☐	☐
10.	What are some possible problems with SMAW?	☐	☐
11.	Give an example of a people-oriented team role.	☐	☐
12.	Developing a project plan is a task of who?	☐	☐
13.	Name the tool that clearly shows the reporting relationships within an organisation.	☐	☐
14.	Why should a conflict be dealt with immediately?	☐	☐
15.	What is a file?	☐	☐
16.	Explain the use of the subject line in emails.	☐	☐
17.	What skills are required for conducting workplace interactions in a courteous manner?	☐	☐
18.	What does COC stands for?	☐	☐
19.	What is a user guide?	☐	☐
20.	What is the definition of workplace documents?	☐	☐
21.	What does the first line supervisor control in a self-directed team?	☐	☐
22.	What are some examples of modes of communication?	☐	☐
23.	How many ways you can present yourself?	☐	☐
24.	How many phases are there for interview preparedness?	☐	☐

25.	What will be your answer if you are asked if you have any questions of your own?	☐	☐
26.	Name four IT tools.	☐	☐
27.	What is a common application program's file extension?	☐	☐
28.	How do name a cell on spreadsheet?	☐	☐
29.	Name two browsers on the internet.	☐	☐
30.	What are the four phases of emergency management?	☐	☐
31.	Say whether true or false: A work ethic is a set of moral principles a person uses in their job.	☐	☐
32.	What are the points you need to consider when making any agreement?	☐	☐

Feedback to candidate:

Assessment decision for this assessment activity:

☐ **Competent** ☐ **Not Yet Competent**

Candidate Signature:		**Date:**	
Assessor Signature:		**Date:**	

Oral Questioning Guideline

General Guidelines For Effective Questioning
▪ Keep questions short and focused on one key concept
▪ Ensure that questions are structured
▪ Test the questions to check that they are not ambiguous
▪ Use `open-ended questions such as `what if...?' and `why...?' questions, rather than closed questions
▪ Keep questions clear and straight forward and ask one at a time
▪ Use words that the candidate is able to understand
▪ Look at the candidate when asking questions
▪ Check to ensure that the candidate fully understands the questions
▪ Ask the candidate to clarify or re-phrase their answer if the assessor does not understand the initial response
▪ Confirm the candidate's response by repeating the answer back in his/her own words
▪ Encourage a conversational approach with the candidate when appropriate, to put him or her at ease
▪ Use questions or statements as prompts for keeping focused on the purpose of the questions and the kind of evidence being collected
▪ Use language at a suitable level for the candidate
▪ Listen carefully to the answers for opportunities to find unexpected evidence
▪ Follow up responses with further questions, if useful, to draw out more evidence or to make links between knowledge areas
▪ Compile a list of acceptable responses to ensure reliability of assessments

Oral Questions (Optional) - Answers

Answers are highlighted in **bold** and *italics*.

ORAL QUESTIONS		
Question		**Answer**
1.	What are the different filler materials or alloys used in brazing?	***Copper and brass. Oxygen-free electrolytic copper is used for furnace brazing. Brass (from which the name 'brazing' is derived), when used as a brazing filler metal, consists mainly of copper (40–80 %) and zinc, and may often include smaller quantities of tin and silicon.***
2.	Which power source is used for TIG welding?	***Gas metal arc welding (GMAW), sometimes referred to by its subtypes metal inert gas (MIG) welding or metal active gas (MAG) welding, is a welding process in which an electric arc forms between a consumable wire electrode and the workpiece metal(s), which heats the workpiece metal(s), causing them to melt and join.***
3.	Which GMAW mode of metal transfer is best suited for all-position welding?	***In GMAW, the mechanism by which the molten metal at the end of the wire electrode is transferred to the workpiece has a significant effect on the weld characteristics. Three modes of metal transfer are possible with GMAW: short-circuiting transfer, globular transfer, and spray transfer.***
4.	What is the difference between AC and DC arc welding?	***The main difference between the two is with the recommended welding polarity. E6010 electrodes are intended for direct current (DC) only. While E6011 electrodes can be used on alternating current (AC), as well as DC.***
5.	Which are the functions of flux used in brazing?	***During brazing flux is also used which performs the following functions: Dissolve oxides from the surfaces to be joined. Reduce surface tension of molten filler metal i.e. increasing its wetting action. Protect the surface from oxidation during joining operation.***
6.	What are the three types of flames that are used in gas welding?	***There are three basic flame types: neutral (balanced), excess acetylene (carburizing), and excess oxygen (oxidizing) as shown below. A neutral flame is named neutral since in most cases will have no chemical effect on the metal being welded.***

