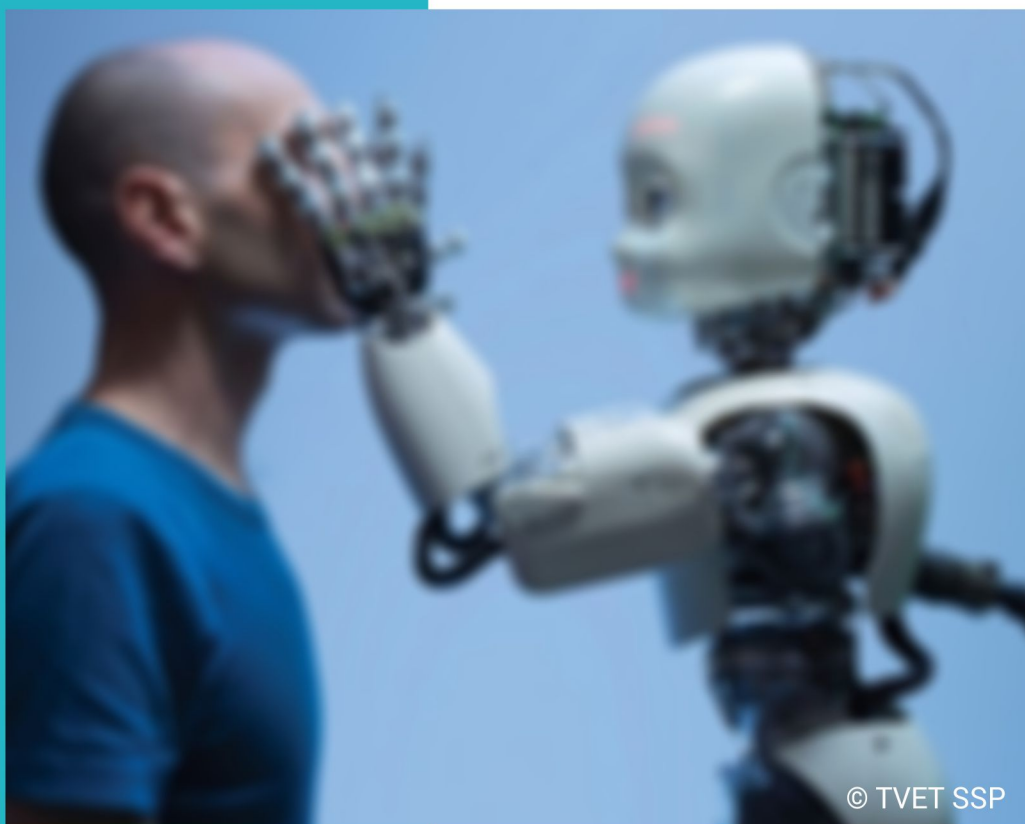


# ROBOTICS TECHNICIAN



ASSESSMENT PACKAGE  
National Vocational Certificate Level 4

Version 1 - October, 2019

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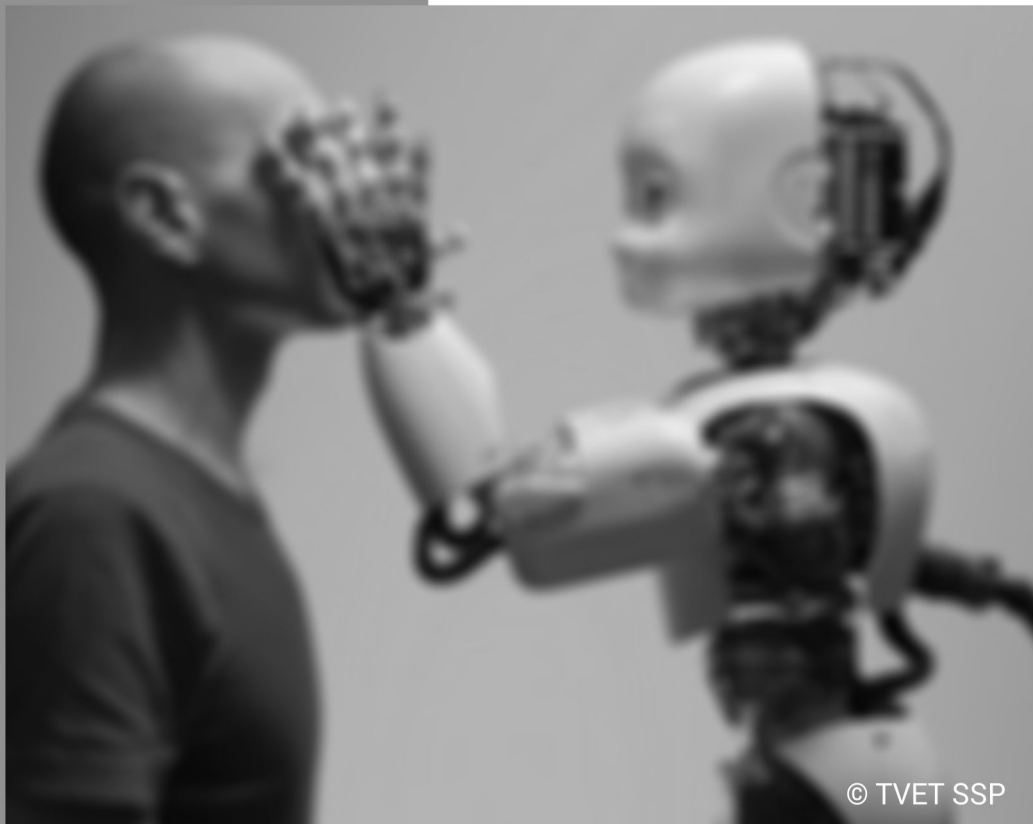
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**Document Version**

October, 2019  
**Islamabad, Pakistan**

# ROBOTICS TECHNICIAN



**ASSESSMENT PACKAGE**  
National Vocational Certificate Level 4

Version 1 - October, 2019

## Self-Assessment Checklist

<b>Candidate Name</b>	
<b>Registration No.</b>	
<b>Qualification</b>	National Vocational Certificate Level1 -4 Robotics Technician
<b>Competency Standards</b>	<b>0714001072 Perform maintenance of robotics</b>
<b>Assessment Task</b>	<ul style="list-style-type: none"> <li>Develop maintenance schedule of robotic equipment and perform timely maintenance as per standard procedures and guidelines.</li> <li>Supervise maintenance staff and perform component / functionality test after maintenance and generate a maintenance report.</li> </ul>

I can.....

<b>Performance Criteria</b>	<b>Yes</b>	<b>No</b>
1. Identify equipment that require maintenance	<input type="checkbox"/>	<input type="checkbox"/>
2. Determine frequency of maintenance required	<input type="checkbox"/>	<input type="checkbox"/>
3. Prioritize required maintenance	<input type="checkbox"/>	<input type="checkbox"/>
4. Create database on equipment to be inspected and maintained	<input type="checkbox"/>	<input type="checkbox"/>
5. Draft maintenance plan	<input type="checkbox"/>	<input type="checkbox"/>
6. Identify tool and equipment required for maintenance	<input type="checkbox"/>	<input type="checkbox"/>
