

Assessment Evidence Guide

For

“Dies and Mould Technology”

Level-2

Perform Basic Grinding Operations
(Formative Assessment)

1st -5th March 2021



**National Vocational & Technical
Training Commission**

Title of Qualification: Level 2 National Qualification Certificate, in Associate Engineer in Dies and Mould Technology (Machinist)	CS Code:	Level: 2	Version: 01
Competency Standard Title: Perform Basic Grinding Operations Maintain Personal Health, hygiene and safety Perform Basic Communication skills Perform Calculations and Estimation for Mechanical Work Carryout General Maintenance	Assessment Date (DD/MM/YY): Assessment Time: 3 Hours		

Candidate Details	Name: Registration/Roll Number:.....
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to perform Hand Grinding on workpiece according to the given instructions.</p> <p>Assessment Task 2: Candidate is required to perform single point Tool Grinding on Pedestal Grinder according to the cutting tool geometry assign by assessor.</p> <p>Assessment Task 3: Candidate is required to perform Surface Grinding on work piece according to the drawing assign by assessor.</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>Performance Criteria 1: Select appropriate hand grinder & grinding wheel / disk as per job specifications</p> <p>Performance Criteria 2: Mount the grinding wheel / disk as per standard procedure</p> <p>Performance Criteria 3: Perform grinding as per standard procedures</p> <p>Performance Criteria 4: Interpret work processes and procedures correctly to identify risk to Health, hygiene and safety at workplace</p> <p>Performance Criteria 5: Recognize processes, tools, equipment and consumable materials that have the potential to cause harm</p> <p>Performance Criteria 6: Select personal protective equipment in terms of type and</p>

	<p>quantity according to work orders.</p> <p>Performance Criteria 7: Wear, adjust, and maintain personal protective equipment to ensure correct fit and optimum protection in compliance with company procedures.</p> <p>Performance Criteria 8: Maintain cleanliness and hygiene as per organizational policy</p> <p>Performance Criteria 9: Comply with Health, hygiene and safety precautions before starting work</p> <p>Performance Criteria 10: Treat team members with respect and maintain positive relationships to achieve common organizational goals</p> <p>Performance Criteria 11: Develop Basic Mechanical Drawing</p> <p>Performance Criteria 12: Identify requirements of the material(s) for the work in accordance with the job specifications and drawing</p> <p>Performance Criteria 13: Confirm the requirement of the materials from the client or supervisor for accurate estimation</p> <p>Performance Criteria 14: Quantify the material as per drawing</p> <p>Performance Criteria 15: Use appropriate methods for the calculation of cost of material and accessories keeping in view the current market prices</p> <p>Performance Criteria 16: Present the cost estimates to the client or supervisor for approval Calculate man-hours and machine-hours for work in accordance with the job requirements</p> <p>Performance Criteria 17: Prepare labor cost for the work using appropriate procedures</p> <p>Performance Criteria 18: Make necessary adjustments in estimates, where required</p>
	<p>Assessment Task 2</p> <p>Performance Criteria 1: Perform tool grinding operation by holding the tool firmly against the rotating wheel by placing it on the tool rest.</p> <p>Performance Criteria 2: Adopt technique and methods as per requirements of tool geometry.</p> <p>Performance Criteria 3: Check quality of the tool at suitable intervals.</p> <p>Performance Criteria 4: Shut down the grinder after finishing the work.</p> <p>Performance Criteria 5: Follow organizational Health, hygiene and safety guidelines during work</p> <p>Performance Criteria 6: Deal with resolvable problems according to prescribed procedures</p> <p>Performance Criteria 7: Report unresolved problems to immediate supervisor</p> <p>Performance Criteria 8: Collect hazardous or non-hazardous waste carefully from the designated area as per approved procedure</p> <p>Performance Criteria 9: Use proper disposal hazardous containers for dispose-off hazardous waste as per procedure</p> <p>Performance Criteria 10: Listen to instructions carefully & comply with those instructions</p> <p>Performance Criteria 11: Provide work related information to team members and identify interrelated work activities to avoid confusion</p> <p>Performance Criteria 12: Carry out the instructions of the supervisor</p> <p>Performance Criteria 13: Report to the supervisor as per organizational SOPs</p> <p>Performance Criteria 14: Apply appropriate methods and techniques for cleanliness</p>