7.	In TIG welding what does the shielding gas prevent?	***In TIG welding, an inert gas protects the molten weld pool and tungsten from surrounding atmospheric gases. These atmospheric gases can react with the weld pool, causing contamination***.
8.	What is the difference between welding and brazing?	***While welding creates metal joints by applying concentrated heat at the joint to melt and fuse metals together, brazing involves significantly lower temperatures and does not entail the melting of base metals. Instead, a filler metal is melted and forced to flow into the joint through capillary action.***
9.	What type of electrode is AWS-A5.5?	***Low alloy steel***
10.	What are some possible problems with SMAW?	***1. Porosity*** ***2. Slag inclusions*** ***3. Improper fusion*** ***4. Improper penetration*** ***5. Cracking*** ***6. Undercut*** ***7. Overlap*** ***8. Incorrect weld size*** ***9. Incorrect weld profile***
11.	Give an example of a people-oriented team role.	***Coordinator***
12.	Developing a project plan is a task of who?	***Project Manager***
13.	Name the tool that clearly shows the reporting relationships within an organisation.	***Organizational chart***
14.	Why should a conflict be dealt with immediately?	***To avoid it escalating.***
15.	What is a file?	***A file is the common storage unit in a computer. All programs and data are contained in a file, and the computer reads and writes files.***
16.	Explain the use of the subject line in emails.	▪ ***The subject line provides an opportunity to inform the receiver of the purpose of the email.*** ▪ ***A subject line ideally should describe exactly what the email is about.*** ▪ ***An appropriate subject line will maximize the possibility of a message being read.***
17.	What skills are required for conducting workplace interactions in a courteous manner?	▪ ***Effective questioning*** ▪ ***Active listening*** ▪ ***Speaking skills*** ▪ ***Email writing skills***
18.	What does COC stands for?	***Code of conduct***
19.	What is a user guide?	***It is a technical communication***

		document intended to give assistance to people using a particular system.
20.	What is the definition of workplace documents?	***Workplace documents are a set of materials that inform employees of workplace policies, processes and procedures.***
21.	What does the first line supervisor control in a self-directed team?	▪ ***Critical management process of:*** ○ ***Planning*** ○ ***Organising*** ○ ***Directing*** ○ ***Staffing***
22.	What are some examples of modes of communication?	▪ ***Team meetings*** ▪ ***Email updates***
23.	How many ways you can present yourself?	▪ ***Curriculum Vitae*** ▪ ***Infographic*** ▪ ***Profile/portfolio***
24.	How many phases are there for interview preparedness?	▪ ***Phase One – before the interview*** ▪ ***Phase Two – the start*** ▪ ***Phase Three – the interview*** ▪ ***Phase Four – closing of interview***
25.	What will be your answer if you are asked if you have any questions of your own?	***Ask whether the offer will be confirmed in writing.***
26.	Name four IT tools.	▪ ***Computer*** ▪ ***Television*** ▪ ***Mobile phone*** ▪ ***Radio*** ▪ ***Internet***
27.	What is a common application program's file extension?	***A file extension, also called a filename extension, is the suffix at the end of a filename, which indicates what kind of file it is. For example, you can tell that the file "computer.docx" is an MS Word document file.***
28.	How do name a cell on spreadsheet?	***With its column and row position on the sheet (i.e. B9).***
29.	Name two browsers on the internet.	▪ ***Internet Explorer*** ▪ ***Google Chrome*** ▪ ***Firefox***
30.	What are the four phases of emergency management?	▪ ***Mitigation*** ▪ ***Preparedness*** ▪ ***Response*** ▪ ***Recovery***
31.	Say whether true or false: A work ethic is a set of moral principles a person uses in their job.	***True***
32.	What are the points you need to consider when making any agreement?	▪ ***Keep it clear*** ▪ ***Look for options and say, "No" if you have to*** ▪ ***Negotiate a cushion***

