Skills for Employment Investment Program (SEIP)

ASSESSMENT TOOL

FOR

MACHINE SHOP PRACTICE

(LIGHT ENGINEERING SECTOR)

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

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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 **Machine Shop Practice**, 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-MSP-01-G	Use basic mathematical concepts
SEIP-LE-MSP-02-G	Carry out workplace interaction
SEIP-LE-MSP-03-G	Operate in a team environment
SEIP-LE-MSP-04-G	Apply basic IT skills
Sector-specific Competencies	
SEIP-LE-MSP-01-S	Apply occupational health and safety (OHS) practice in the workplace
SEIP-LE-MSP-02-S	Read and interpret sketches and drawings
SEIP-LE-MSP-03-S	Use hand and power tools
SEIP-LE-MSP-04-S	Apply quality system
Occupation-specific Competencies	
SEIP-LE-MSP-01-O	Carry out bench working operations
SEIP-LE-MSP-02-O	Perform drilling machine operations
SEIP-LE-MSP-03-O	Perform lathe machine operations
SEIP-LE-MSP-04-O	Perform milling machine operations
SEIP-LE-MSP-05-O	Perform shaper machine operations
SEIP-LE-MSP-06-O	Perform precision grinding machine operations

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:	Machine Shop Practice				
Unit Name:	Use basic mathematical concepts				
Unit Code:	SEIP-LE-MSP-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:	Machine Shop Practice				
Unit Name:	Carry out workplace interaction				
Unit Code:	SEIP-LE-MSP-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:	Machine Shop Practice		
Unit Name:	Operate in a team environment		
Unit Code:	SEIP-LE-MSP-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:	Machine Shop Practice		
Unit Name:	Apply basic IT skills		
Unit Code:	SEIP-LE-MSP-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. Access email and search the internet	**4.1.** Use of email account in online environment is explained.		√	
	4.2. Writing and sending of workplace emails is completed.			√
	4.3. Different browsers to work online are identified and selected.		√	
	4.4. Browse different web portals and apply proper search techniques.		√	

Occupation:	Machine Shop Practice				
Unit Name:	Apply occupational health and safety (OHS) practice in the workplace				
Unit Code:	SEIP-LE-MSP-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 practices	**2.1.** OHS policies and procedures are applied in the workplace including personal protective 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:	Machine Shop Practice		
Unit Name:	Read and interpret sketches and drawings		
Unit Code:	SEIP-LE-MSP-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:	Machine Shop Practice		
Unit Name:	Use hand and power tools		
Unit Code:	SEIP-LE-MSP-03-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 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:	Machine Shop Practice
Unit Name:	Apply quality system
Unit Code:	SEIP-LE-MSP-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:	Machine Shop Practice		
Unit Name:	Carry out bench working operations		
Unit Code:	SEIP-LE-MSP-01-O		
Assessment Method:	**P**	**O**	**W**
	Performance *(including*	Oral questioning	Written examination *(including short-answer,*

	demonstration and observation)		*multiple choice, and true or false questions)*		
Element	**Performance Criteria**		**P**	**O**	**W**
1. Gather tools, equipment and materials for bench work	**1.1.** Personal protective equipment (PPE) is selected and used.		√		
	1.2. Tools, equipment and materials are selected for bench work and gathered as per job requirement specified in the drawing.		√		
	1.3. Layout is performed and marked in accordance with drawing.		√		
2. Perform bench work	**2.1.** Work piece are clamped on work holding devices to avoid damage and accident.		√		
	2.2. Work pieces are cut, chipped and filed within as specified in the drawing.		√		
	2.3. Broken or dull hacksaw blades, chisel and file are replaced according to requirements.		√		
	2.4. Measurement of work piece is checked according to standard work procedures.		√		
3. Carry out drilling and reaming operations	**3.1.** Good drill bit and reamer is collected from the store.		√		
	3.2. Bench drill machine is prepared for drilling operation.		√		
	3.3. Drilling holes are performed according to recommended sequence.		√		
	3.4. Reaming holes are performed according to recommended sequence.		√		
	3.5. Coolant is used to reduce heat of drill and reamer and prevent damage.		√		
4. Carry out manual thread cutting and damage bolt and tap removal	**4.1.** Tap is selected to cut internal thread and die is selected to cut external thread accordance with job requirement.		√		
	4.2. Work piece is held with support as required.		√		
	4.3. Thread is cut and checked by gage or mating screw given in the drawing.		√		
	4.4. Internal thread is cut in accordance with the recommended tapping sequence.		√		
	4.5. External thread is cut in accordance with the recommended die operation sequence.		√		
	4.6. Coolant is used to reduce heat of drill and reamer and prevent damage.		√		
	4.7. Screw extractor as required removes damaged bolt and stud.		√		
	4.8. Tap extractor as required removes damaged tap.		√		

5. Perform off-hand grinding operation	**5.1.** Work piece is held and clamped in accordance with standard work procedures.	√		
	5.2. Appropriate grinder and grinding disc are selected as per job requirement.	√		
	5.3. Grinding operation is performed and conformed to the specifications of the work place requirement.	√		
6. Clean, care maintain and store tools and equipment	**6.1.** Hand tools and equipment are maintained and cleaned as per instruction manual.	√		
	6.2. Workplace is cleaned in accordance with environmental requirement.	√		
	6.3. Tools and equipment are stored safely in appropriate location.	√		
	6.4. Waste materials are disposed in proper place.	√		

Occupation:	Machine Shop Practice			
Unit Name:	Perform drilling machine operations			
Unit Code:	SEIP-LE-MSP-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. Prepare for drilling operation	**1.1.** Appropriate types of drilling machines selected for different lathe operations.	√		
	1.2. Different parts and accessories of drill machine are identified.	√		
	1.3. Drilling machine mechanical feature, RPM, cutting speed and federate are demonstrated according to the machine specifications.	√		
	1.4. Drill bits and job materials are selected and collected according to the requirements of the operations.	√		
	1.5. Drawings are interpreted to produce component in accordance with job specifications.	√		
	1.6. Machine guards and coolant devices are checked in accordance with job requirement.	√		
	1.7. Work piece and drill bits are setup and clamped to required level of accuracy using instruments/equipment according to work site procedures.	√		
	1.8. Safe work practices are observed and personal protective equipment (PPE) are worn as required for the work performed.	√		
2. Grind drill bits	**2.1.** Bench/pedestal grinding machine is selected for	√		

	drill grinding operation.			
	2.2. Bench/pedestal grinding machine is set for drill grinding manually or using drill grinding attachment.	√		
	2.3. Grinding abrasive wheel is dressed by wheel dresser.	√		
	2.4. Twist drill parts are identified.	√		
	2.5. Drill grinding parameters are demonstrated.	√		
	2.6. Different profile angles are grounded according to standard specifications.	√		
	2.7. Ground drill is checked and measured using drill gauge.	√		
3. Perform drilling operations	**3.1.** Appropriate types of drill machine, tools and equipment are selected for drilling operations.	√		
	3.2. Cutting feed and RPM are selected according to the job specifications.	√		
	3.3. Component drawing is interpreted and specifications are identified .	√	√	
	3.4. Work piece and drill bits are selected, collected and set according to the requirement.	√		
	3.5. Drilling operation is performed following the sequence of operation.	√		
	3.6. Job is checked/measured in conformance with specification using appropriate techniques, drill gauge, measuring tools, materials, tools and equipment.	√		
4. Clean and store tools and equipment	**4.1.** Workplace, tools and equipment are cleaned and maintained in accordance with workplace requirements.	√		
	4.2. Waste materials are disposed in proper place.	√		
	4.3. Tools, equipment and finished products are stored safely in accordance with workplace procedures.	√		

Occupation:	Machine Shop Practice				
Unit Name:	Perform lathe machine operations				
Unit Code:	SEIP-LE-MSP-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 lathe operation	**1.1.** Appropriate type of lathe machines selected for different lathe operations.	√		
	1.2. Different parts of lathe machine are identified.	√		
	1.3. Lathe accessories are used appropriately to the requirements of the operations.	√		
	1.4. Cutting speed and feed rate are selected according to the job specifications.	√		
	1.5. Drawings are interpreted to produce component in accordance with the job specifications.	√	√	
	1.6. Job materials are selected and collected according to the job specifications.	√		
	1.7. Cutting tools and equipment are selected in accordance with the requirements of the operation.	√		
	1.8. Sequence of operation is determined to produce component in accordance with required specifications.	√		
	1.9. Safe work practices are maintained and personal protective equipment (PPE) are worn as required for the job performed.	√		
2. Grind lathe cutting tools	**2.1.** Drawings are interpreted in accordance with tool grinding specifications.	√	√	
	2.2. Tool holding devices and tool blanks are selected in accordance with the requirements of the operation.	√		
	2.3. Pedestal/bench grinding machine and accessories are selected in accordance with tool grinding requirements.	√		
	2.4. Grinding wheels are selected, inspected and dressed in accordance with worksite procedures.	√		
	2.5. Grinding machine is adjusted in accordance with worksite procedures.	√		
	2.6. Tool blank is held and clamped accordingly to avoid damage or accident.	√		
	2.7. Coolant is used to reduce heat of tool and prevent damage.	√		
	2.8. Grinding of tool blank following the profile angles of lathe cutting tools is performed in accordance with specifications mentioned in the drawing.	√		
3. Setup lathe works	**3.1.** Work piece is centred and clamped on chuck to required level of accuracy using tools and equipment in accordance with work procedures.	√		
	3.2. Work piece is setup and clamped to required level of accuracy using instruments/equipment according to work procedures.	√		
	3.3. Cutting tool is set in accordance with the	√		

	requirement of the operation.			
	3.4. Lathe accessories are used appropriately to the requirements of the jobs.	√		
	3.5. RPM is set in accordance with the job diameter.	√		
	3.6. Machine guards and coolant devices are checked according to work requirement.	√		
4. Perform facing, straight, step, shoulder turning, grooving and parting-off operations	**4.1.** Cutting speed, RPM, feed rate and depth of cut are calculated as per job requirement.	√		
	4.2. Machine performance is checked in accordance with the job requirement.	√		
	4.3. Coolant is applied to prevent over heating of work piece and cutting tool.	√		
	4.4. Straight, step, and shoulder turning is performed after facing to produce component in accordance with specifications in the drawing and finished using the lathe turning tool.	√		
	4.5. Grooving operation is performed after turning and to produce component in accordance with specifications in the drawing and finished using lathe grooving tool.	√		
	4.6. Parting-off operation is performed after all operation is completed and produce job in accordance with specification in the drawing.	√		
	4.7. Job is checked/measured in conforming to specification using appropriate techniques, measuring tools and equipment.	√		
5. Perform taper and eccentric turning	**5.1.** Cutting speed, RPM, feed rate and depth of cut are calculated as per taper and eccentric operation.	√		
	5.2. Machine performance is checked in line with the job requirement.	√		
	5.3. Coolant is applied to prevent over heating of work piece and cutting tool.	√		
	5.4. Taper turning methods are used in accordance with the job specifications.	√		
	5.5. Taper turning operation is performed using form tool, compound slide, offsetting tailstock and taper turning attachment and to produce component in accordance with the specifications in the drawing.	√		
	5.6. Eccentric turning method is selected in accordance with the job requirement.	√		
	5.7. Eccentric turning is performed in accordance with specifications in the drawing.	√		
	5.8. Job is checked and measured in conforming to the specification by using appropriate techniques, measuring tools and equipment.	√		

6. Perform threading cutting operation	**6.1.** Cutting speed, RPM, feed rate and depth of cut are calculated as per job requirement.	√		
	6.2. Different types of thread are cut in accordance with the specifications outlined in the drawing.	√		
	6.3. Machine performance is checked in accordance with the job requirement.	√		
	6.4. Coolant is applied to prevent over heating of work piece and cutting tool.	√		
	6.5. External and internal V-threads are cut in accordance with specifications in the drawing.	√		
	6.6. External and internal ACME (29 & 30 degree)-threads are cut in accordance with the specifications in the drawing.	√		
	6.7. Square-threads are cut in accordance with the specifications in the drawing.	√		
	6.8. Job is checked and measured in accordance with by using appropriate techniques, measuring tools and equipment.	√		
7. Clean and store tools and equipment	**7.1.** Workplace, tools, equipment are cleaned and maintained in accordance with workplace requirements	√		
	7.2. Preventive maintenance schedules are applied in accordance with workplace requirement.	√		
	7.3. Waste materials are disposed in proper place.	√		
	7.4. Tools, equipment and finished products are stored safely in accordance with workplace procedures.	√		

Occupation:	Machine Shop Practice		
Unit Name:	Perform milling machine operations		
Unit Code:	SEIP-LE-MSP-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. Determine job requirement	**1.1.** Types of milling machine are selected in accordance with workplace/work order requirements.	√	√	
	1.2. Machine is lubricated, handled and used in accordance with the instruction of machine manual	√		
	1.3. Milling accessories and attachment are used in accordance with the requirements of the operation	√	√	

	1.4. Required material and milling cutters are selected according to job requirements.	√		
	1.5. Cutting fluid is used in accordance with manufacturer's instruction.	√		
	1.6. Operating parameters of milling machine are identified in accordance to work requirements	√		
	1.7. Safe work practices are maintained and personal protective equipment (PPE) are worn at work	√		
2. Perform indexing operation using index head	**2.1.** Index head is selected, collected and checked	√		
	2.2. Different parts of index head are identified, checked and tested	√		
	2.3. Index head is set on milling machine in accordance with instruction of manual.	√		
	2.4. Different types of indexing methods are identified and calculated in accordance with identified indexing formula.			√
	2.5. Different indexing methods are performed in accordance with job requirement and specification.			√
3. Carry out plain, side face, gang and straddle milling operations	**3.1.** Drawings and specification are interpreted in relation to plain, side face, gang and straddle milling operation.	√	√	
	3.2. Milling machine, accessories, attachment, cutter, tools, equipment, materials and cutting fluid are used appropriately.	√		
	3.3. Sequence of operation is determined to perform milling work according to specifications.	√		
	3.4. Machine performance is checked in line with the job requirement.	√		
	3.5. Plain, side, face, gang and straddle milling operation are performed in accordance with the job requirement.	√		
	3.6. Job is checked/measured in accordance with specifications and using appropriate techniques, measuring tools and equipment.	√	√	
4. Carry out slot, key way, parting off, end, form and angular milling operations	**4.1.** Drawings and specification are interpreted in relation to slot, key way, parting off, end, form and angular milling operation.	√	√	
	4.2. Milling machine, accessories, attachment, cutter, tools, equipment, materials and cutting fluid are used to the requirements of the operation.	√		
	4.3. Sequence of operation is determined to perform milling work according to specifications	√		
	4.4. Machine performance is checked in line with the job requirement.	√		
	4.5. Slot, key way, parting off, end, form and angular	√		

	milling operation are performed according to the job requirement.			
	4.6. Job is checked/measured according to specification and appropriate techniques, measuring tools and equipment are used.	√		
5. Perform gear-cutting operation on milling machine	**5.1.** Drawings and specification are interpreted in relation to different gear cutting milling operation.	√	√	
	5.2. Milling machine, accessories, attachment, gear teeth form cutters, tools, equipment, materials and cutting fluid are used as appropriate to the requirements of the operation.	√		
	5.3. Sequence of operation is determined to perform milling work according to specifications.	√		
	5.4. Machine performance is checked in accordance with the job requirement.	√		
	5.5. Gear teeth nomenclature and formulas are calculated for the different types of gear.	√		
	5.6. Different types of gear cutting operations are performed according to the job requirement.	√		
	5.7. Job is checked/measured according to specification and appropriate techniques, measuring tools and equipment are used.	√		
6. Clean and store the tools and equipment	**6.1.** Workplace, tools, equipment and milling machine are cleaned.	√		
	6.2. Preventive maintenance schedules are applied.	√		
	6.3. Waste materials are disposed in proper place.	√		
	6.4. Tools, equipment and finished products are stored safely in appropriate location.	√		

