

Assessment Evidence Guide

For

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Level-2

Module name
(Formative Assessment)

8th-12th March 2021



**National Vocational & Technical
Training Commission**

Title of Qualification: Heat Treatment-I	CS Code:	Level:4	Version:01
Competency Standard Title: Perform quenching, annealing and normalizing process	Assessment Date (DD/MM/YY): Assessment Time:		

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 quenching process</p> <p>Assessment Task 2: Candidate is required to: Perform annealing treatment on steel</p> <p>Assessment Task 3: Candidate is required to: Perform normalizing process</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>P1. Handle the job as per SOP</p> <p>P2. Place the job in the heating furnace</p> <p>P3. Control the temperature of the furnace as per given job</p> <p>P4. Set standard soaking time of the heat treatment cycle as per given job</p> <p>P5. Turn off the furnace, once the required temperature and soaking time is achieved.</p> <p>P6. Remove the job from the furnace and quench into the quenching media.</p> <p>P7. Clean the job and refer it to the next section.</p>

	<p>Assessment Task 2</p> <p>P1. Handle the job as per SOP</p> <p>P2. Place the job in the heating furnace</p> <p>P3. Control the temperature of the furnace as per given job</p> <p>P4. Set standard soaking time of the heat treatment cycle as per given job</p> <p>P5. Turn off the furnace, once the required temperature and soaking time is achieved.</p> <p>P6. Let the work piece to cool in the furnace.</p> <p>P7. Remove the work piece from the furnace, once the temperature drops to room temperature.</p> <p>P8. Clean the work piece and prepare observation data sheet.</p>
	<p>Assessment Task 3</p> <p>P1. Handle the job as per SOP</p> <p>P2. Place the job in the furnace</p> <p>P3. Control the temperature of the furnace as per given job</p> <p>P4. Set standard soaking time of the heat treatment cycle as per given job</p> <p>P5. Turn off the furnace, once the required temperature and soaking time is achieved.</p> <p>P6. Remove the job from furnace and let it cool in the air.</p> <p>P7. Clean the job and prepare observation data sheet.</p>
	<p>Portfolios required at the time of assessment (if any) for</p>

Continued on following page

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		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
	P1. Handle the job as per SOP			
	P2. Place the job in the heating furnace			
	P3. Control the temperature of the furnace as per given job			
	P4. Set standard soaking time of the heat treatment cycle as per given job			
	P5. Turn off the furnace, once the required temperature and soaking time is achieved.			
	P6. Remove the job from the furnace and quench into the quenching media.			
	P7. Clean the job and refer it to the next section.			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 2		Description of assessment task 2		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
	P1. Handle the job as per SOP			
	P2. Place the job in the heating furnace			
	P3. Control the temperature of the furnace as per given job			
	P4. Set standard soaking time of the heat treatment cycle as per given job			
	P5. Turn off the furnace, once the required temperature and soaking time is achieved.			
	P6. Let the work piece to cool in the furnace.			
	P7. Remove the work piece from the furnace, once the temperature drops to room temperature.			
	P8. Clean the work piece and prepare observation data sheet			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 3		Description of assessment task 3		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
	P1. Handle the job as per SOP			
	P2. Place the job in the furnace			
	P3. Control the temperature of the furnace as per given job			
	P4. Set standard soaking time of the heat treatment cycle as per given job			
	P5. Turn off the furnace, once the required			

	temperature and soaking time is achieved.			
	P6. Remove the job from furnace and let it cool in the air.			
	P7. Clean the job and prepare observation data sheet.			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Title of Qualification: Heat Treatment-I	CS Code:	Level:	Version: 01
Competency Standard Title: Perform quenching, annealing and normalizing process	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Assessors Guide (to be completed by the Assessor and signed both by the assessor and the can

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

Title of Qualification: Heat Treatment-I	CS Code:	Level:	Version: 01
Competency Standard Title: Perform quenching, annealing and normalizing process	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