		▪ ***Understand priorities and re-prioritize if necessary***

Assessment Evidence Summary Sheet

EVIDENCE SUMMARY SHEET			
Candidate Name:			
Assessor Name:			
Qualification:	Certificate in Welding		
Assessment Centre:			
Date(s) of Assessment:			
The performance of the candidate in the following unit or units of competency and the methods engaged to assess performance are as follows:			
Unit of Competency	**Assessment Method**	**Competent**	**Not Yet Competent**
All units of competency comprising of the qualification	Written Test	☐	☐
	Practical Demonstration 1 (Set ....)	☐	☐
	Practical Demonstration 2 (Set ....)	☐	☐
	Practical Demonstration 3 (Set ....)	☐	☐
	Practical Demonstration 4 (Set ....)	☐	☐
	Oral Questioning (optional)	☐	☐
Note: Issuance of a certificate will only be given to a candidate who has successfully been assessed as competent for **ALL** units of competency.			

Recommendation		
❑ Issuance of Statement of Achievement *(indicate title of SOA, if full Certificate is not met)*	❑ Submission of additional documents Specify:	❑ Reassessment Specify:

Did the candidate overall performance meet the required evidence/standard?		☐ Yes	☐ No
Overall Evaluation:	❑ **Competent**	❑ **Not Yet Competent**	
General Comments:			
Candidate Signature:		Date:	
Assessor Signature:		Date:	
Institution Manager Signature:		Date:	

CANDIDATES COPY

(Please presents this form when you claim your Certificate)

ASSESSMENT RESULTS SUMMARY			
Qualification:	Certificate in Welding		
Name of Candidate:		**Date:**	
Name at Assessment Centre:		**Date:**	
Assessment Results:	❑ **Competent** ❑ **Not Yet Competent**		
Recommendation:	❑ Issuance of SOA *(indicate title of SOA, if full certificate is not met)*		
	❑ Submission of additional documents – specify:		
	❑ Reassessment - specify:		
Assessed by: (name and signature)		**Date:**	
Attested by: (name and signature):		**Date**	

Assessment Validation Map

This identifies how the assessment tools in this resource may assess:

- elements and performance criteria
- critical aspects of assessment
- skills and knowledge
- employability skills

Unit of Competency:	SEIP-LE-WEL-01-G – Use basic mathematical concepts		
Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Identify calculation requirements in the workplace.	4	A1-4 B1-4 C1-4	2
2. Select appropriate mathematical methods/concepts for the calculation.	9	A1-4 B1-4 C1-4	2
3. Use tools and instruments to perform calculations.	4, 6	A1-4 B1-4 C1-4	
Unit of Competency:	SEIP-LE-WEL-02-G – Carry out workplace interaction		
Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Interpret workplace communication and etiquette.		A1-4 B1-4 C1-4	17, 22
2. Read and understand workplace documents.		A1-4 B1-4 C1-4	18, 19, 20
3. Participate in workplace meetings and discussions.		A1-4 B1-4 C1-4	23, 32
4. Practice professional ethics at work.		A1-4 B1-4 C1-4	31
Unit of Competency:	SEIP-LE-WEL-03-G – Operate in a team environment		
Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Identify team goals and work processes.		A1-4	11, 12,

		B1-4 C1-4	13
2. Identify own role and responsibilities within team.	8	A1-4 B1-4 C1-4	
3. Communicate and co-operate with team members.		A1-4 B1-4 C1-4	21
4. Practice problem solving within team.		A1-4 B1-4 C1-4	14