Occupation:	Machine Shop Practice					
Unit Name:	Perform shaper machine operations					
Unit Code:	SEIP-LE-MSP-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. Prepare for shaping operation	**1.1.** Shaper machine types, main and auxiliary parts and accessories are identified.			√	√	
	1.2. Shaper machine function, quick return mechanism, principle and specifications are demonstrated.			√		

	1.3. Cutting speed, feed rate, and depth of cut are selected in accordance with the job specifications.	√		
	1.4. Drawings are interpreted in accordance with job specifications.	√		
	1.5. Materials and cutting tools are selected and collected in accordance with job specifications.	√		
	1.6. Sequence of operation is determined to produce component in accordance with job requirements.	√		
	1.7. Safe work practices are maintained and personal protective equipment (PPE) are worn in accordance with workplace requirements.	√		
2. Grind shaper tools	**2.1.** Drawings are interpreted in conformance with the design and specifications.	√		
	2.2. Tool holding devices and tool blanks are selected in accordance with requirements of the operation.	√		
	2.3. Pedestal/bench grinding machine and accessories are selected in accordance with lathe tool grinding requirements.	√		
	2.4. Grinding abrasive wheels are selected, inspected and dressed according to worksite procedures.	√		
	2.5. Grinding machine is adjusted in accordance with worksite procedures.	√		
	2.6. Tool blank is held or clamped to avoid damage and accident.	√		
	2.7. Coolant is used to reduce heat of tool and prevent damage.	√		
	2.8. Grinding of tool blank to the required profile angle of single point cutting tool is performed in accordance with specification for cutting horizontal, vertical and inclined surfaces.	√		
3. Carry out shaping operations	**3.1.** Drawings and specification are interpreted in relation to the shaping operation.	√	√	
	3.2. Shaper machine, accessories, single point cutting tools, equipment, materials, cutting fluid, tools and equipment are used in accordance with the requirements of the operation.	√		
	3.3. Sequence of operation in shaping work is determined in accordance with specifications.	√		√
	3.4. Machine performance is checked in accordance with job requirement.	√		
	3.5. Shaping operations are performed in accordance with the job requirement.	√		
	3.6. Job is checked and measured in conformance with specification using appropriate techniques, measuring tools and equipment.	√		
4. Clean and store the	**4.1.** Workplace, tools, equipment and shaper machine	√		

tools and equipment	are cleaned.			
	4.2. Preventive maintenance schedules are applied in accordance to workplace requirement.	√		
	4.3. Waste materials are disposed in proper place.	√		
	4.4. Tools, equipment and finished products are stored safely in appropriate location.	√		

Occupation:	Machine Shop Practice				
Unit Name:	Perform Precision Grinding Machine Operations				
Unit Code:	SEIP-LE-MSP-06-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. Prepare for precision grinding machine operations	**1.1.** Different types of grinding machine are identified and made ready.			√	√	
	1.2. Different parts of the grinding machine are identified.			√		
	1.3. RPM, cutting speed, feed rate and depth of grind are determined.			√		
	1.4. Grinding machine accessories and attachment are identified and set.			√		
	1.5. Different abrasive/grinding wheels are identified, selected and balanced according to the abrasive wheel specifications.			√		
	1.6. Machine is degreased, selected, handled and operated according to the machine instruction manual.			√		
	1.7. Electrical switches of machines are identified.			√		
	1.8. PPE are selected and used.			√		
2. Carry out cylindrical grinding machine operation	**2.1.** Cylindrical grinding machine are selected and set according to the job requirement.			√		
	2.2. Grinding wheels are selected, balanced, and dressed according to the requirement.			√		
	2.3. Cylindrical work piece is set between live and revolving centres.			√		
	2.4. RPM, cutting speed, feed rate and depth of cut are calculated as per job requirement.			√		
	2.5. Machine performance is checked in conformance with job requirement.			√		

	2.6. Coolant is applied to prevent over heating of work piece and cutting tool.	√		
	2.7. Cylindrical grinding operation is performed in accordance with workplace requirement.	√		
	2.8. Job is checked and measured in conformance with specification and appropriate techniques, measuring tools, and equipment are used.	√		
3. Carry out surface grinding machine operation	**3.1.** Surface grinding machine are selected and set in accordance with the job requirement.	√		
	3.2. Grinding wheels are selected, balanced, and dressed in accordance with the job requirement.	√		
	3.3. Work piece is set on the machine vice/magnetic vice.	√		
	3.4. RPM, cutting speed, feed rate and depth of cut are calculated as per job requirement.	√		
	3.5. Machine performance is checked in conformance with the job requirement.	√		
	3.6. Coolant is applied to prevent over heating of the work piece and grinding wheel.	√		
	3.7. Surface grinding operation is performed in accordance with workplace requirement.	√		
	3.8. Job is checked and measured in conformance with specification and appropriate techniques, measuring tools, and equipment are used.	√		
4. Perform universal tool and cutter grinding machine operations	**4.1.** Universal tools and cutter grinding machine are selected and set in according with the job requirement.	√		
	4.2. Grinding wheels are selected, balanced, and dressed according to the job requirement.	√		
	4.3. Cutting tools and cutters are set on the machine vice/universal vice.	√		
	4.4. RPM, cutting speed, feed rate and depth of cut are calculated as per job requirement.	√		
	4.5. Machine performance is checked in conformance with the job requirement.	√		
	4.6. Coolant is applied to prevent over heating of the work piece and grinding wheel.	√		
	4.7. Universal tools and cutter grinding operation is performed in accordance with the work place requirement.	√		
	4.8. Job is checked and measured in conformance with specification and appropriate techniques, measuring tools, and equipment are used.	√		
5. Clean and store tools and	**5.1.** Workplace, tools, equipment and shaper machine are cleaned.	√		

equipment	**5.2.** Preventive maintenance schedules are applied in accordance with workplace requirement.	√		
	5.3. Waste materials are disposed in proper place.	√		
	5.4. Tools, equipment and finished products are stored safely in appropriate location.	√		

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 Machine Shop Practice. 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:	**Machine Shop Practice**
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:** Carry out bench working operations Perform drilling machine operations Perform lathe machine operations Perform milling machine operations Perform shaper machine operations Perform precision grinding machine operations

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 t 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		
▪ Select and use personal protective equipment (PPE)		
▪ Select tools, equipment and materials for bench work and gathered as per job requirement specified in the drawing		
▪ Perform and mark layout in accordance with drawing		
▪ Clamp work piece on work holding devices to avoid damage and accident		
▪ Cut, chip and fill work pieces within as specified in the drawing		
▪ Replace broken or dull hacksaw blades, chisel and file according to requirements		
▪ Check measurement of work piece according to standard work procedures		
▪ Collect good drill bit and reamer from the store		
▪ Prepare bench drill machine for drilling operation		
▪ Perform drilling holes according to recommended sequence		
▪ Perform reaming holes according to recommended sequence		
▪ Use coolant to reduce heat of drill and reamer and prevent damage		
▪ Select tap to cut internal thread and die is selected to cut external thread accordance with job requirement		
▪ Hold work piece with support as required		
▪ Cut and check thread by gage or mating screw given in the drawing		
▪ Cut internal thread in accordance with the recommended tapping sequence		
▪ Cut external thread in accordance with the recommended die operation sequence		
▪ Use coolant to reduce heat of drill and reamer and prevent damage		
▪ Use screw extractor as required to remove damaged bolt and stud		
▪ Use tap extractor as required to remove damaged tap		

▪ Hold and clamp work piece in accordance with standard work procedures		
▪ Select appropriate grinder and grinding disc as per job requirement		
▪ Perform and conform grinding operation to the specifications of the work place requirement		
▪ Maintain and clean hand tools and equipment as per instruction manual		
▪ Clean work place in accordance with environmental requirement		
▪ Sore tools and equipment safely in appropriate location		
▪ Disposed waste materials in proper place		
▪ Select appropriate types of drilling machines for different lathe operations		
▪ Identify different parts and accessories of drill machine		
▪ Demonstrate drilling machine mechanical feature, rpm, cutting speed and federate according to the machine specifications		
▪ Select and collect drill bits and job materials according to the requirements of the operations		
▪ Interpret drawings to produce component in accordance with job specifications		
▪ Check machine guards and coolant devices in accordance with job requirement		
▪ Setup and clamp work piece and drill bits to required level of accuracy using instruments/equipment according to work site procedures		
▪ Observe safe work practices and ware personal protective equipment (PPE) as required for the work performed		
▪ Select bench/pedestal grinding machine for drill grinding operation		
▪ Set bench/pedestal grinding machine for drill grinding manually or using drill grinding attachment		
▪ Dress grinding abrasive wheel by wheel dresser		
▪ Identify twist drill parts		
▪ Demonstrate drill grinding parameters		
▪ Grind different profile angles according to standard specifications		
▪ Check and measure ground drill using drill gauge		
▪ Select appropriate types of drill machine, tools and equipment for drilling operations		
▪ Select cutting feed and rpm according to the job specifications		
▪ Interpret component drawing and specifications are identified		

▪ Select, collect and set work piece and drill bits according to the requirement		
▪ Perform drilling operation following the sequence of operation		
▪ Check/measure job is in conformance with specification using appropriate techniques, drill gauge, measuring tools, materials, tools and equipment		
▪ Clean and maintain workplace, tools and equipment in accordance with workplace requirements		
▪ Store tools, equipment and finished products safely in accordance with workplace procedures		
▪ Select appropriate type of lathe machines for different lathe operations		
▪ Identify different parts of lathe machine		
▪ Use lathe accessories appropriately to the requirements of the operations		
▪ Select cutting speed and feed rate according to the job specifications		
▪ Interpret drawings to produce component in accordance with the job specifications		
▪ Select and collect job materials according to the job specifications		
▪ Select cutting tools and equipment in accordance with the requirements of the operation		
▪ Determine sequence of operation to produce component in accordance with required specifications		
▪ Interpret drawings in accordance with tool grinding specifications		
▪ Select tool holding devices and tool blanks in accordance with the requirements of the operation		
▪ Select pedestal/bench grinding machine and accessories in accordance with tool grinding requirements		
▪ Select, inspect and dress grinding wheels in accordance with worksite procedures		
▪ Adjust grinding machine in accordance with worksite procedures		
▪ Hold and clamp tool blank accordingly to avoid damage or accident		
▪ Use coolant to reduce heat of tool and prevent damage		
▪ Perform grinding of tool blank following the profile angles of lathe cutting tools in accordance with specifications mentioned in the drawing		
▪ Centre and clamp work piece on chuck to required level of accuracy using tools and equipment in accordance with work procedures		
▪ Setup and clamp work piece to required level of accuracy using instruments/equipment according to work procedures		

▪ Set cutting tool in accordance with the requirement of the operation		
▪ Use lathe accessories appropriately to the requirements of the jobs		
▪ Set RPM in accordance with the job diameter		
▪ Check machine guards and coolant devices according to work requirement		
▪ Calculate cutting speed, RPM, feed rate and depth of cut as per job requirement		
▪ Check machine performance in accordance with the job requirement		
▪ coolant is applied to prevent over heating of work piece and cutting tool		
▪ Perform straight, step, and shoulder turning after facing to produce component in accordance with specifications in the drawing and finished using the lathe turning tool		
▪ Perform grooving operation after turning and to produce component in accordance with specifications in the drawing and finished using lathe grooving tool		
▪ Perform parting-off operation after all operation is completed and produce job in accordance with specification in the drawing		
▪ check/measure job in conforming to specification using appropriate techniques, measuring tools and equipment		
▪ Calculate cutting speed, RPM, feed rate and depth of cut as per taper and eccentric operation		
▪ Check machine performance in line with the job requirement		
▪ Apply coolant to prevent over heating of work piece and cutting tool		
▪ Use taper turning methods in accordance with the job specifications		
▪ Perform taper turning operation using form tool, compound slide, offsetting tailstock and taper turning attachment and to produce component in accordance with the specifications in the drawing.		
▪ Select eccentric turning method in accordance with the job requirement		
▪ Perform eccentric turning in accordance with specifications in the drawing		
▪ Check and measure job in conforming to the specification by using appropriate techniques, measuring tools and equipment		
▪ Calculate cutting speed, RPM, feed rate and depth of cut as per job requirement		
▪ Cut different types of thread in accordance with the specifications outlined in the drawing		
▪ Check machine performance in accordance with the job requirement		

▪ Apply coolant to prevent over heating of work piece and cutting tool		
▪ Cut external and internal V-threads in accordance with specifications in the drawing		
▪ Cut external and internal acme (29 & 30 degree) threads in accordance with the specifications in the drawing		
▪ Cut square-threads in accordance with the specifications in the drawing		
▪ Check and measure job in accordance with by using appropriate techniques, measuring tools and equipment		
▪ Clean and maintain workplace, tools, equipment in accordance with workplace requirement		
▪ Apply preventive maintenance schedules in accordance with workplace requirement		
▪ Select types of milling machine in accordance with workplace/work order requirements		
▪ Lubricate, handle and use machine in accordance with the instruction of machine manual		
▪ Use milling accessories and attachment in accordance with the requirements of the operation		
▪ Select required material and milling cutters according to job requirements		
▪ Use cutting fluid in accordance with manufacturer's instruction		
▪ identify operating parameters of milling machine in accordance to work requirements		
▪ Select, collect and check index head		
▪ Identify, check and taste different parts of index head		
▪ Set index head on milling machine in accordance with instruction of manual		
▪ Identify and calculate different types of indexing methods in accordance with identified indexing formula		
▪ Perform different indexing methods in accordance with job requirement and specification		
▪ Interpret drawings and specification in relation to plain, side face, gang and straddle milling operation		
▪ Use milling machine, accessories, attachment, cutter, tools, equipment, materials and cutting fluid appropriately.		
▪ Determine sequence of operation to perform milling work according to specifications		
▪ Check machine performance in line with the job requirement		
▪ Perform plain, side, face, gang and straddle milling operation in accordance with the job requirement		