7. Arrange tool and equipment required to perform maintenance at workplace	<input type="checkbox"/>	<input type="checkbox"/>
8. Read instruction manuals thoroughly to perform maintenance	<input type="checkbox"/>	<input type="checkbox"/>
9. Follow steps provided in standard procedure and guidelines	<input type="checkbox"/>	<input type="checkbox"/>
10. Formulate list of duties as per staff skill set	<input type="checkbox"/>	<input type="checkbox"/>
11. Assign duties to staff	<input type="checkbox"/>	<input type="checkbox"/>
12. Ensure individual and teamwork.	<input type="checkbox"/>	<input type="checkbox"/>
13. Ensure maintenance carried out as per standard procedure and guidelines.	<input type="checkbox"/>	<input type="checkbox"/>
14. Identify critical path in maintenance schedule	<input type="checkbox"/>	<input type="checkbox"/>
15. Ensure timely reminders are issued to the maintenance staff.	<input type="checkbox"/>	<input type="checkbox"/>
16. Ensure timely execution of activity in critical path.	<input type="checkbox"/>	<input type="checkbox"/>
17. Ensure strict adherence to overall maintenance schedule.	<input type="checkbox"/>	<input type="checkbox"/>
18. Identify post maintenance test.	<input type="checkbox"/>	<input type="checkbox"/>
19. Follow instruction to perform post maintenance test as per standard operating procedure.	<input type="checkbox"/>	<input type="checkbox"/>
20. Perform corrective measure to make sure smooth operation of system	<input type="checkbox"/>	<input type="checkbox"/>
21. Enlist result functionality tests perform after maintenance	<input type="checkbox"/>	<input type="checkbox"/>

