

Assessment Evidence Guide

For

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Level-4

Destructive Testing Technician
(Formative Assessment)

8th -12th March 2021



National Vocational & Technical
Training Commission

Title of Qualification: Destructive Testing Technician	CS Code:	Level: 4	Version:
Competency Standard Title: Perform Mechanical Testing on Universal Testing Machine	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: Measure tensile properties of the specimen</p> <p>Assessment Task 2: Candidate is required to: Measure Compressive strength of the specimen</p> <p>Assessment Task 3: Candidate is required to: Measure the Bending strength of specimen</p> <p>Assessment Task 3: Candidate is required to: Measure Shear strength of the specimen</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> <ul style="list-style-type: none"> • Inspect the dimensions of standard specimen with the help of measuring instruments. • Mark the gauge length points on the specimen. • Measure the initial cross sectional area of the specimen. • Grip the specimen in gripping device according to standard. • Apply the load on the specimen up to fracture. • Note the values of applied load and extension produced after specific intervals. • Calculate stress and strain from the values of load and extension. • Sketch stress strain curve and calculate required mechanical properties.

	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 2</p> <ul style="list-style-type: none"> • Inspect the dimensions of standard specimen with the help of measuring instruments. • Calculate the initial cross sectional area of the specimen. • Prepare the end surfaces of the specimen. • Fix the specimen, between fixtures, in the machine. • Apply the load on the specimen up to surface failure. • Note the value of load at which surface get failure. • Calculate compressive stress.
	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 3</p> <ul style="list-style-type: none"> • Inspect the dimensions of standard specimen with the help of measuring instruments. • Fit the bend test fixture in the machine. • Adjust the span between two rollers of the fixture according to the length of the specimen. • Fit the mandrel in the machine. • Place the specimen on the rollers of the fixture. • Apply the load on the specimen up to maximum selected bend. • Note the bending force and measure bending strength.
	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 4</p> <ul style="list-style-type: none"> • Inspect the dimensions of standard specimen with the help of measuring instruments. • Calculate the cross sectional area of the Specimen. • Prepare the machine for test. • Install the fixture of shear test. • Place the sample within the fixture. • Apply the load and note the maximum/breaking force. • Calculate shear strength.
	<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
	Inspect the dimensions of standard specimen with the help of measuring instruments.			
	Mark the gauge length points on the specimen.			
	Measure the initial cross sectional area of the specimen.			
	Grip the specimen in gripping device according to standard.			
	Apply the load on the specimen up to fracture.			
	Note the values of applied load and extension produced after specific intervals.			
	Calculate stress and strain from the values of load and extension.			
	Sketch stress strain curve and calculate required mechanical properties.			
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
	Inspect the dimensions of standard specimen with the help of measuring instruments.			
	Calculate the initial cross sectional area of the specimen.			
	Prepare the end surfaces of the specimen.			
	Fix the specimen, between fixtures, in the machine.			
	Apply the load on the specimen up to surface failure.			
	Note the value of load at which surface get failure.			
	Calculate compressive stress.			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Each Assessment Task (with performance criteria)				
Assessment Task 3		Description of assessment task 3		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
	Inspect the dimensions of standard specimen with the help of measuring instruments.			
	Fit the bend test fixture in the machine.			
	Adjust the span between two rollers of the fixture according to the length of the specimen.			
	Fit the mandrel in the machine.			
	Place the specimen on the rollers of the fixture.			
	Apply the load on the specimen up to maximum selected bend.			
	Note the bending force and measure bending strength.			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 4		Description of assessment task 4		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
	Inspect the dimensions of standard specimen with the help of measuring instruments.			
	Calculate the cross sectional area of the Specimen.			
	Prepare the machine for test.			
	Install the fixture of shear test.			
	Place the sample within the fixture.			
	Apply the load and note the maximum/breaking force			
	Calculate shear strength.			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		
Title of Qualification:		CS Code:	Level:	Version: 01

Competency Standard Title:	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 candidate after the assessment)

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

Title of Qualification:	CS Code:	Level:	Version: 01
Competency Standard Title:	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

WRITTEN ASSESSMENT

Question	Candidate's answer
1. "UTM" stands for?	UTM stands for universal testing machine.
2. Write the names of different types of test which are performed on UTM.	<ul style="list-style-type: none"> • Tensile test • Compression test • Bend test • Single shear test
3. Write the names of different mechanical properties which can be measured from tensile test.	<ul style="list-style-type: none"> • Elastic limit • Yield stress • Ultimate tensile strength • Bending strength • Percentage elongation • Percentage reduction in area, etc.
4. What is hooks law?	According to hooks law with in the elastic limit stress and strain remains directly proportional.
5. Define modulus of elasticity.	Within the elastic limit the ratio of stress to strain remains constant, which is known as modulus of elasticity. Its unit is N/m ² .
6. Write the names of different types of loads.	Tensile load Compression load Bending load Shear load, etc.
7. Why breaking load is always less than the maximum load applied on the tensile specimen?	During tensile test the specimen always fails at a load less than the maximum load applied due to the necking phenomena.