▪ Check/measure job in accordance with specifications and using appropriate techniques, measuring tools and equipment		
▪ Interpret drawings and specification in relation to slot, key way, parting off, end, form and angular milling operation		
▪ Use milling machine, accessories, attachment, cutter, tools, equipment, materials and cutting fluid to the requirements of the operation		
▪ Determine sequence of operation to perform milling work according to specifications		
▪ Check machine performance in line with the job requirement		
▪ Perform slot, key way, parting off, end, form and angular milling operation according to the job requirement		
▪ Check/measure job according to specification and appropriate techniques, measuring tools and equipment are used		
▪ Interpret drawings and specification in relation to different gear cutting milling operation		
▪ Use milling machine, accessories, attachment, gear teeth form cutters, tools, equipment, materials and cutting fluid as appropriate to the requirements of the operation		
▪ Determine sequence of operation to perform milling work according to specifications		
▪ Check machine performance in accordance with the job requirement		
▪ Calculate gear teeth nomenclature and formulas for the different types of gear		
▪ Perform different types of gear cutting operations according to the job requirement		
▪ Check/measure job according to specification and appropriate techniques, measuring tools and equipment are used		
▪ Clean workplace, tools, equipment and milling machine		
▪ Apply preventive maintenance schedules		
▪ Identify shaper machine types, main and auxiliary parts and accessories		
▪ Demonstrate shaper machine function, quick return mechanism, principle and specifications		
▪ Select cutting speed, feed rate, and depth of cut in accordance with the job specifications		
▪ Interpret drawings in accordance with job specifications		
▪ Select and collect materials and cutting tools in accordance with job specifications		
▪ Determine sequence of operation to produce component in accordance with job requirements		
▪ Interpret drawings in conformance with the design and specifications		

▪ Select tool holding devices and tool blanks in accordance with requirements of the operation		
▪ Select pedestal/bench grinding machine and accessories in accordance with lathe tool grinding requirements		
▪ Select, inspect and dress grinding abrasive wheels according to worksite procedures		
▪ Adjust grinding machine in accordance with worksite procedures		
▪ Hold or clamp tool blank to avoid damage and accident		
▪ use coolant to reduce heat of tool and prevent damage		
▪ Perform grinding of tool blank to the required profile angle of single point cutting tool in accordance with specification for cutting horizontal, vertical and inclined surfaces		
▪ Interpret drawings and specification in relation to the shaping operation		
▪ Use shaper machine, accessories, single point cutting tools, equipment, materials, cutting fluid, tools and equipment in accordance with the requirements of the operation		
▪ Determine sequence of operation in shaping work in accordance with specifications		
▪ Check machine performance in accordance with job requirement		
▪ Perform shaping operations in accordance with the job requirement		
▪ Check and measure job in conformance with specification using appropriate techniques, measuring tools and equipment		
▪ Clean workplace, tools, equipment and shaper machine		
▪ Apply preventive maintenance schedules in accordance to workplace requirement		
▪ Identify and make ready different types of grinding machine		
▪ Identify different parts of the grinding machine		
▪ Determine RPM, cutting speed, feed rate and depth of grind		
▪ Identify and set grinding machine accessories and attachment		
▪ Identify, select and balance different abrasive/grinding wheels according to the abrasive wheel specifications		
▪ Degrees, select, handle and operate machine according to the machine instruction manual		
▪ Identify electrical switches of machines		
▪ Select and set cylindrical grinding machine according to the job requirement		
▪ Select, balance, and dress grinding wheels according to the requirement		
▪ Set cylindrical work piece between live and revolving centres		

▪ Calculate RPM, cutting speed, feed rate and depth of cut as per job requirement		
▪ Check machine performance in conformance with job requirement		
▪ Apply coolant to prevent over heating of work piece and cutting tool		
▪ Perform cylindrical grinding operation in accordance with workplace requirement		
▪ Check and measure job in conformance with specification and appropriate techniques, measuring tools, and equipment are used		
▪ Select and set surface grinding machine in accordance with the job requirement		
▪ Select, balance, and dress grinding wheels in accordance with the job requirement		
▪ Set work piece on the machine vice/magnetic vice		
▪ Calculate RPM, cutting speed, feed rate and depth of cut as per job requirement.		
▪ Check machine performance in conformance with the job requirement		
▪ Apply coolant to prevent over heating of the work piece and grinding wheel		
▪ Perform surface grinding operation in accordance with workplace requirement		
▪ Check and measure job in conformance with specification and appropriate techniques, measuring tools, and equipment are used		
▪ Select and set universal tools and cutter grinding machine in according with the job requirement		
▪ Select, balance, and dress grinding wheels according to the job requirement		
▪ Set cutting tools and cutters on the machine vice/universal vice		
▪ Calculate RPM, cutting speed, feed rate and depth of cut as per job requirement		
▪ Check machine performance in conformance with the job requirement		
▪ Apply coolant to prevent over heating of the work piece and grinding wheel		
▪ Perform universal tools and cutter grinding operation in accordance with the work place requirement		
▪ Check and measure job in conformance with specification and appropriate techniques, measuring tools, and equipment are used		
▪ Clean workplace, tools, equipment and shaper machine		

▪ Apply preventive maintenance schedules in accordance with workplace requirement			
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 – Machine Shop Practice

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 Machine Shop Practice, 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-MSP-01-G	Use basic mathematical concepts
SEIP-LE-MSP-02-G	Carry out workplace interaction
SEIP-LE-MSP-03-G	Operate in a team environment
SEIP-LE-MSP-04-G	Apply basic IT skills
Sector-specific Competencies	
SEIP-LE-MSP-01-S	Apply occupational health and safety (OHS) practice in the workplace
SEIP-LE-MSP-02-S	Read and interpret sketches and drawings
SEIP-LE-MSP-03-S	Use hand and power tools
SEIP-LE-MSP-04-S	Apply quality system
Occupation-specific Competencies	
SEIP-LE-MSP-01-O	Carry out bench working operations
SEIP-LE-MSP-02-O	Perform drilling machine operations
SEIP-LE-MSP-03-O	Perform lathe machine operations
SEIP-LE-MSP-04-O	Perform milling machine operations
SEIP-LE-MSP-05-O	Perform shaper machine operations
SEIP-LE-MSP-06-O	Perform precision grinding machine operations

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

Assessment Agreement	
Occupation:	Machine Shop Practice
Assessment Centre:	
Candidate Name:	
Assessor Name:	
Unit of Competency	
Generic Competencies	
SEIP-LE-MSP-01-G	Use basic mathematical concepts
SEIP-LE-MSP-02-G	Carry out workplace interaction
SEIP-LE-MSP-03-G	Operate in a team environment
SEIP-LE-MSP-04-G	Apply basic IT skills
Sector-specific Competencies	
SEIP-LE-MSP-01-S	Apply occupational health and safety (OHS) practice in the workplace
SEIP-LE-MSP-02-S	Read and interpret sketches and drawings
SEIP-LE-MSP-03-S	Use hand and power tools
SEIP-LE-MSP-04-S	Apply quality system
Occupation-specific Competencies	
SEIP-LE-MSP-01-O	Carry out bench working operations
SEIP-LE-MSP-02-O	Perform drilling machine operations
SEIP-LE-MSP-03-O	Perform lathe machine operations
SEIP-LE-MSP-04-O	Perform milling machine operations
SEIP-LE-MSP-05-O	Perform shaper machine operations
SEIP-LE-MSP-06-O	Perform precision grinding machine operations
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 Machine Shop Practice, 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:

       - Make component using bench work, lathe and drill machine
       - Make spur gear out of the given work piece using milling machine
       - Make component using shaper and grinding machine

     - Set B:

       - Make component using bench work, lathe and drill machine
       - Make spur gear out of the given work piece using milling machine
       - Make component using shaper and grinding machine

     - Set C:

       - Make component using bench work, lathe and drill machine
       - Make spur gear out of the given work piece using milling machine
       - Make component using shaper and grinding machine

   - 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 (6 hours) – **performance evidence**

   The basic machine operation practical demonstration activities will be divided into three (3) tasks (contained in one set):

   (i) Practical Demonstration 1 (2 hours)
   (ii) Practical Demonstration 2 (2 hours)
   (iii) Practical Demonstration 3 (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 55
- Set A – Practical Demonstration 2: page 61
- Set A – Practical Demonstration 3: page 66
- Set B – Practical Demonstration 1: page 73
- Set B – Practical Demonstration 2: page 79
- Set B – Practical Demonstration 3: page 84
- Set C – Practical Demonstration 1: page 91
- Set C – Practical Demonstration 2: page 97
- Set C – Practical Demonstration 3: 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 Machine Shop Practice. 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 (6 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:
     - Make a component using bench work, lathe and drill machine (2 hours)
     - Make a spur gear out of the given work piece using milling machine (2 hours)
     - Make a component using shaper and grinding machine (2 hours)
   - Set B:
     - Make a component using bench work, lathe and drill machine (2 hours)
     - Make a spur gear out of the given work piece using milling machine (2 hours)
     - Make a component using shaper and grinding machine(2 hours)
   - Set C:
     - Make a component using bench work, lathe and drill machine (2 hours)
     - Make a spur gear out of the given work piece using milling machine (2 hours)
     - Make a component using shaper and grinding machine (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 Machine Shop Practice.

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 Machine Shop Practice
Unit of Competency	
Generic Competencies	
SEIP-LE-MSP-01-G	Use basic mathematical concepts
SEIP-LE-MSP-02-G	Carry out workplace interaction
SEIP-LE-MSP-03-G	Operate in a team environment
SEIP-LE-MSP-04-G	Apply basic IT skills
Sector-specific Competencies	
SEIP-LE-MSP-01-S	Apply occupational health and safety (OHS) practice in the workplace
SEIP-LE-MSP-02-S	Read and interpret sketches and drawings
SEIP-LE-MSP-03-S	Use hand and power tools
SEIP-LE-MSP-04-S	Apply quality system
Occupation-specific Competencies	
SEIP-LE-MSP-01-O	Carry out bench working operations
SEIP-LE-MSP-02-O	Perform drilling machine operations
SEIP-LE-MSP-03-O	Perform lathe machine operations
SEIP-LE-MSP-04-O	Perform milling machine operations
SEIP-LE-MSP-05-O	Perform shaper machine operations
SEIP-LE-MSP-06-O	Perform precision grinding machine operations
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 Machine Shop Practice ▪ 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** test. Choose the appropriate answer and circle the letter that corresponds with your answer.		
1.	Which machine tool is known as the mother machine tool?	a. Drill b. Milling c. Lathe d. None of the above
2.	What type of surface is produced by turning operation in lathe machine?	a. Flat b. Cylindrical c. Taper d. None of the above
3.	Which of the following is the driving end of the drill?	a. Tang b. Flute c. Shank d. Land
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 milling is known as conventional milling?	a. Up-milling b. Down-milling c. Both up-milling and down-milling d. None of the above
6.	Which of the following is not a type of dividing head?	a. Plain dividing head b. Universal dividing head c. Optical dividing head d. All of the above
7.	Which of the following part of shaper supports the entire load of the machine?	a. Base b. Cross rail c. Frame d. None of the above
8.	Which movement of ram is called stroke?	a. Only back b. Only forth c. Back and forth d. None of the above
9.	Operation done to make periphery of grinding wheel concentric with its axis to recover its lost shape is known as?	a. Loading b. Glazing c. Dressing d. Trueing

10.	Loss in the sharpness of grinding wheel due to the presence of chips in gaps of grains is termed as?	a. Loading b. Glazing c. Dressing d. Trueing
True or False Quiz		
Tick (√) the box corresponding to the correct answer.		
11.	Polite words should be used when conducting official communication through the email.	True ☐ False ☐
12.	Rahim knows that she has a meeting at 9:00 in the morning. It is part of professional ethics to come to the meeting even if she is late by 1 hour. Anyway, the team members will wait for her.	True ☐ False ☐
13.	Wearing PPE helps protect against injury.	True ☐ False ☐
Fill in the Missing Blanks		
Write the word or group of words needed to complete the following sentences.		
14.	Traversing of tool parallel to the axis of job is termed as_____	
15.	Taper shank is used for_____ diameter drills.	
Short Answer		
Write a short answer in the space provided (not to exceed more than approximately twenty-five (25) words).		
16.	What are the various operations that can be performed on a lathe?	
17.	What are the limitations of a milling machine?	
18.	Name the principal parts of knee and column type milling machine.	
19.	What is shaper? How is the feed and depth of cut given to the shaper?	
20.	What is the purpose of grinding? What is the function of cutting fluids?	

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 machine tool is known as the mother machine tool?	a. Drill b. Milling **c. *Lathe*** d. None of the above
2.	What type of surface is produced by turning operation in lathe machine?	a. Flat ***b. Cylindrical*** c. Taper d. None of the above
3.	Which of the following is the driving end of the drill?	a. Tang b. Flute ***c. Shank*** d. Land
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 b. 25,000,000
5.	Which of the following milling is known as conventional milling?	***a. Up-milling*** b. Down-milling c. Both up-milling and down-milling d. None of the above
6.	Which of the following is not a type of dividing head?	a. Plain dividing head b. Universal dividing head c. Optical dividing head ***d. All of the above***
7.	Which of the following part of shaper supports the entire load of the machine?	***a. Base*** b. Cross rail c. Frame d. None of the above
8.	Which movement of ram is called stroke?	a. Only back b. Only forth ***c. Back and forth*** d. None of the above
9.	Operation done to make periphery of grinding wheel concentric with its axis to recover its lost shape is known as?	a. Loading b. Glazing c. Dressing **d. *Trueing***
10.	Loss in the sharpness of grinding wheel due to the presence of chips in gaps of grains is	***a. Loading*** b. Glazing

	termed as?	c. Dressing d. Trueing
True or False Quiz		
11.	Polite words should be used when conducting official communication through the email.	***True*** √ False ☐
12.	Rahim knows that she has a meeting at 9:00 in the morning. It is part of professional ethics to come to the meeting even if she is late by 1 hour. Anyway, the team members will wait for her.	*True* ☐ ***False*** √
13.	Wearing PPE helps protect against injury.	***True*** √ False ☐
Fill in the Missing Blanks		
14.	Traversing of tool parallel to the axis of job is termed as ***longitudinal feed***.	
15.	Taper shank is used for ***large*** diameter drills.	
Short Answer		
16.	What are the various operations that can be performed on a lathe?	***The various operations can be performed on a lathe are as follows:*** ***1. Turning, 2. Thread cutting, 3. Grooving,*** ***4. Facing, 5. Drilling, 6. Forming, 7. Boring,*** ***8. Knurling, 9. Chamfering, 10. Tapping***
17.	What are the limitations of a milling machine?	***The major limitations of a milling machine are as follows:*** ***1. Milling machine is mostly used for machining jobs of smaller size*** ***2. Its speed is slow for machining long jobs*** ***3. Cutting tool is costlier***
18.	Name the principal parts of knee and column type milling machine.	***1. Base*** ***2. Column*** ***3. Knee*** ***4. Saddle*** ***5. Table*** ***6. Spindle*** ***7. Overarm*** ***8. Arbor***
19.	What is shaper? How is the feed and depth of cut given to the shaper?	***The machine, which is having a reciprocating type of machine tool with a single point cutting tool, used to produce flat surfaces called as Shapers*** ***Feed is given by rotating the down feed screws of tool head depth of cut is given by rotating by raising or elevating the table***
20.	What are the various operations that can be performed on a lathe?	***Purpose of grinding:*** ***1. To remove small amount of metal from***

		work pieces & finish then to close tolerances. ***2. To obtain the better surface finish.*** ***<u>Function of cutting fluids</u>:*** ***1. It is used to cool the cutting tool & the work piece.*** ***2. It improves the surface finish as stated earlier.*** ***3. It causes the chips to break up into small parts.*** ***4. It protects the finish surface from corrosion.*** ***5. It prevents the corrosion of work & machine.***

Set A: Practical Demonstration 1

PRACTICAL DEMONSTRATION 1	
Candidate Name:	
Assessor Name:	
Qualification:	Certificate in Machine Shop Practice
Task:	Make component using lathe and drill machine
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	

Instructions:

Read and understand the directions carefully:

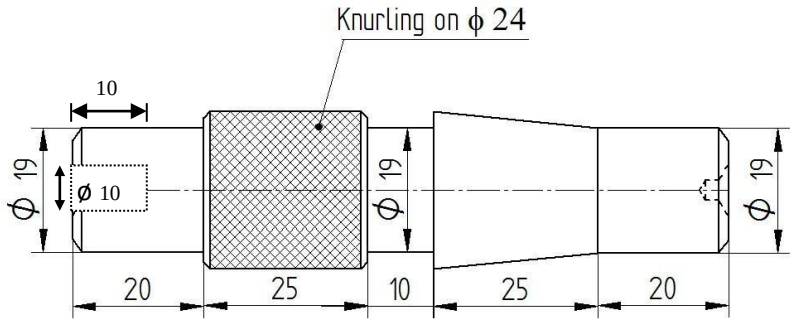
- this practical demonstration is based on the performance criteria from all or some of the units of competency in Machine Shop Practice
- this assessment activity will be used to measure your underpinning skills
- you will have fifteen (15) minutes to familiarise yourself with the resources to be used
- 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. Read and interpret drawing.
7. Hold the workpiece on 3 jaw chuck by keeping 60 to 70 mm outside and face the workpiece to clear the roughness.
8. Centre drilling on the face of the work.
9. Plain turn Ø24 to maximum length.
10. Step turn Ø19 to 20 mm length.
11. Undercut Ø19 to 10 mm width.
12. Taper turning.
13. Chamfering 0.5 all sharp corners.
14. Drilling hole Ø10 to 10 mm length.
15. Ream the hole.
16. Repeat the work on the reverse side.
17. Clean, maintain and store tools and equipment.
18. Clean workplace and dispose of waste materials.