<b>22. Formulate maintenance report</b>	<input type="text"/>	<input type="text"/>
<b>23. Propose any changes in maintenance plan</b>	<input type="text"/>	<input type="text"/>

Candidate's Signature\_\_\_\_\_

Assessor's

Signature\_\_\_\_\_

Date: \_\_\_\_\_

# Instruction Sheet for the Candidate

Qualification	National Vocational Certificate Level 1 -4 Robotics Technician
Competency Standard(s)	<b>0714001072 Perform maintenance of robotics</b>
Candidate Details	Name _____ Registration/Roll Number _____
Guidance for Candidate	<p><b>To meet this standard, you are required to complete the following within the giventimeframe (for practical demonstration &amp; assessment):</b></p> <ul style="list-style-type: none"> <li><b>The following must be perform for the given robot as per the work place requirement.</b> <ol style="list-style-type: none"> <li>1. Perform maintenance as per procedure standards and guidelines</li> <li>2. Ensure timely maintenance to avoid negative outcomes</li> <li>3. Perform component / functionality test after maintenance</li> <li>4. Generate maintenance report</li> <li>5. Identify the problem</li> <li>6. Attempt a fix based on findings</li> <li>7. Revise configuration of a robotic system</li> <li>8. Generate diagnostic report</li> </ol> </li> </ul>
Time: 3 Hrs.	<p>During a practical assessment, under observation by an assessor, you are required to perform maintenance of the robotic equipment demonstrating the following criteria:</p> <ol style="list-style-type: none"> <li>1. Identify equipment that require maintenance</li> <li>2. Determine frequency of maintenance required</li> <li>3. Prioritize required maintenance</li> <li>4. Create database on equipment to be inspected and maintained</li> <li>5. Draft maintenance plan</li> <li>6. Identify tool and equipment required for maintenance</li> <li>7. Arrange tool and equipment required to perform maintenance at workplace</li> <li>8. Read instruction manuals thoroughly to perform maintenance</li> <li>9. Follow steps provided in standard procedure and guidelines</li> <li>10. Formulate list of duties as per staff skill set</li> <li>11. Assign duties to staff</li> <li>12. Ensure individual and teamwork.</li> <li>13. Ensure maintenance carried out as per standard procedure and guidelines.</li> <li>14. Identify critical path in maintenance schedule</li> <li>15. Ensure timely reminders are issued to the maintenance staff.</li> <li>16. Ensure timely execution of activity in critical path.</li> <li>17. Ensure strict adherence to overall maintenance schedule.</li> <li>18. Identify post maintenance test.</li> <li>19. Follow instruction to perform post maintenance test as per standard operating procedure.</li> <li>20. Perform corrective measure to make sure smooth operation of system</li> <li>21. Enlist result functionality tests perform after maintenance</li> <li>22. Formulate maintenance report</li> <li>23. Identify equipment that require maintenance</li> </ol>
Minimum Evidence Required	

## Assessors Judgment Guide

<b>Qualification</b>	National Vocational Certificate Level 1 -4 Robotics Technician
<b>Competency Standard(s)</b>	Perform maintenance of robotics
<b>Candidate Details</b>	Name: _____ Registration/Roll Number: _____ Signature: _____
<b>Assessment Outcome</b>	COMPETENT <input type="checkbox"/> NOT YETCOMPETENT <input type="checkbox"/> Name of the Assessor _____ Assessor's code: _____ Signature: _____