	<p>and maintenance of machines & tools</p> <p>Performance Criteria 15: Clean and maintain all workplace tools & machines as per housekeeping checklists or given instructions</p> <p>Performance Criteria 16: Prepare checklist for daily cleanliness of the workplace</p> <p>Performance Criteria 17: Place all the tools & material in proper place to ensure safe work</p> <p>Performance Criteria 18: Prepare specific guidelines and checklists to conduct maintenance and housekeeping of machines & tools</p> <p>Performance Criteria 19: Read and interpret maintenance schedule carefully</p> <p>Performance Criteria 20: Prepare oiling and greasing chart (daily, weekly as per machine requirement)</p> <p>Performance Criteria 21: Prepare machine history record - date of installation, condition, oiling and maintenance</p> <p>Performance Criteria 22: Inspect and assess the general condition of an assigned machine on regular basis</p> <p>Performance Criteria 23: Observe problems and carry out routine maintenance as per given instructions and schedules</p> <p>Performance Criteria 24: Identify faulty/damaged/ worn out parts and take appropriate steps to replace them</p> <p>Performance Criteria 25: Report faults and problems of the machines, if not controllable, to the person concerned</p>
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	<p>Assessment Task 3</p> <p>Performance Criteria 1: Select appropriate tool & clamping device according to the job requirement.</p> <p>Performance Criteria 2: Manage the measuring instruments as per job requirement.</p> <p>Performance Criteria 3: Switch on the machine and check coolant levels</p> <p>Performance Criteria 4: Run machine warm-up cycle</p> <p>Performance Criteria 5: Clamp the work piece as per standard procedure</p> <p>Performance Criteria 6: Set travel length of machine table as per workpiece</p> <p>Performance Criteria 7: Check the grinding machine safety covers before starting the process</p> <p>Performance Criteria 8: Maintain safe distance between work piece & grinding wheel</p> <p>Performance Criteria 9: Apply coolant on grinding surface</p> <p>Performance Criteria 10: Perform grinding as per standard procedure.</p> <p>Performance Criteria 11: Clean & deburr the work piece</p> <p>Performance Criteria 12: Verify dimensional and geometrical accuracy at suitable intervals.</p> <p>Performance Criteria 13: Shut down the machine in safe position after finishing the work.</p> <p>Performance Criteria 14: Ensure personal protective equipment is cleaned and stored in proper place.</p> <p>Performance Criteria 15: Place the tools equipment etc at their prescribed place after completion of work</p> <p>Performance Criteria 16: Identify hazardous waste/ drug materials which needs to be disposed off</p> <p>Performance Criteria 17: Take necessary precautions like putting masks and gloves while disposing hazardous waste/ materials as per standard operating procedure</p> <p>Performance Criteria 18: Adopt communication skills, appropriate to work activities and organizational/medical procedures</p> <p>Performance Criteria 19: Carefully listen and note down the instructions of Supervisor</p> <p>Performance Criteria 20: Clean and maintain all bench-work tools and machines as per housekeeping checklists or instructions provided</p> <p>Performance Criteria 21: Prepare checklist for daily cleanliness of the workplace</p> <p>Performance Criteria 22: Respond appropriately to safety hazards on all bench-work tools & machines</p> <p>Performance Criteria 23: Identify all the tools and material in proper place to ensure safe work</p> <p>Performance Criteria 24: Adopt methods and techniques for cleanliness and maintenance of tools</p>
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Assessors Judgment Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Registration/Roll Number: Candidate Signature:
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: Assessor's code: Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Each Assessment Task (with performance criteria)				
Assessment Task 1		Description of assessment task 1		
		Candidate is required to perform Hand Grinding on work piece according to the given instructions.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Select appropriate hand grinder & grinding wheel / disk as per job specifications			
2.	Mount the grinding wheel / disk as per standard procedure			
3.	Perform grinding as per standard procedures			
4.	Interpret work processes and procedures correctly to identify risk to Health, hygiene and safety at workplace			
5.	Recognize processes, tools, equipment and consumable materials that have the potential to cause harm			
6.	Select personal protective equipment in terms of type and quantity according to work orders.			
7.	Wear, adjust, and maintain personal protective equipment to ensure correct fit and optimum protection in compliance with company procedures.			
8.	Maintain cleanliness and hygiene as per organizational policy			
9.	Comply with Health, hygiene and safety precautions before starting work			
10.	Treat team members with respect and maintain positive relationships to achieve common organizational goals			
11.	Develop Basic Mechanical Drawing			
12.	Identify requirements of the material(s) for the work in accordance with the job specifications and drawing			
13.	Confirm the requirement of the materials from the client or supervisor for accurate estimation			
14.	Quantify the material as per drawing			
15.	Use appropriate methods for the calculation of cost of material and accessories keeping in view the current market prices			
16.	Present the cost estimates to the client or supervisor for approval Calculate man-hours and machine-hours for work in accordance with the job requirements			
17.	Prepare labor cost for the work using appropriate procedures			
18.	Performance Criteria 18: Make necessary adjustments in estimates, where required			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 2		Description of assessment task 2		
		Candidate is required to perform single point Tool Grinding on Pedestal Grinder according to the cutting tool geometry assign by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Perform tool grinding operation by holding the tool firmly against the rotating wheel by placing it on the tool rest.			
2.	Adopt technique and methods as per requirements of tool geometry.			
3.	Check quality of the tool at suitable intervals.			
4.	Shut down the grinder after finishing the work.			
5.	Follow organizational Health, hygiene and safety guidelines during work			
6.	Deal with resolvable problems according to prescribed procedures			
7.	Report unresolved problems to immediate supervisor			
8.	Collect hazardous or non-hazardous waste carefully from the designated area as per approved procedure			
9.	Use proper disposal hazardous containers for dispose-off hazardous waste as per procedure			
10.	Listen to instructions carefully & comply with those instructions			
11.	Provide work related information to team members and identify interrelated work activities to avoid confusion			
12.	Carry out the instructions of the supervisor			
13.	Report to the supervisor as per organizational SOPs			
14.	Apply appropriate methods and techniques for cleanliness and maintenance of machines & tools			
15.	Clean and maintain all workplace tools & machines as per housekeeping checklists or given instructions			
16.	Prepare checklist for daily cleanliness of the workplace			
17.	Place all the tools & material in proper place to ensure safe work			
18.	Prepare specific guidelines and checklists to conduct maintenance and housekeeping of machines & tools			
19.	Read and interpret maintenance schedule carefully			
20.	Prepare oiling and greasing chart (daily, weekly as per machine requirement)			