Drawing, Plan, Diagram or Sketch:	
 *(All dimensions in mm)*	
Resources Required:	
Tools:	Turning tool Drill bit Reaming tool File Hammer
Equipment:	Vice
Machinery:	Lathe machine Drill machine
Materials:	Mild steel (AISI 1040 steel) Drill bit
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 Machine Shop Practice
Task:	Make component using lathe and drill machine
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**
Personal protective equipment (PPE) is selected and used.	☐	☐
Tools, equipment and materials are selected for bench work and gathered as per job requirement specified in the drawing.	☐	☐
Layout is performed and marked in accordance with drawing.	☐	☐
Work piece are clamped on work holding devices to avoid damage and accident.	☐	☐
Work pieces are cut, chipped and filed within as specified in the drawing.	☐	☐
Broken or dull hacksaw blades, chisel and file are replaced according to requirements.	☐	☐
Measurement of work piece is checked according to standard work procedures.	☐	☐
Good drill bit and reamer is collected from the store.	☐	☐
Bench drill machine is prepared for drilling operation.	☐	☐

Drilling holes are performed according to recommended sequence.	☐	☐
Reaming holes are performed according to recommended sequence.	☐	☐
Coolant is used to reduce heat of drill and reamer and prevent damage.	☐	☐
Tap is selected to cut internal thread and die is selected to cut external thread accordance with job requirement.	☐	☐
Work piece is held with support as required.	☐	☐
Thread is cut and checked by gage or mating screw given in the drawing.	☐	☐
Internal thread is cut in accordance with the recommended tapping sequence.	☐	☐
External thread is cut in accordance with the recommended die operation sequence.	☐	☐
Coolant is used to reduce heat of drill and reamer and prevent damage.	☐	☐
Screw extractor as required removes damaged bolt and stud.	☐	☐
Tap extractor as required removes damaged tap.	☐	☐
Work piece is held and clamped in accordance with standard work procedures.	☐	☐
Appropriate types of drilling machines selected for different lathe operations.	☐	☐
Different parts and accessories of drill machine are identified.	☐	☐
Drilling machine mechanical feature, RPM, cutting speed and federate are demonstrated according to the machine specifications.	☐	☐
Drill bits and job materials are selected and collected according to the requirements of the operations.	☐	☐
Drawings are interpreted to produce component in accordance with job specifications.	☐	☐
Machine guards and coolant devices are checked in accordance with job requirement.	☐	☐
Work piece and drill bits are setup and clamped to required level of accuracy using instruments/equipment according to work site procedures.	☐	☐
Twist drill parts are identified.	☐	☐
Drill grinding parameters are demonstrated.	☐	☐
Different profile angles are grounded according to standard specifications.	☐	☐
Ground drill is checked and measured using drill gauge.	☐	☐

Appropriate types of drill machine, tools and equipment are selected for drilling operations.	☐	☐
Cutting feed and RPM are selected according to the job specifications.	☐	☐
Component drawing is interpreted and specifications are identified.	☐	☐
Work piece and drill bits are selected, collected and set according to the requirement.	☐	☐
Drilling operation is performed following the sequence of operation	☐	☐
Job is checked/measured in conformance with specification using appropriate techniques, drill gauge, measuring tools, materials, tools and equipment.	☐	☐
Appropriate type of lathe machines selected for different lathe operations.	☐	☐
Different parts of lathe machine are identified.	☐	☐
Lathe accessories are used appropriately to the requirements of the operations.	☐	☐
Sequence of operation is determined to produce component in accordance with required specifications.	☐	☐
Cutting tool is set in accordance with the requirement of the operation.	☐	☐
RPM is set in accordance with the job diameter.	☐	☐
Machine guards and coolant devices are checked according to work requirement.	☐	☐
Straight, step, and shoulder turning is performed after facing to produce component in accordance with specifications in the drawing and finished using the lathe turning tool.	☐	☐
Grooving operation is performed after turning and to produce component in accordance with specifications in the drawing and finished using lathe grooving tool.	☐	☐
Parting-off operation is performed after all operation is completed and produce job in accordance with specification in the drawing.	☐	☐
Taper turning methods are used in accordance with the job specifications.	☐	☐
Taper turning operation is performed using form tool, compound slide, offsetting tailstock and taper turning attachment and to produce component in accordance with the specifications in the drawing.	☐	☐
Eccentric turning method is selected in accordance with the job requirement.	☐	☐
Eccentric turning is performed in accordance with specifications in the drawing.	☐	☐
Different types of thread are cut in accordance with the	☐	☐

specifications outlined in the drawing.		
External and internal V-threads are cut in accordance with specifications in the drawing.	☐	☐
External and internal ACME (29 & 30 degree) threads are cut in accordance with the specifications in the drawing.	☐	☐
Square-threads are cut in accordance with the specifications in the drawing.	☐	☐
Workplace, tools, equipment are cleaned and maintained in accordance with workplace requirements.	☐	☐
Preventive maintenance schedules are applied in accordance with workplace requirement.	☐	☐
Waste materials are disposed in proper place.	☐	☐
Tools, equipment and finished products are stored safely in accordance with workplace procedures.	☐	☐
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 Machine Shop Practice
Task:	Make spur gear out of the given work piece using milling machine
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 Machine Shop Practice
- 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:

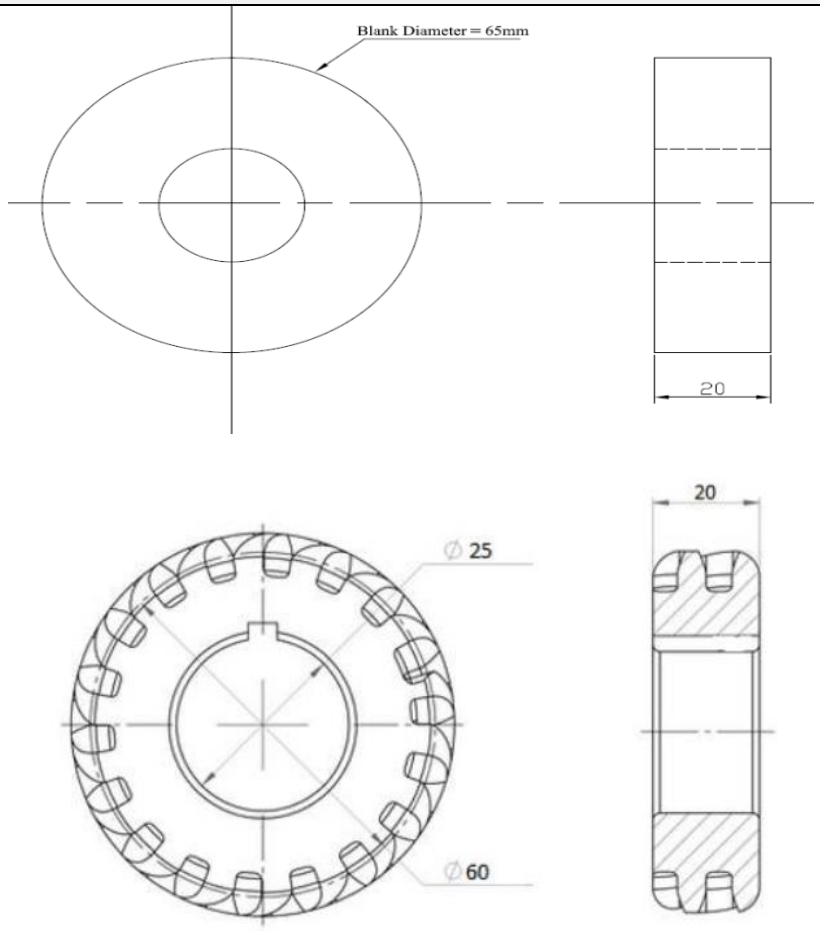
- observe and wear personal protective equipment (PPE) as required for the task to be performed
- read the specification information provided
- collect all materials needed to complete the task
- perform the task within the given time
- observe and follow all health and safety (OHS) requirements at all 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. Gear blank is held between dividing head and tailstock using a mandrel.
10. Cutter is mounted on arbor and cutter is centered accurately with gear blank.
11. Set speed and feed for machining (for giving depth of cut, table is raised until periphery of gear blank just touches cutter).
12. Micrometer dial of vertical feed screw is set to zero at this position (then table is raised further to give required depth of cut).
13. Machine is started and feed is given to table to cut the first groove of the blank.
14. After cut, table is brought back to starting position (then gear blank is indexed for next tooth space and is continued until all teeth are cut).
15. Dimensions of gear teeth profile are checked using gear tooth Vernier.
16. Clean, maintain and store tools and equipment.

17. Clean workplace and dispose of waste materials.

Drawing, Plan, Diagram or Sketch:



(All dimensions are in mm)

Resources Required:

Tools:	Gear teeth cutter (HSS)
Equipment:	N/A
Machinery:	Horizontal milling machine
Materials:	Cast iron work piece (65 mm diameter; 20mm thickness)
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 Machine Shop Practice
Task:	Make spur gear out of the given work piece using milling machine
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**
Types of milling machine are selected in accordance with workplace/work order requirements.	☐	☐
Machine is lubricated, handled and used in accordance with the instruction of machine manual.	☐	☐
Milling accessories and attachment are used in accordance with the requirements of the operation.	☐	☐
Required material and milling cutters are selected according to job requirements.	☐	☐
Cutting fluid is used in accordance with manufacturer's instruction.	☐	☐
Operating parameters of milling machine are identified in accordance to work requirements.	☐	☐
Safe work practices are maintained and personal protective equipment (PPEs) are worn at work.	☐	☐
Index head is selected, collected and checked.	☐	☐
Different parts of index head are identified, checked and tested.	☐	☐

Index head is set on milling machine in accordance with instruction of manual.	☐	☐
Different types of indexing methods are identified and calculated in accordance with identified indexing formula.	☐	☐
Different indexing methods are performed in accordance with job requirement and specification.	☐	☐
Drawings and specification are interpreted in relation to plain, side face, gang and straddle milling operation.	☐	☐
Sequence of operation is determined to perform milling work according to specifications.	☐	☐
Machine performance is checked in line with the job requirement.	☐	☐
Plain, side, face, gang and straddle milling operation are performed in accordance with the job requirement.	☐	☐
Job is checked/measured in accordance with specifications and using appropriate techniques, measuring tools and equipment.	☐	☐
Drawings and specification are interpreted in relation to slot, key way, parting off, end, form and angular milling operation.	☐	☐
Milling machine, accessories, attachment, cutter, tools, equipment, materials and cutting fluid are used to the requirements of the operation.	☐	☐
Slot, key way, parting off, end, form and angular milling operation are performed according to the job requirement.	☐	☐
Job is checked/measured according to specification and appropriate techniques, measuring tools and equipment are used.	☐	☐
Drawings and specification are interpreted in relation to different gear cutting milling operation.	☐	☐
Milling machine, accessories, attachment, gear teeth form cutters, tools, equipment, materials and cutting fluid are used as appropriate to the requirements of the operation.	☐	☐
Machine performance is checked in accordance with the job requirement.	☐	☐
Gear teeth nomenclature and formulas are calculated for the different types of gear.	☐	☐
Different types of gear cutting operations are performed according to the job requirement.	☐	☐
Workplace, tools, equipment and milling machine are cleaned.	☐	☐
Preventive maintenance schedules are applied.	☐	☐
Waste materials are disposed in proper place.	☐	☐
Tools, equipment and finished products are stored safely in appropriate location.	☐	☐
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 Machine Shop Practice
Task:	Make component using shaper and grinding machine
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 Machine Shop Practice
- 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:

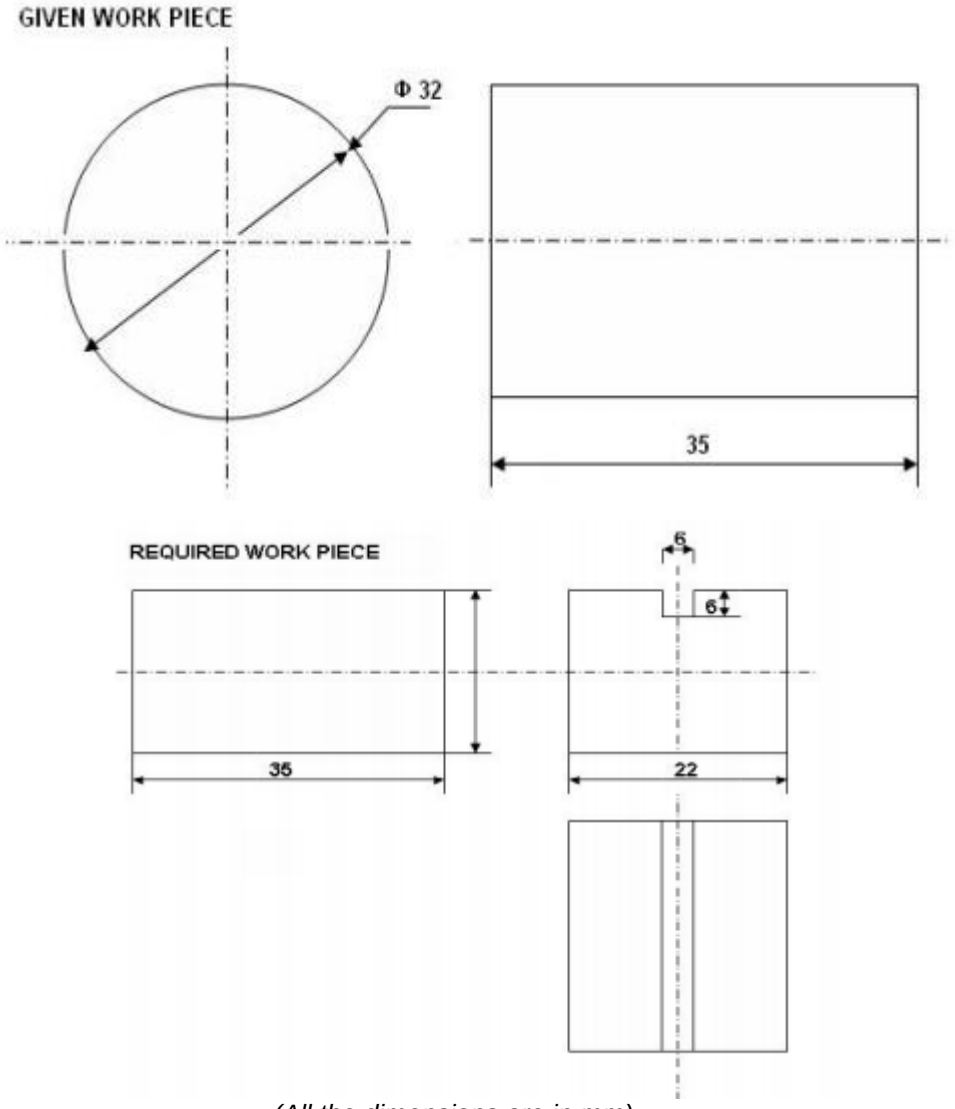
- observe and wear personal protective equipment (PPE) as required for the task to be performed
- read the specification information provided
- collect all materials needed to complete the task
- perform the task within the given time
- observe and follow all health and safety (OHS) requirements at all 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. Two ends of work piece are first smoothed by filing and apply chalk on surface.
10. Place work piece on V-block and mark centre on end face using surface gauge, scriber and Vernier height gauge.
11. Mark square on end face according to required dimensions.
12. Using dot punch, make permanent indentation marks on work piece.
13. Tool is fixed to tool post such that tool movement should be exactly perpendicular to table.
14. Work piece is then set in vice such that the tool is just above work piece.
15. Adjust length of stroke.
16. Make sure that line of action of stroke is parallel to surface of work piece.
17. Give depth of cut by moving tool and feed is given to work piece during return stroke of the ram.