WRITTEN ASSESSMENT

Question	Candidate's answer
1. Describe types of carbon steel?	<ul style="list-style-type: none">• Low carbon steel• Mild steel• High carbon steel
2. Explain Iron-Carbon Diagram?	<ul style="list-style-type: none">• α, β, δ, γ Iron• Eutectic and Eutectoid iron• Solubility of carbon in different phases
3. Explain the effect of heat treatment on different phases?	<ul style="list-style-type: none">• Austenitic range• Martensite formation• Ferrite• Pearlite
4. Describe quenching mediums	<ul style="list-style-type: none">• Air• Oil• Water

Title of Qualification: Heat Treatment-I	CS Code:	Level:4	Version:01
Competency Standard Title: Perform Heat Treatment of Non-Ferrous Materials	Assessment Date (DD/MM/YY): Assessment Time:		

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 Solution Treatment</p> <p>Assessment Task 2: Candidate is required to: Perform Aging</p> <p>And complete:</p> <p>3. Knowledge assessment test (Written or Oral)</p> <p>4. Portfolios at the time of assessment (if any)</p>
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <p>P1. Handle the work piece with appropriate care</p> <p>P2. Place the work piece in the furnace</p> <p>P3. Adjust the temperature and soaking time of the furnace according to the material type and size.</p> <p>P4. Turn off the furnace once the required temperature and soaking time is achieved.</p> <p>P5. Remove the work piece from the furnace and quench into the quenching media.</p> <p>P6. Clean the work piece and referred it to the next section.</p>

	<p>Assessment Task 2</p> <p>P1. Handle the work piece with appropriate care</p> <p>P2. Place the work piece in the furnace</p> <p>P3. Adjust the temperature and soaking time of the furnace according to the type and size of the material.</p> <p>P4. Turn of the furnace once the required temperature and soaking time is achieved.</p> <p>P5. Let the work piece to cool in the furnace.</p> <p>P6. Remove the work piece from the furnace, once the temperature drops to room temperature.</p> <p>P7. Clean the work piece and referred it to the next section.</p>
	Portfolios required at the time of assessment (if any) for

Continued on following page

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		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
	P1. Handle the work piece with appropriate care			
	P2. Place the work piece in the furnace			
	P3. Adjust the temperature and soaking time of the furnace according to the material type and size.			
	P4. Turn of the furnace once the required temperature and soaking time is achieved.			
	P5. Remove the work piece from the furnace and quench into the quenching media.			
	P6. Clean the work piece and referred it to the next section			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 2		Description of assessment task 2		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
	P1. Handle the work piece with appropriate Care.			
	P2. Place the work piece in the furnace.			
	P3 Adjust the temperature and soaking time of the furnace according to the type and size of the material.			
	P4. Turn of the furnace once the required temperature and soaking time is achieved.			
	P5. Let the work piece to cool in the furnace.			
	P6. Remove the work piece from the furnace, once the temperature drops to room temperature.			
	P7. Clean the work piece and referred it to the next Section.			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Title of Qualification: Heat Treatment-I	CS Code:	Level:	Version: 01
Competency Standard Title: Perform Heat Treatment of Non-Ferrous Materials	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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Assessors Guide (to be completed by the Assessor and signed both by the assessor and the can

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

Title of Qualification: Heat Treatment-I	CS Code:	Level:	Version: 01
Competency Standard Title: Perform Heat Treatment of Non-Ferrous Materials	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

WRITTEN ASSESSMENT

Question	Candidate's answer
5. Differentiate between ferrous and non-ferrous metals?	<ul style="list-style-type: none"> Steel Aluminum, Copper, Zinc etc Al, Cu and Zn alloys
6. Explain Phase diagram of heat treatable non-ferrous metals?	<ul style="list-style-type: none"> Al-Cu Phase diagram Solvous line in Phase diagram
7. Describe aging?	<ul style="list-style-type: none"> Precipitation behavior Stable and metastable phases Relationship between temperature and precipitates/phases.