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							

## Observation Checklist

<b>Assessment Task</b>				
<b>During the practical assessment, candidate demonstrated the following:</b>		<b>Yes</b>	<b>No</b>	<b>Remarks</b>
1.	Identify equipment that require maintenance			
2.	Determine frequency of maintenance required			
3.	Prioritize required maintenance			
4.	Create database on equipment to be inspected and maintained			
5.	Draft maintenance plan			
6.	Identify tool and equipment required for maintenance			
7.	Arrange tool and equipment required to perform maintenance at workplace			
8.	Read instruction manuals thoroughly to perform maintenance			
9.	Follow steps provided in standard procedure and guidelines			
10.	Formulate list of duties as per staff skill set			
11.	Assign duties to staff			
12.	Ensure individual and teamwork.			
13.	Ensure maintenance carried out as per standard procedure and guidelines.			
14.	Identify critical path in maintenance schedule			
15.	Ensure timely reminders are issued to the maintenance staff.			
16.	Ensure timely execution of activity in critical path.			
17.	Ensure strict adherence to overall maintenance schedule.			
18.	Identify post maintenance test.			
19.	Follow instruction to perform post maintenance test as per standard operating procedure.			
20.	Perform corrective measure to make sure smooth operation of system			
21.	Enlist result functionality tests perform after maintenance			
22.	Formulate maintenance report			
23.	Identify equipment that require maintenance			
<b>Competent</b> <input type="checkbox"/>		<b>Not Yet Competent</b> <input type="checkbox"/>		



<b>Feedback to the Candidate</b>	
Candidate's Signature _____ Assessor's Signature _____	

## Knowledge Assessment

<b>Qualification</b>	National Vocational Certificate Level1 -4 Robotics Technician
<b>Competency Standard(s)</b>	0714001072 Perform maintenance of robotics
<b>Candidate Details</b>	Name: _____  Registration/Roll Number: _____ Candidate Signature: _____
<b>Assessment Outcome</b>	<div style="display: flex; justify-content: space-around; align-items: center;"> <span>COMPETENT <input type="checkbox"/></span> <span>NOT YETCOMPETENT <input type="checkbox"/></span> </div> Name of the Assessor: _____ Assessor's code: _____  Signature of the Assessor: _____

Candidate's response is not required to be identical, but similar concepts and/or keywords must be used. Oral questioning may be used to clarify candidate understanding of topic and its application.

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)		Satisfactory	Not Satisfactory
1.	What Is scheduled maintenance?		
2.	List the common guidelines for maintenance of a robot?		
3.	What are the necessary tips for maintenance staff supervision?		
4.	What is functionality test after maintenance?		
5.	What is the purpose of a robot maintenance report?		

6.			
7.			
8.			
9.			
10.			

## Self-Assessment Checklist

<b>Candidate Name</b>	
<b>Registration No.</b>	
<b>Qualification</b>	National Vocational Certificate Level1 -4 Robotics Technician
<b>Competency Standards</b>	<b>0714001073 Perform trouble shooting</b>
<b>Assessment Task</b>	For the given robot the trainee must perform the following 1: Identify the problem 2: Gather more details related to problem 3: Identify possible solutions 4: Attempt a fix based on findings 5: Generate diagnostic report

I can.....

Performance Criteria	Yes	No
1. Examine the robotic system.	<input type="checkbox"/>	<input type="checkbox"/>
2. Enlist the identified problems.	<input type="checkbox"/>	<input type="checkbox"/>
3. Classify the problems.	<input type="checkbox"/>	<input type="checkbox"/>
4. Identify reasons for the specified problem.	<input type="checkbox"/>	<input type="checkbox"/>
5. Observe the parameters and conditions at the time of problem occurred.	<input type="checkbox"/>	<input type="checkbox"/>
6. Prepare a detailed report on the problem.	<input type="checkbox"/>	<input type="checkbox"/>
7. Identify the troubleshooting manual.	<input type="checkbox"/>	<input type="checkbox"/>
8. Specify the corrective measures from the troubleshooting manual.	<input type="checkbox"/>	<input type="checkbox"/>
9. Arrange tools and equipment required to attempt fixing the problem.	<input type="checkbox"/>	<input type="checkbox"/>
10. Follow instructions from troubleshooting manual to resolve the problem.	<input type="checkbox"/>	<input type="checkbox"/>
11. Gather more information and repeat if the problem is not resolved.	<input type="checkbox"/>	<input type="checkbox"/>
12. Make a detailed report on rectification of the problem.	<input type="checkbox"/>	<input type="checkbox"/>
13. Note the parameters and conditions after fixing the problem.	<input type="checkbox"/>	<input type="checkbox"/>
14. Prepare a comprehensive report on the observations and rectification of the problem.	<input type="checkbox"/>	<input type="checkbox"/>
15. Maintain error logs.	<input type="checkbox"/>	<input type="checkbox"/>

Candidate's Signature \_\_\_\_\_  
Signature \_\_\_\_\_

Assessor's

Date: \_\_\_\_\_

Qualification	National Vocational Certificate Level 1 -4 ROBOTICS TECHNICIAN
Competency Standard(s)	<b>0714001073 Perform trouble shooting</b>