18. Continue process until required dimensions are obtained.
19. Repeat process for all four sides.
20. Make a key way on one side according to given dimensions.
21. Grind surface of work piece to required shape by using surface grinder.
22. Email supervisor completion report of task (in Word).
23. Clean, maintain and store tools and equipment.
24. Clean workplace and dispose of waste materials.

Drawing, Plan, Diagram or Sketch:



(All the dimensions are in mm)

Resources Required:

Tools:	Shaper cutting tool
Equipment:	Grinding wheel
Machinery:	Shaper and grinding machine
Materials:	Cylindrical mild steel rod (32 mm diameter; 35 mm length)
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 Machine Shop Practice
Task:	Make component using shaper and grinding machine
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**
Safe work practices are maintained and personal protective equipment (PPE) are worn in accordance with workplace requirements.	☐	☐
Drawings are interpreted in accordance with job specifications.	☐	☐
Shaper machine types, main and auxiliary parts and accessories are identified.	☐	☐
Materials and cutting tools are selected and collected in accordance with job specifications.	☐	☐
Cutting speed, feed rate, and depth of cut are selected in accordance with the job specifications.	☐	☐
Sequence of operation is determined to produce component in accordance with job requirements.	☐	☐
Shaper machine function, quick return mechanism, principle and specifications are demonstrated.	☐	☐
Drawings are interpreted in conformance with the design and specifications.	☐	☐

Tool holding devices and tool blanks are selected in accordance with requirements of the operation.	☐	☐
Pedestal/bench grinding machine and accessories are selected in accordance with lathe tool grinding requirements.	☐	☐
Grinding abrasive wheels are selected, inspected and dressed according to worksite procedures.	☐	☐
Grinding machine is adjusted in accordance with worksite procedures.	☐	☐
Tool blank is held or clamped to avoid damage and accident.	☐	☐
Coolant is used to reduce heat of tool and prevent damage.	☐	☐
Grinding of tool blank to the required profile angle of single point cutting tool is performed in accordance with specification for cutting horizontal, vertical and inclined surfaces.	☐	☐
Drawings and specification are interpreted in relation to the shaping operation.	☐	☐
Shaper machine, accessories, single point cutting tools, equipment, materials, cutting fluid, tools and equipment are used in accordance with the requirements of the operation.	☐	☐
Sequence of operation in shaping work is determined in accordance with specifications.	☐	☐
Machine performance is checked in accordance with job requirement.	☐	☐
Shaping operations are performed in accordance with the job requirement.	☐	☐
Job is checked and measured in conformance with specification using appropriate techniques, measuring tools and equipment.	☐	☐
Different types of grinding machine are identified and made ready.	☐	☐
Different parts of the grinding machine are identified.	☐	☐
RPM, cutting speed, feed rate and depth of grind are determined.	☐	☐
Grinding machine accessories and attachment are identified and set.	☐	☐
Different abrasive/grinding wheels are identified, selected and balanced according to the abrasive wheel specifications.	☐	☐
Machine is degreased, selected, handled and operated according to the machine instruction manual.	☐	☐
Electrical switches of machines are identified.	☐	☐
Cylindrical grinding machine are selected and set according to the job requirement.	☐	☐
Grinding wheels are selected, balanced, and dressed	☐	☐

according to the requirement		
Cylindrical work piece is set between live and revolving centres.	☐	☐
RPM, cutting speed, feed rate and depth of cut are calculated as per job requirement.	☐	☐
Coolant is applied to prevent over heating of work piece and cutting tool.	☐	☐
Cylindrical grinding operation is performed in accordance with workplace requirement.	☐	☐
Surface grinding machine are selected and set in accordance with the job requirement	☐	☐
Grinding wheels are selected, balanced, and dressed in accordance with the job requirement.	☐	☐
Work piece is set on the machine vice/magnetic vice.	☐	☐
RPM, cutting speed, feed rate and depth of cut are calculated as per job requirement.	☐	☐
Machine performance is checked in conformance with the job requirement.	☐	☐
Coolant is applied to prevent over heating of the work piece and grinding wheel.	☐	☐
Surface grinding operation is performed in accordance with workplace requirement.	☐	☐
Job is checked and measured in conformance with specification and appropriate techniques, measuring tools, and equipment are used.	☐	☐
Universal tools and cutter grinding machine are selected and set in according with the job requirement.	☐	☐
Grinding wheels are selected, balanced, and dressed according to the job requirement.	☐	☐
Cutting tools and cutters are set on the machine vice/universal vice.	☐	☐
Machine performance is checked in conformance with the job requirement.	☐	☐
Coolant is applied to prevent over heating of the work piece and grinding wheel.	☐	☐
Universal tools and cutter grinding operation is performed in accordance with the work place requirement.	☐	☐
Workplace, tools, equipment and shaper machine are cleaned.	☐	☐
Preventive maintenance schedules are applied in accordance with workplace requirement.	☐	☐
Waste materials are disposed in proper place.	☐	☐
Tools, equipment and finished products are stored safely in appropriate location.	☐	☐

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 Machine Shop Practice
Task:	Make component using lathe and drill machine
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	

Instructions:

Read and understand the directions carefully:

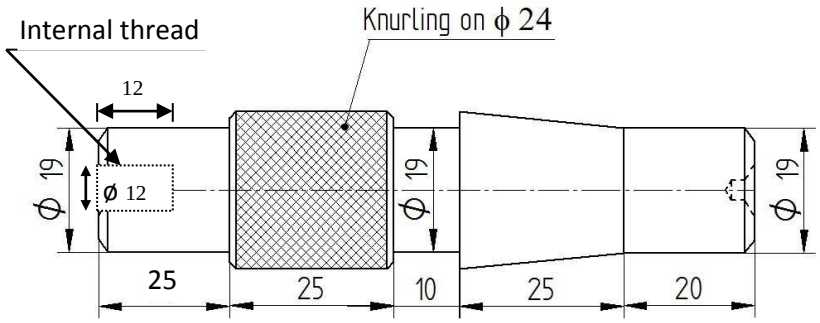
- this practical demonstration is based on the performance criteria from all or some of the units of competency in Machine Shop Practice
- this assessment activity will be used to measure your underpinning skills
- you will have fifteen (15) minutes to familiarise yourself with the resources to be used
- 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. Read and interpret drawing.
7. Hold the workpiece on 3 jaw chuck by keeping 60 to 70 mm outside and face the workpiece to clear the roughness.
8. Centre drilling on the face of the work.
9. Plain turn Ø24 to maximum length.
10. Step turn Ø19 to 25 mm length.
11. Undercut Ø19 to 10 mm width.
12. Taper turning.
13. Chamfering 0.5 all sharp corners.
14. Drilling hole Ø12 to 12 mm length and make internal thread with tap.
15. Ream the hole.
16. Repeat the work on the reverse side.
17. Clean, maintain and store tools and equipment.
18. Clean workplace and dispose of waste materials.

Drawing, Plan, Diagram or Sketch:	
 *(All dimensions in mm)*	
Resources Required:	
Tools:	Turning tool Reaming tool Tap File Hammer
Equipment:	Vice
Machinery:	Lathe machine Drill machine
Materials:	Mild steel (AISI 1040 steel) Drill bit
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 Machine Shop Practice
Task:	Make component using lathe and drill machine
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**
Personal protective equipment (PPE) is selected and used.	☐	☐
Tools, equipment and materials are selected for bench work and gathered as per job requirement specified in the drawing.	☐	☐
Layout is performed and marked in accordance with drawing.	☐	☐
Work piece are clamped on work holding devices to avoid damage and accident.	☐	☐
Work pieces are cut, chipped and filed within as specified in the drawing.	☐	☐
Broken or dull hacksaw blades, chisel and file are replaced according to requirements.	☐	☐
Measurement of work piece is checked according to standard work procedures.	☐	☐
Good drill bit and reamer is collected from the store.	☐	☐
Bench drill machine is prepared for drilling operation.	☐	☐

Drilling holes are performed according to recommended sequence.	☐	☐
Reaming holes are performed according to recommended sequence.	☐	☐
Coolant is used to reduce heat of drill and reamer and prevent damage.	☐	☐
Tap is selected to cut internal thread and die is selected to cut external thread accordance with job requirement.	☐	☐
Work piece is held with support as required.	☐	☐
Thread is cut and checked by gage or mating screw given in the drawing.	☐	☐
Internal thread is cut in accordance with the recommended tapping sequence.	☐	☐
External thread is cut in accordance with the recommended die operation sequence.	☐	☐
Coolant is used to reduce heat of drill and reamer and prevent damage.	☐	☐
Screw extractor as required removes damaged bolt and stud.	☐	☐
Tap extractor as required removes damaged tap.	☐	☐
Work piece is held and clamped in accordance with standard work procedures.	☐	☐
Appropriate types of drilling machines selected for different lathe operations.	☐	☐
Different parts and accessories of drill machine are identified.	☐	☐
Drilling machine mechanical feature, RPM, cutting speed and federate are demonstrated according to the machine specifications.	☐	☐
Drill bits and job materials are selected and collected according to the requirements of the operations.	☐	☐
Drawings are interpreted to produce component in accordance with job specifications.	☐	☐
Machine guards and coolant devices are checked in accordance with job requirement.	☐	☐
Work piece and drill bits are setup and clamped to required level of accuracy using instruments/equipment according to work site procedures.	☐	☐
Twist drill parts are identified.	☐	☐
Drill grinding parameters are demonstrated.	☐	☐
Different profile angles are grounded according to standard specifications.	☐	☐
Ground drill is checked and measured using drill gauge.	☐	☐

Appropriate types of drill machine, tools and equipment are selected for drilling operations.	☐	☐
Cutting feed and RPM are selected according to the job specifications.	☐	☐
Component drawing is interpreted and specifications are identified.	☐	☐
Work piece and drill bits are selected, collected and set according to the requirement.	☐	☐
Drilling operation is performed following the sequence of operation	☐	☐
Job is checked/measured in conformance with specification using appropriate techniques, drill gauge, measuring tools, materials, tools and equipment.	☐	☐
Appropriate type of lathe machines selected for different lathe operations.	☐	☐
Different parts of lathe machine are identified.	☐	☐
Lathe accessories are used appropriately to the requirements of the operations.	☐	☐
Sequence of operation is determined to produce component in accordance with required specifications.	☐	☐
Cutting tool is set in accordance with the requirement of the operation.	☐	☐
RPM is set in accordance with the job diameter.	☐	☐
Machine guards and coolant devices are checked according to work requirement.	☐	☐
Straight, step, and shoulder turning is performed after facing to produce component in accordance with specifications in the drawing and finished using the lathe turning tool.	☐	☐
Grooving operation is performed after turning and to produce component in accordance with specifications in the drawing and finished using lathe grooving tool.	☐	☐
Parting-off operation is performed after all operation is completed and produce job in accordance with specification in the drawing.	☐	☐
Taper turning methods are used in accordance with the job specifications.	☐	☐
Taper turning operation is performed using form tool, compound slide, offsetting tailstock and taper turning attachment and to produce component in accordance with the specifications in the drawing.	☐	☐
Eccentric turning method is selected in accordance with the job requirement.	☐	☐
Eccentric turning is performed in accordance with specifications in the drawing.	☐	☐
Different types of thread are cut in accordance with the	☐	☐

specifications outlined in the drawing.		
External and internal V-threads are cut in accordance with specifications in the drawing.	☐	☐
External and internal ACME (29 & 30 degree) threads are cut in accordance with the specifications in the drawing.	☐	☐
Square-threads are cut in accordance with the specifications in the drawing.	☐	☐
Workplace, tools, equipment are cleaned and maintained in accordance with workplace requirements.	☐	☐
Preventive maintenance schedules are applied in accordance with workplace requirement.	☐	☐
Waste materials are disposed in proper place.	☐	☐
Tools, equipment and finished products are stored safely in accordance with workplace procedures.	☐	☐
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 Machine Shop Practice
Task:	Make spur gear out of the given work piece using milling machine
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 Machine Shop Practice
- 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:

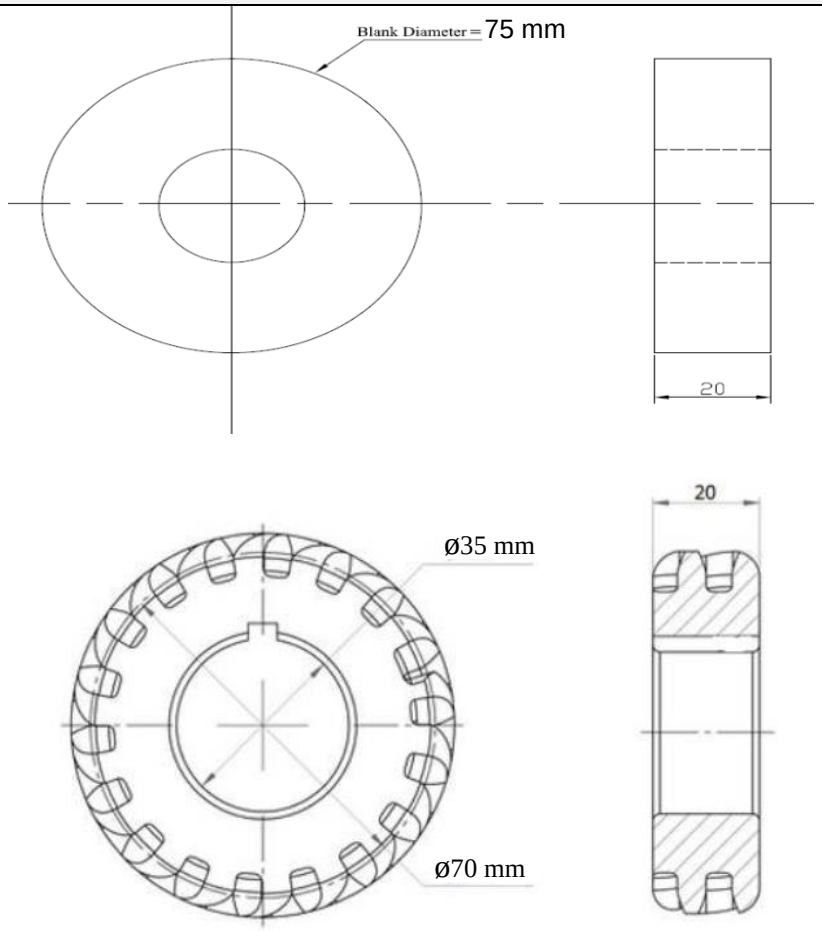
- observe and wear personal protective equipment (PPE) as required for the task to be performed
- read the specification information provided
- collect all materials needed to complete the task
- perform the task within the given time
- observe and follow all health and safety (OHS) requirements at all 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. Gear blank is held between dividing head and tailstock using a mandrel.
10. Cutter is mounted on arbor and cutter is centered accurately with gear blank.
11. Set speed and feed for machining (for giving depth of cut, table is raised until periphery of gear blank just touches cutter).
12. Micrometer dial of vertical feed screw is set to zero at this position (then table is raised further to give required depth of cut).
13. Machine is started and feed is given to table to cut the first groove of the blank.
14. After cut, table is brought back to starting position (then gear blank is indexed for next tooth space and is continued until all teeth are cut).
15. Dimensions of gear teeth profile are checked using gear tooth Vernier.
16. Clean, maintain and store tools and equipment.