Unit of Competency:	SEIP-LE-WEL-04-G – Apply basic IT skills

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Identify and use most commonly used IT tools.		A1, B1, C1	26
2. Understand use of computer.		A1, B1, C1	27
3. Work with word processing application.			15, 24, 25
4. Work with spreadsheets.			28
5. Access email and search the internet.			16, 29

Unit of Competency:	SEIP-LE-WEL-01-S – Apply occupational health and safety (OHS) practice in the workplace

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Identify OHS Policies and procedures.		A1-4 B1-4 C1-4	
2. Apply personal health and safety practices.	19	A1-4 B1-4 C1-4	
3. Report hazards and risks.	19	A1-4 B1-4 C1-4	
4. Respond to emergencies.		A1-4 B1-4 C1-4	30

Unit of Competency:	SEIP-LE-WEL-02-S – Read and interpret sketches and drawings		
Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Interpret information and specifications.		A1-4 B1-4 C1-4	
2. Read and interpret sketches and drawings.		A1-4 B1-4 C1-4	
Unit of Competency:	SEIP-LE-WEL-03-S – Use hand and power tools		
Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Identify and inspect hand and power tools.		A1-4 B1-4 C1-4	
2. Use hand tools properly and safely.		A1-4 B1-4 C1-4	
3. Operate power tools properly and safely.		A1-4 B1-4 C1-4	
4. Clean and maintain hand and power tools.		A1-4 B1-4 C1-4	
Unit of Competency:	SEIP-LE-WEL-04-S – Apply quality system		
Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Work within a quality system.		A1-4 B1-4 C1-4	
2. Apply and monitor a quality system.		A1-4 B1-4 C1-4	
3. Apply standard procedures for each job.		A1-4 B1-4 C1-4	
Unit of Competency:	SEIP-LE-WEL-01-O – Apply fundamentals of welding metallurgy		
Element	**Assessment Method**		

	Written	Practical	Oral
1. Identify the mechanical properties of metals.	1	A1, B1, C1	1
2. Explain the chemical properties of steel.		A1, B1, C1	1
3. Describe the effects of heat to the chemical properties in steels.	3, 11	A1, B1, C1	
4. Demonstrate application of heat treatment processes.	2	A1, B1, C1	
5. Clean and store the tools and equipment.		A1-4 B1-4 C1-4	

Unit of Competency:	SEIP-LE-WEL-02-O – Carry out shielded metal arc welding

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Identify and prepare work requirements.	7	A1, B1, C1	3, 4
2. Select welding job, equipment and job holding devices.		A1, B1, C1	
3. Perform welding job.	6, 7, 8, 9	A1, B1, C1	10
4. Clean/maintain the workplace.		A1, B1, C1	

Unit of Competency:	SEIP-LE-WEL-03-O – Perform gas welding, gas cutting, brazing and soldering

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Prepare for gas welding.	10, 17, 18	A2, B2, C2	6, 8
2. Carry out fusion welding.	10, 12	A2, B2, C2	
3. Perform gas welding.	13, 15	A2, B2, C2	
4. Perform brazing and soldering.	16, 20	A2, B2, C2	5
5. Perform gas cutting.		A2, B2, C2	

6. Clean and store tools and equipment.		A2, B2, C2	

Unit of Competency:	SEIP-LE-WEL-04-O – Carry out gas tungsten arc welding

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Identify and prepare work requirements.	10, 14	A3, B3, C3	6
2. Select welding job, equipment and job holding devices.		A3, B3, C3	2
3. Perform GTAW or TIG welding job.	5	A3, B3, C3	7
4. Clean/maintain the workplace.		A3, B3, C3	

Unit of Competency:	SEIP-LE-WEL-05-O – Carry out gas metal arc welding

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Identify and prepare work requirements.	19	A4, B4, C4	3, 4
2. Select welding job, equipment and job holding devices.		A4, B4, C4	9
3. Perform GMAW or MIG welding job.		A4, B4, C4	
4. Clean/maintain the workplace.		A4, B4, C4	