## Instruction Sheet for the Candidate

Candidate Details	Name_____ Registration/Roll Number_____
Guidance for Candidate	<p><b>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration &amp; assessment):</b></p> <ul style="list-style-type: none"> <li>For the given robot the trainee must perform the following <ol style="list-style-type: none"> <li>1: Identify the problem</li> <li>2: Gather more details related to problem</li> <li>3: Identify possible solutions</li> <li>4: Attempt a fix based on findings</li> <li>5: Generate diagnostic report</li> </ol> </li> </ul>
Time: 180 min	During a practical assessment, under observation by an assessor, you are required to trouble shoot the robotic equipment by demonstrating the following criteria:
Minimum Evidence Required	<ol style="list-style-type: none"> <li>1. Examine the robotic system.</li> <li>2. Enlist the identified problems.</li> <li>3. Classify the problems.</li> <li>4. Identify reasons for the specified problem.</li> <li>5. Observe the parameters and conditions at the time of problem occurrence.</li> <li>6. Prepare a detailed report on the problem.</li> <li>7. Identify the troubleshooting manual.</li> <li>8. Specify the corrective measures from the troubleshooting manual.</li> <li>9. Arrange tools and equipment required to attempt fixing the problem.</li> <li>10. Follow instructions from troubleshooting manual to resolve the problem.</li> <li>11. Gather more information and repeat if the problem is not resolved.</li> <li>12. Make a detailed report on rectification of the problem.</li> <li>13. Note the parameters and conditions after fixing the problem.</li> <li>14. Prepare a comprehensive report on the observations and rectification of the problem.</li> <li>15. Maintain error logs.</li> </ol>

## Assessors Judgment Guide

<b>Qualification</b>	National Vocational Certificate Level 1 -4 Robotics Technician
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<b>Competency Standard(s)</b>	Perform trouble shooting
<b>Candidate Details</b>	Name: _____ Registration/Roll Number: _____ Signature: _____
<b>Assessment Outcome</b>	COMPETENT <input type="checkbox"/> NOT YETCOMPETENT <input type="checkbox"/> Name of the Assessor _____ Assessor's code: _____ Signature: _____

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							

## Observation Checklist

<b>Assessment Task</b>				
<b>During the practical assessment, candidate demonstrated the following:</b>		<b>Yes</b>	<b>No</b>	<b>Remarks</b>
1.	<b>Performance Criteria</b>			
2.	Examine the robotic system.			
3.	Enlist the identified problems.			
4.	Classify the problems.			
5.	Identify reasons for the specified problem.			
6.	Observe the parameters and conditions at the time of problem occurred.			
7.	Prepare a detailed report on the problem.			
8.	Identify the troubleshooting manual.			
9.	Specify the corrective measures from the troubleshooting manual.			
10.	Arrange tools and equipment required to attempt fixing the problem.			
11.	Follow instructions from troubleshooting manual to resolve the problem.			
12.	Gather more information and repeat if the problem is not resolved.			
13.	Make a detailed report on rectification of the problem.			
14.	Note the parameters and conditions after fixing the problem.			
15.	Prepare a comprehensive report on the observations and rectification of the problem.			
<b>Competent</b> <input type="checkbox"/>		<b>Not Yet Competent</b> <input type="checkbox"/>		

<b>Feedback to the Candidate</b>	
Candidate's Signature _____	Assessor's Signature _____



## Knowledge Assessment

<b>Qualification</b>	National Vocational Certificate Level1 -4 Robotics Technician
<b>Competency Standard(s)</b>	0714001073 Perform trouble shooting
<b>Candidate Details</b>	Name: _____  Registration/Roll Number: _____ Candidate Signature: _____
<b>Assessment Outcome</b>	<div style="display: flex; justify-content: space-around; align-items: center;"> <span>COMPETENT <input type="checkbox"/></span> <span>NOT YETCOMPETENT <input type="checkbox"/></span> </div> Name of the Assessor: _____ Assessor's code: _____  Signature of the Assessor: _____

Candidate's response is not required to be identical, but similar concepts and/or keywords must be used. Oral questioning may be used to clarify candidate understanding of topic and its application.