17. Clean workplace and dispose of waste materials.

Drawing, Plan, Diagram or Sketch:



(All dimensions are in mm)

Resources Required:

Tools:	Gear teeth cutter (HSS)
Equipment:	N/A
Machinery:	Horizontal milling machine
Materials:	Cast iron work piece (75 mm diameter; 20mm thickness)
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 Machine Shop Practice
Task:	Make spur gear out of the given work piece using milling machine
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**
Types of milling machine are selected in accordance with workplace/work order requirements.	☐	☐
Machine is lubricated, handled and used in accordance with the instruction of machine manual.	☐	☐
Milling accessories and attachment are used in accordance with the requirements of the operation.	☐	☐
Required material and milling cutters are selected according to job requirements.	☐	☐
Cutting fluid is used in accordance with manufacturer's instruction.	☐	☐
Operating parameters of milling machine are identified in accordance to work requirements.	☐	☐
Safe work practices are maintained and personal protective equipment (PPEs) are worn at work.	☐	☐
Index head is selected, collected and checked.	☐	☐
Different parts of index head are identified, checked and tested.	☐	☐

Index head is set on milling machine in accordance with instruction of manual.	☐	☐
Different types of indexing methods are identified and calculated in accordance with identified indexing formula.	☐	☐
Different indexing methods are performed in accordance with job requirement and specification.	☐	☐
Drawings and specification are interpreted in relation to plain, side face, gang and straddle milling operation.	☐	☐
Sequence of operation is determined to perform milling work according to specifications.	☐	☐
Machine performance is checked in line with the job requirement.	☐	☐
Plain, side, face, gang and straddle milling operation are performed in accordance with the job requirement.	☐	☐
Job is checked/measured in accordance with specifications and using appropriate techniques, measuring tools and equipment.	☐	☐
Drawings and specification are interpreted in relation to slot, key way, parting off, end, form and angular milling operation.	☐	☐
Milling machine, accessories, attachment, cutter, tools, equipment, materials and cutting fluid are used to the requirements of the operation.	☐	☐
Slot, key way, parting off, end, form and angular milling operation are performed according to the job requirement.	☐	☐
Job is checked/measured according to specification and appropriate techniques, measuring tools and equipment are used.	☐	☐
Drawings and specification are interpreted in relation to different gear cutting milling operation.	☐	☐
Milling machine, accessories, attachment, gear teeth form cutters, tools, equipment, materials and cutting fluid are used as appropriate to the requirements of the operation.	☐	☐
Machine performance is checked in accordance with the job requirement.	☐	☐
Gear teeth nomenclature and formulas are calculated for the different types of gear.	☐	☐
Different types of gear cutting operations are performed according to the job requirement.	☐	☐
Workplace, tools, equipment and milling machine are cleaned.	☐	☐
Preventive maintenance schedules are applied.	☐	☐
Waste materials are disposed in proper place.	☐	☐
Tools, equipment and finished products are stored safely in appropriate location.	☐	☐
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 Machine Shop Practice
Task:	Make component using shaper and grinding machine
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 Machine Shop Practice
- 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:

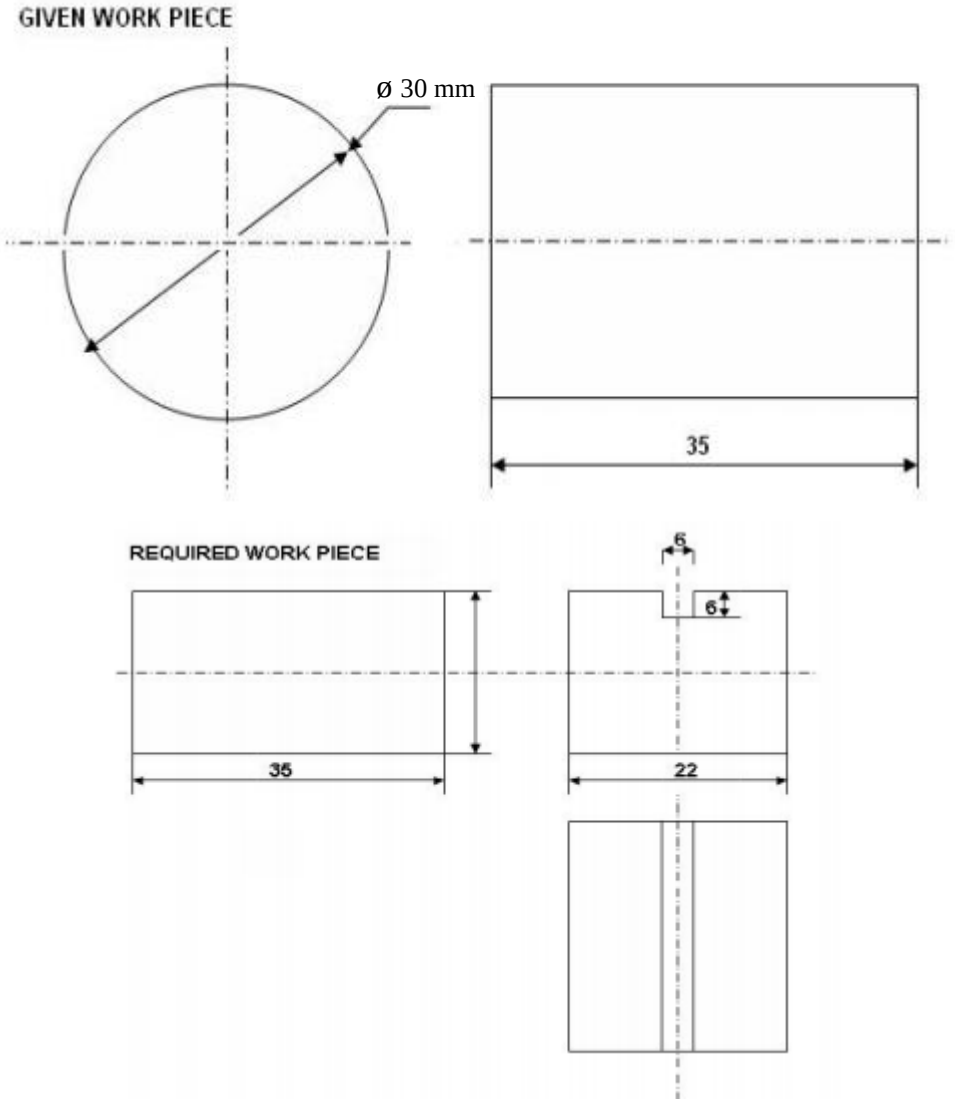
- observe and wear personal protective equipment (PPE) as required for the task to be performed
- read the specification information provided
- collect all materials needed to complete the task
- perform the task within the given time
- observe and follow all health and safety (OHS) requirements at all 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. Two ends of work piece are first smoothed by filing and apply chalk on surface.
10. Place work piece on V-block and mark centre on end face using surface gauge, scriber and Vernier height gauge.
11. Mark square on end face according to required dimensions.
12. Using dot punch, make permanent indentation marks on work piece.
13. Tool is fixed to tool post such that tool movement should be exactly perpendicular to table.
14. Work piece is then set in vice such that the tool is just above work piece.
15. Adjust length of stroke.
16. Make sure that line of action of stroke is parallel to surface of work piece.
17. Give depth of cut by moving tool and feed is given to work piece during return stroke of the ram.
18. Continue process until required dimensions are obtained.

19. Repeat process for all four sides.
20. Make a key way on one side according to given dimensions.
21. Grind surface of work piece to required shape by using surface grinder.
22. Email supervisor completion report of task (in Word).
23. Clean, maintain and store tools and equipment.
24. Clean workplace and dispose of waste materials.

Drawing, Plan, Diagram or Sketch:



(All dimensions are in mm)

Resources Required:

Tools:	Shaper cutting tool
Equipment:	Grinding wheel
Machinery:	Shaper and grinding machine
Materials:	Cylindrical mild steel rod (30 mm diameter; 35 mm length)
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 Machine Shop Practice
Task:	Make component using shaper and grinding machine
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**
Safe work practices are maintained and personal protective equipment (PPE) are worn in accordance with workplace requirements.	☐	☐
Drawings are interpreted in accordance with job specifications.	☐	☐
Shaper machine types, main and auxiliary parts and accessories are identified.	☐	☐
Materials and cutting tools are selected and collected in accordance with job specifications.	☐	☐
Cutting speed, feed rate, and depth of cut are selected in accordance with the job specifications.	☐	☐
Sequence of operation is determined to produce component in accordance with job requirements.	☐	☐
Shaper machine function, quick return mechanism, principle and specifications are demonstrated.	☐	☐
Drawings are interpreted in conformance with the design and specifications.	☐	☐

Tool holding devices and tool blanks are selected in accordance with requirements of the operation.	☐	☐
Pedestal/bench grinding machine and accessories are selected in accordance with lathe tool grinding requirements.	☐	☐
Grinding abrasive wheels are selected, inspected and dressed according to worksite procedures.	☐	☐
Grinding machine is adjusted in accordance with worksite procedures.	☐	☐
Tool blank is held or clamped to avoid damage and accident.	☐	☐
Coolant is used to reduce heat of tool and prevent damage.	☐	☐
Grinding of tool blank to the required profile angle of single point cutting tool is performed in accordance with specification for cutting horizontal, vertical and inclined surfaces.	☐	☐
Drawings and specification are interpreted in relation to the shaping operation.	☐	☐
Shaper machine, accessories, single point cutting tools, equipment, materials, cutting fluid, tools and equipment are used in accordance with the requirements of the operation.	☐	☐
Sequence of operation in shaping work is determined in accordance with specifications.	☐	☐
Machine performance is checked in accordance with job requirement.	☐	☐
Shaping operations are performed in accordance with the job requirement.	☐	☐
Job is checked and measured in conformance with specification using appropriate techniques, measuring tools and equipment.	☐	☐
Different types of grinding machine are identified and made ready.	☐	☐
Different parts of the grinding machine are identified.	☐	☐
RPM, cutting speed, feed rate and depth of grind are determined.	☐	☐
Grinding machine accessories and attachment are identified and set.	☐	☐
Different abrasive/grinding wheels are identified, selected and balanced according to the abrasive wheel specifications.	☐	☐
Machine is degreased, selected, handled and operated according to the machine instruction manual.	☐	☐
Electrical switches of machines are identified.	☐	☐
Cylindrical grinding machine are selected and set according to the job requirement.	☐	☐
Grinding wheels are selected, balanced, and dressed	☐	☐

according to the requirement		
Cylindrical work piece is set between live and revolving centres.	☐	☐
RPM, cutting speed, feed rate and depth of cut are calculated as per job requirement.	☐	☐
Coolant is applied to prevent over heating of work piece and cutting tool.	☐	☐
Cylindrical grinding operation is performed in accordance with workplace requirement.	☐	☐
Surface grinding machine are selected and set in accordance with the job requirement	☐	☐
Grinding wheels are selected, balanced, and dressed in accordance with the job requirement.	☐	☐
Work piece is set on the machine vice/magnetic vice.	☐	☐
RPM, cutting speed, feed rate and depth of cut are calculated as per job requirement.	☐	☐
Machine performance is checked in conformance with the job requirement.	☐	☐
Coolant is applied to prevent over heating of the work piece and grinding wheel.	☐	☐
Surface grinding operation is performed in accordance with workplace requirement.	☐	☐
Job is checked and measured in conformance with specification and appropriate techniques, measuring tools, and equipment are used.	☐	☐
Universal tools and cutter grinding machine are selected and set in according with the job requirement.	☐	☐
Grinding wheels are selected, balanced, and dressed according to the job requirement.	☐	☐
Cutting tools and cutters are set on the machine vice/universal vice.	☐	☐
Machine performance is checked in conformance with the job requirement.	☐	☐
Coolant is applied to prevent over heating of the work piece and grinding wheel.	☐	☐
Universal tools and cutter grinding operation is performed in accordance with the work place requirement.	☐	☐
Workplace, tools, equipment and shaper machine are cleaned.	☐	☐
Preventive maintenance schedules are applied in accordance with workplace requirement.	☐	☐
Waste materials are disposed in proper place.	☐	☐
Tools, equipment and finished products are stored safely in appropriate location.	☐	☐

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 Machine Shop Practice
Task:	Make component using lathe and drill machine
Assessment Centre:	
Date of Assessment:	
Time of Assessment:	

Instructions:

Read and understand the directions carefully:

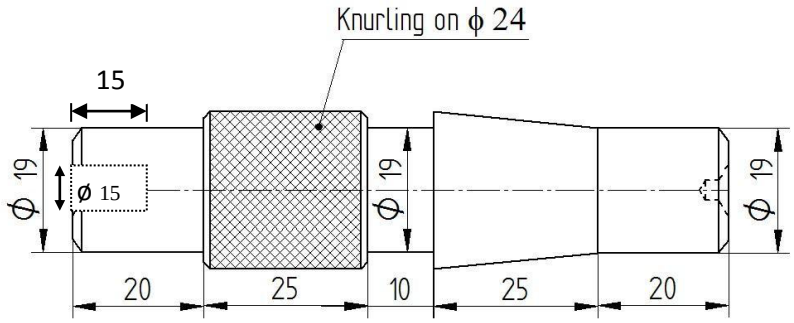
- this practical demonstration is based on the performance criteria from all or some of the units of competency in Machine Shop Practice
- this assessment activity will be used to measure your underpinning skills
- you will have fifteen (15) minutes to familiarise yourself with the resources to be used
- 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. Read and interpret drawing.
7. Hold the workpiece on 3 jaw chuck by keeping 60 to 70 mm outside and face the workpiece to clear the roughness.
8. Centre drilling on the face of the work.
9. Plain turn Ø24 to maximum length.
10. Step turn Ø19 to 20 mm length.
11. Undercut Ø19 to 10 mm width.
12. Taper turning.
13. Chamfering 0.5 all sharp corners.
14. Drilling hole Ø15 to 15 mm length.
15. Reaming the hole.
16. Repeat the work on the reverse side.
17. Clean, maintain and store tools and equipment.
18. Clean workplace and dispose of waste materials.