21.	Prepare machine history record - date of installation, condition, oiling and maintenance			
22.	Inspect and assess the general condition of an assigned machine on regular basis			
23.	Observe problems and carry out routine maintenance as per given instructions and schedules			
24.	Identify faulty/damaged/ worn out parts and take appropriate steps to replace them			
25.	Report faults and problems of the machines, if not controllable, to the person concerned			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 3		Description of assessment task 3		
		Candidate is required to perform Surface Grinding on work piece according to the drawing assign by assessor.		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Select appropriate tool & clamping device according to the job requirement.			
2.	Manage the measuring instruments as per job requirement.			
3.	Switch on the machine and check coolant levels			
4.	Run machine warm-up cycle			
5.	Clamp the work piece as per standard procedure			
6.	Set travel length of machine table as per work piece			
7.	Check the grinding machine safety covers before starting the process			
8.	Maintain safe distance between work piece & grinding wheel			
9.	Apply coolant on grinding surface			
10.	Perform grinding as per standard procedure.			
11.	Clean & deburr the work piece			
12.	Verify dimensional and geometrical accuracy at suitable intervals.			
13.	Shut down the machine in safe position after finishing the work.			
14.	Ensure personal protective equipment is cleaned and stored in proper place.			
15.	Place the tools equipment etc at their prescribed place after completion of work			
16.	Identify hazardous waste/ drug materials which needs to be disposed off			
17.	Take necessary precautions like putting masks and gloves while disposing hazardous waste/ materials as per standard operating procedure			
18.	Adopt communication skills, appropriate to work activities and organizational/medical procedures			
19.	Carefully listen and note down the instructions of Supervisor			
20.	Clean and maintain all bench-work tools and machines as per housekeeping checklists or instructions provided			
21.	Prepare checklist for daily cleanliness of the workplace			

22.	Respond appropriately to safety hazards on all bench-work tools & machines			
23.	Identify all the tools and material in proper place to ensure safe work			
24.	Adopt methods and techniques for cleanliness and maintenance of tools			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		