Drawing, Plan, Diagram or Sketch:	
 *(All dimensions in mm)*	
Resources Required:	
Tools:	Turning tool Reaming tool File Hammer
Equipment:	Vice
Machinery:	Lathe machine Drill machine
Materials:	Mild steel (AISI 1040 steel) Drill bit
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 Machine Shop Practice
Task:	Make component using lathe and drill machine
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**
Personal protective equipment (PPE) is selected and used.	☐	☐
Tools, equipment and materials are selected for bench work and gathered as per job requirement specified in the drawing.	☐	☐
Layout is performed and marked in accordance with drawing.	☐	☐
Work piece are clamped on work holding devices to avoid damage and accident.	☐	☐
Work pieces are cut, chipped and filed within as specified in the drawing.	☐	☐
Broken or dull hacksaw blades, chisel and file are replaced according to requirements.	☐	☐
Measurement of work piece is checked according to standard work procedures.	☐	☐
Good drill bit and reamer is collected from the store.	☐	☐
Bench drill machine is prepared for drilling operation.	☐	☐

Drilling holes are performed according to recommended sequence.	☐	☐
Reaming holes are performed according to recommended sequence.	☐	☐
Coolant is used to reduce heat of drill and reamer and prevent damage.	☐	☐
Tap is selected to cut internal thread and die is selected to cut external thread accordance with job requirement.	☐	☐
Work piece is held with support as required.	☐	☐
Thread is cut and checked by gage or mating screw given in the drawing.	☐	☐
Internal thread is cut in accordance with the recommended tapping sequence.	☐	☐
External thread is cut in accordance with the recommended die operation sequence.	☐	☐
Coolant is used to reduce heat of drill and reamer and prevent damage.	☐	☐
Screw extractor as required removes damaged bolt and stud.	☐	☐
Tap extractor as required removes damaged tap.	☐	☐
Work piece is held and clamped in accordance with standard work procedures.	☐	☐
Appropriate types of drilling machines selected for different lathe operations.	☐	☐
Different parts and accessories of drill machine are identified.	☐	☐
Drilling machine mechanical feature, RPM, cutting speed and federate are demonstrated according to the machine specifications.	☐	☐
Drill bits and job materials are selected and collected according to the requirements of the operations.	☐	☐
Drawings are interpreted to produce component in accordance with job specifications.	☐	☐
Machine guards and coolant devices are checked in accordance with job requirement.	☐	☐
Work piece and drill bits are setup and clamped to required level of accuracy using instruments/equipment according to work site procedures.	☐	☐
Twist drill parts are identified.	☐	☐
Drill grinding parameters are demonstrated.	☐	☐
Different profile angles are grounded according to standard specifications.	☐	☐
Ground drill is checked and measured using drill gauge.	☐	☐

Appropriate types of drill machine, tools and equipment are selected for drilling operations.	☐	☐
Cutting feed and RPM are selected according to the job specifications.	☐	☐
Component drawing is interpreted and specifications are identified.	☐	☐
Work piece and drill bits are selected, collected and set according to the requirement.	☐	☐
Drilling operation is performed following the sequence of operation	☐	☐
Job is checked/measured in conformance with specification using appropriate techniques, drill gauge, measuring tools, materials, tools and equipment.	☐	☐
Appropriate type of lathe machines selected for different lathe operations.	☐	☐
Different parts of lathe machine are identified.	☐	☐
Lathe accessories are used appropriately to the requirements of the operations.	☐	☐
Sequence of operation is determined to produce component in accordance with required specifications.	☐	☐
Cutting tool is set in accordance with the requirement of the operation.	☐	☐
RPM is set in accordance with the job diameter.	☐	☐
Machine guards and coolant devices are checked according to work requirement.	☐	☐
Straight, step, and shoulder turning is performed after facing to produce component in accordance with specifications in the drawing and finished using the lathe turning tool.	☐	☐
Grooving operation is performed after turning and to produce component in accordance with specifications in the drawing and finished using lathe grooving tool.	☐	☐
Parting-off operation is performed after all operation is completed and produce job in accordance with specification in the drawing.	☐	☐
Taper turning methods are used in accordance with the job specifications.	☐	☐
Taper turning operation is performed using form tool, compound slide, offsetting tailstock and taper turning attachment and to produce component in accordance with the specifications in the drawing.	☐	☐
Eccentric turning method is selected in accordance with the job requirement.	☐	☐
Eccentric turning is performed in accordance with specifications in the drawing.	☐	☐
Different types of thread are cut in accordance with the	☐	☐

specifications outlined in the drawing.		
External and internal V-threads are cut in accordance with specifications in the drawing.	☐	☐
External and internal ACME (29 & 30 degree) threads are cut in accordance with the specifications in the drawing.	☐	☐
Square-threads are cut in accordance with the specifications in the drawing.	☐	☐
Workplace, tools, equipment are cleaned and maintained in accordance with workplace requirements.	☐	☐
Preventive maintenance schedules are applied in accordance with workplace requirement.	☐	☐
Waste materials are disposed in proper place.	☐	☐
Tools, equipment and finished products are stored safely in accordance with workplace procedures.	☐	☐
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 Machine Shop Practice
Task:	Make spur gear out of the given work piece using milling machine
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 Machine Shop Practice
- 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:

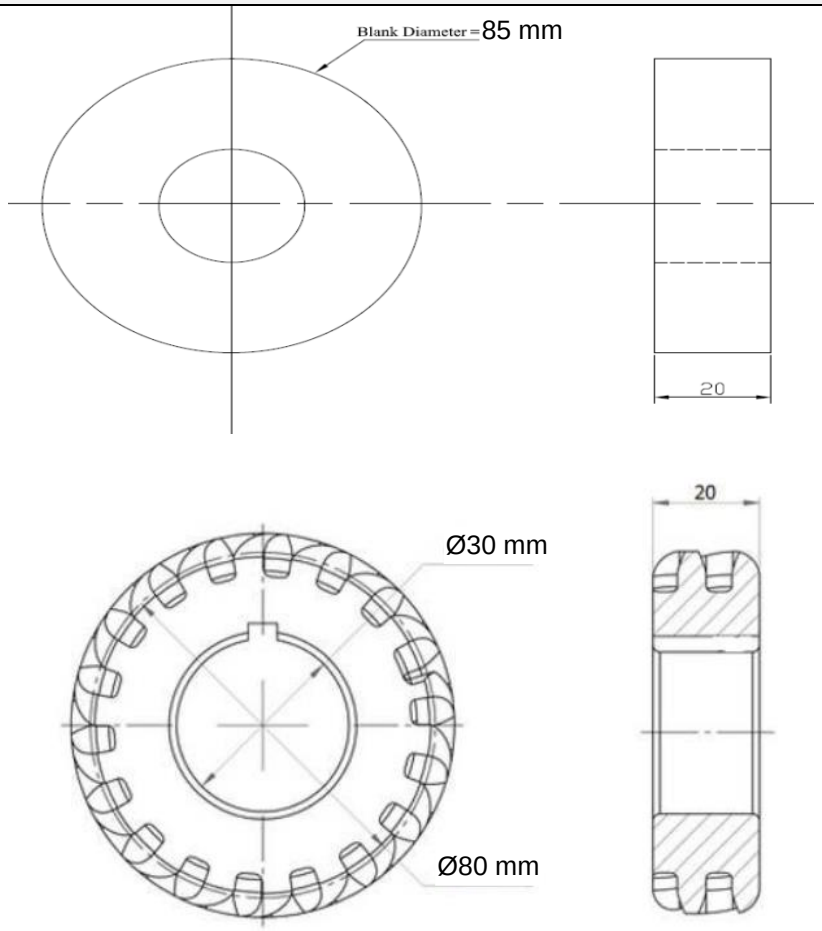
- observe and wear personal protective equipment (PPE) as required for the task to be performed
- read the specification information provided
- collect all materials needed to complete the task
- perform the task within the given time
- observe and follow all health and safety (OHS) requirements at all 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. Gear blank is held between dividing head and tailstock using a mandrel.
10. Cutter is mounted on arbor and cutter is centered accurately with gear blank.
11. Set speed and feed for machining (for giving depth of cut, table is raised until periphery of gear blank just touches cutter).
12. Micrometer dial of vertical feed screw is set to zero at this position (then table is raised further to give required depth of cut).
13. Machine is started and feed is given to table to cut the first groove of the blank.
14. After cut, table is brought back to starting position (then gear blank is indexed for next tooth space and is continued until all teeth are cut).
15. Dimensions of gear teeth profile are checked using gear tooth Vernier.
16. Clean, maintain and store tools and equipment.

17. Clean workplace and dispose of waste materials.

Drawing, Plan, Diagram or Sketch:



(All dimensions are in mm)

Resources Required:

Tools:	Gear teeth cutter (HSS)
Equipment:	N/A
Machinery:	Horizontal milling machine
Materials:	Cast iron work piece (85 mm diameter; 20mm thickness)
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 Machine Shop Practice
Task:	Make spur gear out of the given work piece using milling machine
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**
Types of milling machine are selected in accordance with workplace/work order requirements.	☐	☐
Machine is lubricated, handled and used in accordance with the instruction of machine manual.	☐	☐
Milling accessories and attachment are used in accordance with the requirements of the operation.	☐	☐
Required material and milling cutters are selected according to job requirements.	☐	☐
Cutting fluid is used in accordance with manufacturer's instruction.	☐	☐
Operating parameters of milling machine are identified in accordance to work requirements.	☐	☐
Safe work practices are maintained and personal protective equipment (PPEs) are worn at work.	☐	☐
Index head is selected, collected and checked.	☐	☐
Different parts of index head are identified, checked and tested.	☐	☐

Index head is set on milling machine in accordance with instruction of manual.	☐	☐
Different types of indexing methods are identified and calculated in accordance with identified indexing formula.	☐	☐
Different indexing methods are performed in accordance with job requirement and specification.	☐	☐
Drawings and specification are interpreted in relation to plain, side face, gang and straddle milling operation.	☐	☐
Sequence of operation is determined to perform milling work according to specifications.	☐	☐
Machine performance is checked in line with the job requirement.	☐	☐
Plain, side, face, gang and straddle milling operation are performed in accordance with the job requirement.	☐	☐
Job is checked/measured in accordance with specifications and using appropriate techniques, measuring tools and equipment.	☐	☐
Drawings and specification are interpreted in relation to slot, key way, parting off, end, form and angular milling operation.	☐	☐
Milling machine, accessories, attachment, cutter, tools, equipment, materials and cutting fluid are used to the requirements of the operation.	☐	☐
Slot, key way, parting off, end, form and angular milling operation are performed according to the job requirement.	☐	☐
Job is checked/measured according to specification and appropriate techniques, measuring tools and equipment are used.	☐	☐
Drawings and specification are interpreted in relation to different gear cutting milling operation.	☐	☐
Milling machine, accessories, attachment, gear teeth form cutters, tools, equipment, materials and cutting fluid are used as appropriate to the requirements of the operation.	☐	☐
Machine performance is checked in accordance with the job requirement.	☐	☐
Gear teeth nomenclature and formulas are calculated for the different types of gear.	☐	☐
Different types of gear cutting operations are performed according to the job requirement.	☐	☐
Workplace, tools, equipment and milling machine are cleaned.	☐	☐
Preventive maintenance schedules are applied.	☐	☐
Waste materials are disposed in proper place.	☐	☐
Tools, equipment and finished products are stored safely in appropriate location.	☐	☐
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 Machine Shop Practice
Task:	Make component using shaper and grinding machine
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 Machine Shop Practice
- 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:

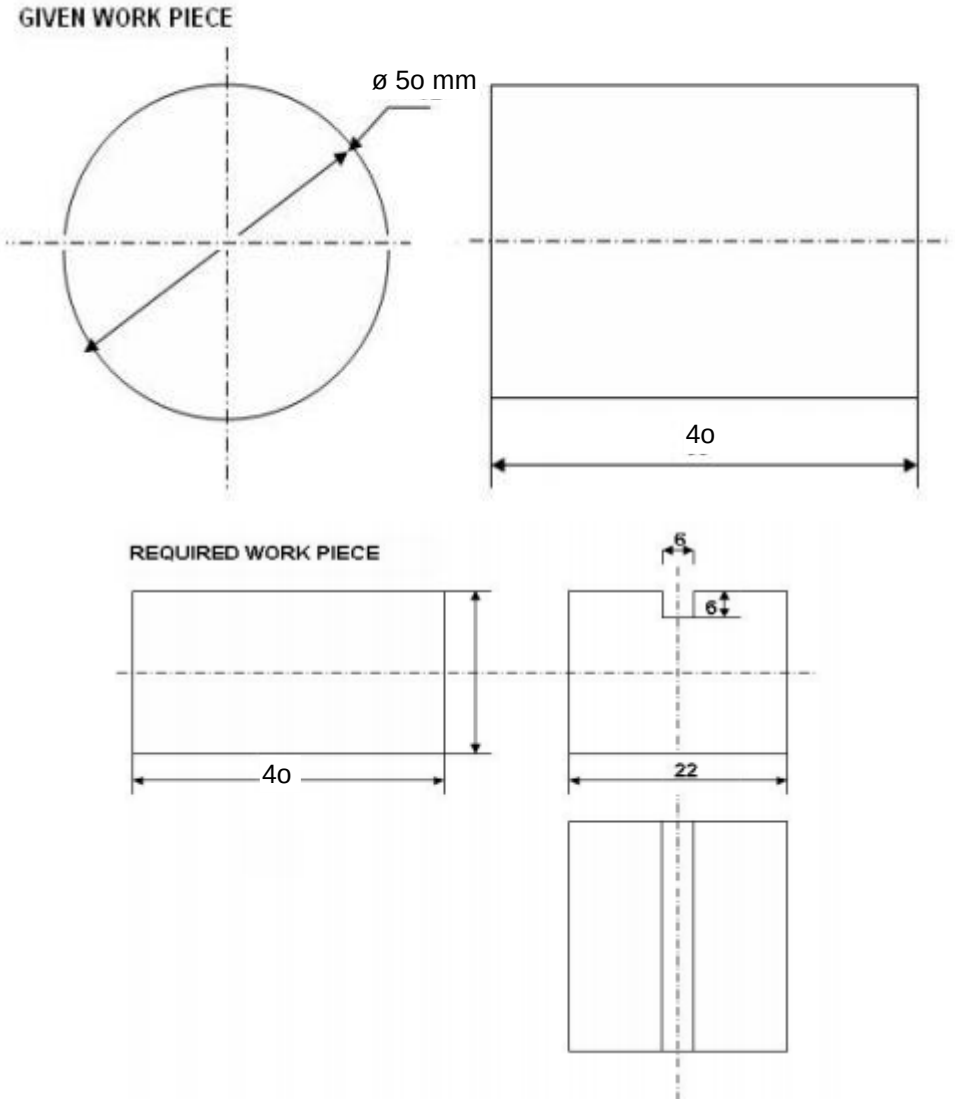
- observe and wear personal protective equipment (PPE) as required for the task to be performed
- read the specification information provided
- collect all materials needed to complete the task
- perform the task within the given time
- observe and follow all health and safety (OHS) requirements at all 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. Two ends of work piece are first smoothed by filing and apply chalk on surface.
10. Place work piece on V-block and mark centre on end face using surface gauge, scriber and Vernier height gauge.
11. Mark square on end face according to required dimensions.
12. Using dot punch, make permanent indentation marks on work piece.
13. Tool is fixed to tool post such that tool movement should be exactly perpendicular to table.
14. Work piece is then set in vice such that the tool is just above work piece.
15. Adjust length of stroke.
16. Make sure that line of action of stroke is parallel to surface of work piece.
17. Give depth of cut by moving tool and feed is given to work piece during return stroke of the ram.
18. Continue process until required dimensions are obtained.

19. Repeat process for all four sides.
20. Make a key way on one side according to given dimensions.
21. Grind surface of work piece to required shape by using surface grinder.
22. Email supervisor completion report of task (in Word).
23. Clean, maintain and store tools and equipment.
24. Clean workplace and dispose of waste materials.

Drawing, Plan, Diagram or Sketch:



(All dimensions are in mm)

Resources Required:

Tools:	Shaper cutting tool
Equipment:	Grinding wheel
Machinery:	Shaper and grinding machine
Materials:	Cylindrical mild steel rod (50 mm diameter; 40 mm length)
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 Machine Shop Practice
Task:	Make component using shaper and grinding machine
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**
Safe work practices are maintained and personal protective equipment (PPE) are worn in accordance with workplace requirements.	☐	☐
Drawings are interpreted in accordance with job specifications.	☐	☐
Shaper machine types, main and auxiliary parts and accessories are identified.	☐	☐
Materials and cutting tools are selected and collected in accordance with job specifications.	☐	☐
Cutting speed, feed rate, and depth of cut are selected in accordance with the job specifications.	☐	☐
Sequence of operation is determined to produce component in accordance with job requirements.	☐	☐
Shaper machine function, quick return mechanism, principle and specifications are demonstrated.	☐	☐
Drawings are interpreted in conformance with the design and specifications.	☐	☐

Tool holding devices and tool blanks are selected in accordance with requirements of the operation.	☐	☐
Pedestal/bench grinding machine and accessories are selected in accordance with lathe tool grinding requirements.	☐	☐
Grinding abrasive wheels are selected, inspected and dressed according to worksite procedures.	☐	☐
Grinding machine is adjusted in accordance with worksite procedures.	☐	☐
Tool blank is held or clamped to avoid damage and accident.	☐	☐
Coolant is used to reduce heat of tool and prevent damage.	☐	☐
Grinding of tool blank to the required profile angle of single point cutting tool is performed in accordance with specification for cutting horizontal, vertical and inclined surfaces.	☐	☐
Drawings and specification are interpreted in relation to the shaping operation.	☐	☐
Shaper machine, accessories, single point cutting tools, equipment, materials, cutting fluid, tools and equipment are used in accordance with the requirements of the operation.	☐	☐
Sequence of operation in shaping work is determined in accordance with specifications.	☐	☐
Machine performance is checked in accordance with job requirement.	☐	☐
Shaping operations are performed in accordance with the job requirement.	☐	☐
Job is checked and measured in conformance with specification using appropriate techniques, measuring tools and equipment.	☐	☐
Different types of grinding machine are identified and made ready.	☐	☐
Different parts of the grinding machine are identified.	☐	☐
RPM, cutting speed, feed rate and depth of grind are determined.	☐	☐
Grinding machine accessories and attachment are identified and set.	☐	☐
Different abrasive/grinding wheels are identified, selected and balanced according to the abrasive wheel specifications.	☐	☐
Machine is degreased, selected, handled and operated according to the machine instruction manual.	☐	☐
Electrical switches of machines are identified.	☐	☐
Cylindrical grinding machine are selected and set according to the job requirement.	☐	☐
Grinding wheels are selected, balanced, and dressed	☐	☐

according to the requirement		
Cylindrical work piece is set between live and revolving centres.	☐	☐
RPM, cutting speed, feed rate and depth of cut are calculated as per job requirement.	☐	☐
Coolant is applied to prevent over heating of work piece and cutting tool.	☐	☐
Cylindrical grinding operation is performed in accordance with workplace requirement.	☐	☐
Surface grinding machine are selected and set in accordance with the job requirement	☐	☐
Grinding wheels are selected, balanced, and dressed in accordance with the job requirement.	☐	☐
Work piece is set on the machine vice/magnetic vice.	☐	☐
RPM, cutting speed, feed rate and depth of cut are calculated as per job requirement.	☐	☐
Machine performance is checked in conformance with the job requirement.	☐	☐
Coolant is applied to prevent over heating of the work piece and grinding wheel.	☐	☐
Surface grinding operation is performed in accordance with workplace requirement.	☐	☐
Job is checked and measured in conformance with specification and appropriate techniques, measuring tools, and equipment are used.	☐	☐
Universal tools and cutter grinding machine are selected and set in according with the job requirement.	☐	☐
Grinding wheels are selected, balanced, and dressed according to the job requirement.	☐	☐
Cutting tools and cutters are set on the machine vice/universal vice.	☐	☐
Machine performance is checked in conformance with the job requirement.	☐	☐
Coolant is applied to prevent over heating of the work piece and grinding wheel.	☐	☐
Universal tools and cutter grinding operation is performed in accordance with the work place requirement.	☐	☐
Workplace, tools, equipment and shaper machine are cleaned.	☐	☐
Preventive maintenance schedules are applied in accordance with workplace requirement.	☐	☐
Waste materials are disposed in proper place.	☐	☐
Tools, equipment and finished products are stored safely in appropriate location.	☐	☐

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 Machine Shop Practice
Unit of Competency	
Generic Competencies	
SEIP-LE-MSP-01-G	Use basic mathematical concepts
SEIP-LE-MSP-02-G	Carry out workplace interaction
SEIP-LE-MSP-03-G	Operate in a team environment
SEIP-LE-MSP-04-G	Apply basic IT skills
Sector-specific Competencies	
SEIP-LE-MSP-01-S	Apply occupational health and safety (OHS) practice in the workplace
SEIP-LE-MSP-02-S	Read and interpret sketches and drawings
SEIP-LE-MSP-03-S	Use hand and power tools
SEIP-LE-MSP-04-S	Apply quality system
Occupation-specific Competencies	
SEIP-LE-MSP-01-O	Carry out bench working operations
SEIP-LE-MSP-02-O	Perform drilling machine operations
SEIP-LE-MSP-03-O	Perform lathe machine operations
SEIP-LE-MSP-04-O	Perform milling machine operations
SEIP-LE-MSP-05-O	Perform shaper machine operations
SEIP-LE-MSP-06-O	Perform precision grinding machine operations
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 Machine Shop Practice ▪ 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 principle parts of a lathe?	☐	☐
2.	What are the different operations performed on a lathe?	☐	☐
3.	What are four machining operations that can be performed on a drilling machine?	☐	☐
4.	What is the application of boring?	☐	☐
5.	What does the term 'indexing' mean?	☐	☐
6.	What are principal parts of a knee and column type milling machine?	☐	☐
7.	Name the advantages of internal centreless grinding.	☐	☐
8.	How is the feed and depth of cut given to the shaper?	☐	☐
9.	What are the purposes of grinding?	☐	☐
10.	What are the properties of cutting fluid?	☐	☐
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.	☐	☐

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 principle parts of a lathe?	***Headstock, tailstock, carriage, cross slide, tool post***
2.	What are the different operations performed on a lathe?	***Turning, thread cutting, grooving, facing, drilling, forming, boring, knurling, chamfering, tapping***
3.	What are four machining operations that can be performed on a drilling machine?	***Drilling, counter sinking, tapping, counter boring***
4.	What is the application of boring?	***The boring machine is designed for machining large and heavy work piece in mass production work of engine frame, cylinder, and machine housing.***
5.	What does the term 'indexing' mean?	***Indexing is the process of dividing the periphery of a job into equal number of divisions.***
6.	What are principal parts of a knee and column type milling machine?	***Base, column, knee, saddle, table, spindle, overarm, arbor***
7.	Name the advantages of internal centreless grinding.	▪ ***The main advantage of centrals grinding is its high productivity.*** ▪ ***There is no need of centering and use of fixtures is totally avoided.*** ▪ ***It can be applied for both internal as well as external grinding.*** ▪ ***The work is rigidly supported and hence there is no chatter or deflection of the work.*** ▪ ***The operation is easy, and hence less skilled worker is required.*** ▪ ***Size of work is easily controlled.*** ▪ ***Maintenance required is very less.***
8.	How is the feed and depth of cut given to the shaper?	***Feed is given by rotating the down feed screws of tool head depth of cut is given by rotating by raising or elevating the table.***
9.	What are the purposes of grinding?	***To remove small amount of metal from work pieces, to finish then to close tolerances, and to obtain the better surface finish.***
10.	What are the properties of cutting fluid?	***High heat absorbing capacities. It should have good lubricant properties, high flash point, odorless, and non-corrosive to work and tool.***
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***

Assessment Evidence Summary Sheet

EVIDENCE SUMMARY SHEET			
Candidate Name:			
Assessor Name:			
Qualification:	Certificate in Machine Shop Practice		
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 ....)	☐	☐
	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 Machine Shop Practice		
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-MSP-01-G – Use basic mathematical concepts		
Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Identify calculation requirements in the workplace.	4	A1-3 B1-3 C1-3	
2. Select appropriate mathematical methods/concepts for the calculation.	4	A1-3 B1-3 C1-3	
3. Use tools and instruments to perform calculations.	4	A1-3 B1-3 C1-3	
Unit of Competency:	SEIP-LE-MSP-02-G – Carry out workplace interaction		
Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Interpret workplace communication and etiquette.	11	A1-3 B1-3 C1-3	13, 17
2. Read and understand workplace documents.		A1-3 B1-3 C1-3	18, 19, 20
3. Participate in workplace meetings and discussions.	12		24
4. Practice professional ethics at work.	12	A1-3 B1-3 C1-3	23, 31
Unit of Competency:	SEIP-LE-MSP-03-G – Operate in a team environment		
Element	**Assessment Method**		

	Written	Practical	Oral
1. Identify team goals and work processes.		A1-3 B1-3 C1-3	12, 21
2. Identify own role and responsibilities within team.			13
3. Communicate and co-operate with team members.	11	A1-3 B1-3 C1-3	11, 22, 25
4. Practice problem solving within team.		A1-3 B1-3 C1-3	14

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

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Identify and use most commonly used IT tools.		A3, B3, C3	26, 28
2. Understand use of computer.		A3, B3, C3	15
3. Work with word processing application.		A3, B3, C3	27
4. Access email and search the internet.		A3, B3, C3	16, 29

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

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Identify OHS Policies and procedures.		A1-3 B1-3 C1-3	
2. Apply personal health and safety practices.	13	A1-3 B1-3 C1-3	
3. Report hazards and risks.		A1-3 B1-3	

		C1-3	
4. Respond to emergencies.			30

Unit of Competency:	SEIP-LE-MSP-02-S – Read and interpret sketches and drawings

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Interpret information and specifications.		A1-3 B1-3 C1-3	20
2. Read and interpret sketches and drawings.		A1-3 B1-3 C1-3	

Unit of Competency:	SEIP-LE-MSP-03-S – Use hand and power tools

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Identify and inspect hand and power tools.	1	A1-3 B1-3 C1-3	
2. Use hand tools properly and safely.		A1-3 B1-3 C1-3	
3. Operate power tools properly and safely.		A1-3 B1-3 C1-3	
4. Clean and maintain hand and power tools.		A1-3 B1-3 C1-3	

Unit of Competency:	SEIP-LE-MSP-04-S – Apply quality system

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Work within a quality system.		A1-3 B1-3 C1-3	
2. Apply and monitor a quality system.		A1-3	

		B1-3 C1-3	
3. Apply standard procedures for each job.		A1-3 B1-3 C1-3	2

Unit of Competency:	SEIP-LE-MSP-01-O – Carry out bench working operations

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Gather tools, equipment and materials for bench work.		A1, B1, C1	
2. Perform bench work.		A1, B1, C1	
3. Carry out drilling and reaming operations.	14	A1, B1, C1	3
4. Carry out manual thread cutting and damage bolt and tap removal.		A1, B1, C1	10
5. Perform off-hand grinding operation.		A1, B1, C1	
6. Clean, care maintain and store tools and equipment.		A1, B1, C1	

Unit of Competency:	SEIP-LE-MSP-02-O – Perform drilling machine operations

Element	**Assessment Method**		
	Written	**Practical**	**Oral**
1. Prepare for drilling operation.		A1, B1, C1	
2. Grind drill bits.	3	A1, B1, C1	
3. Perform drilling operations.	15	A1, B1, C1	3, 4
4. Clean and store tools and equipment.		A1, B1, C1	

Unit of Competency:	SEIP-LE-MSP-03-O – Perform lathe machine operations

Element	Assessment Method		
	Written	Practical	Oral
1. Prepare for lathe operation.	2, 16	A1, B1, C1	2
2. Grind lathe cutting tools.		A1, B1, C1	
3. Setup lathe works		A1, B1, C1	1
4. Perform facing, straight, step, shoulder turning, grooving and parting-off operations.	20	A1, B1, C1	2
5. Perform taper and eccentric turning.		A1, B1, C1	
6. Perform threading cutting operation.		A1, B1, C1	
7. Clean and store tools and equipment.		A1, B1, C1	

Unit of Competency:	SEIP-LE-MSP-04-O – Perform milling machine operations

Element	Assessment Method		
	Written	Practical	Oral
1. Determine job requirement.	5, 6, 17	A2, B2, C2	
2. Perform indexing operation using index head.	18	A2, B2, C2	5
3. Carry out plain, side face, gang and straddle milling operations.		A2, B2, C2	
4. Carry out slot, key way, parting off, end, form and angular milling operations.		A2, B2, C2	
5. Perform gear-cutting operation on milling machine.		A2, B2, C2	6
6. Clean and store the tools and equipment.		A2, B2, C2	

Unit of Competency:	SEIP-LE-MSP-05-O – Perform shaper machine operations

Element	Assessment Method		
	Written	Practical	Oral
1. Prepare for shaping operation.	7, 8	A3, B3, C3	
2. Grind shaper tools.		A3, B3, C3	
3. Carry out shaping operations.	19	A3, B3, C3	8
4. Clean and store the tools and equipment.		A3, B3, C3	

Unit of Competency:	SEIP-LE-MSP-06-O – Perform precision grinding machine operations

Element	Assessment Method		
	Written	Practical	Oral
1. Prepare for precision grinding machine operations.		A3, B3, C3	
2. Carry out cylindrical grinding machine operation.	9	A3, B3, C3	7
3. Carry out surface grinding machine operation.		A3, B3, C3	9
4. Perform universal tool and cutter grinding machine operations.		A3, B3, C3	
5. Clean and store tools and equipment.		A3, B3, C3	