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)		Satisfactory	Not Satisfactory
1.	What are the most common problems with a robot?		
2.	What is an instruction manual for the robot and its benefits?		
3.	What is diagnostics of a robot and what is the main source for diagnostics?		
4.	What is rectification of a robot problem?		

5.	<i>What are robot error logs?</i>		
6.			
7.			
8.			
9.			
10.			

## Self-Assessment Checklist

<b>Candidate Name</b>	
<b>Registration No.</b>	
<b>Qualification</b>	National Vocational Certificate Level1 -4 Robotics Technician
<b>Competency Standards</b>	0714001074 Revise the configuration of robotics
<b>Assessment Task</b>	<ul style="list-style-type: none"> <li>• Given a robotic system that needs to be reconfigured according to specified requirements (as per Manual of Robot).               <ol style="list-style-type: none"> <li>1. The candidate must identify tasks that require re-configuration of equipment and identify that will require upgradation.</li> <li>2. The candidate should perform re-configuration according to requirements by following all standard procedures.</li> <li>3. Upon completion of the re-configuration process the functionality of equipment and interfaces should be verified.</li> </ol> </li> </ul>

I can.....

Performance Criteria	Yes	No
1. Identify functionality tests for checking robot	<input type="checkbox"/>	<input type="checkbox"/>
2. Perform functionality test for robot	<input type="checkbox"/>	<input type="checkbox"/>
3. Ensure proper functionality of the equipment	<input type="checkbox"/>	<input type="checkbox"/>
4. Identify interfacing modules for robot	<input type="checkbox"/>	<input type="checkbox"/>
5. Perform functionality test	<input type="checkbox"/>	<input type="checkbox"/>
6. Ensure proper functionality of the interface modules	<input type="checkbox"/>	<input type="checkbox"/>
7. Specify the task which will require re configuration.	<input type="checkbox"/>	<input type="checkbox"/>
8. List required tool and equipment for reconfiguration.	<input type="checkbox"/>	<input type="checkbox"/>
9. List down robotic components necessary for reconfiguration	<input type="checkbox"/>	<input type="checkbox"/>
10. Arrange robotic components necessary for reconfiguration	<input type="checkbox"/>	<input type="checkbox"/>
11. Identify standard procedure for integration	<input type="checkbox"/>	<input type="checkbox"/>
12. Perform integration of reconfigured equipment	<input type="checkbox"/>	<input type="checkbox"/>
13. Identify software modules that require up gradation	<input type="checkbox"/>	<input type="checkbox"/>
14. Backup existing software and configuration.	<input type="checkbox"/>	<input type="checkbox"/>
15. Perform up gradation of software modules according to the SOP.	<input type="checkbox"/>	<input type="checkbox"/>
16. Identify standard testing procedures.	<input type="checkbox"/>	<input type="checkbox"/>
17. Perform functionality test of the reconfigured equipment	<input type="checkbox"/>	<input type="checkbox"/>

<b>18. Ensure proper functionality of the reconfigured equipment</b>	<input type="text"/>	<input type="text"/>
<b>19. Maintain log of equipment reconfiguration</b>	<input type="text"/>	<input type="text"/>

Candidate's Signature \_\_\_\_\_

Assessor's

Signature \_\_\_\_\_

Date: \_\_\_\_\_

## Instruction Sheet for the Candidate

Qualification	National Vocational Certificate Level 1 -4 Robotics Technician
Competency Standard(s)	0714001074 Revise the configuration of robotics

Candidate Details	Name _____ Registration/Roll Number _____
Guidance for Candidate	<p><b>To meet this standard, you are required to complete the following within the given timeframe (for practical demonstration &amp; assessment):</b></p> <ul style="list-style-type: none"> <li>• Given a robotic system that needs to be reconfigured according to specified requirements (as per Manual of Robot). <ol style="list-style-type: none"> <li>1. The candidate must identify tasks that require re-configuration of equipment and identify that will require upgradation.</li> <li>2. The candidate should perform re-configuration according to requirements by following all standard procedures.</li> <li>3. Upon completion of the re-configuration process the functionality of equipment and interfaces should be verified.</li> <li>4. Knowledge assessment (Oral)</li> </ol> </li> </ul>
Time: 3 Hrs.	<p>During a practical assessment, under observation by an assessor, you are required to <b><u>Revise configuration of a robotic system</u></b> demonstrating the following criteria:</p> <ol style="list-style-type: none"> <li>1. Identify functionality tests for checking robot</li> <li>2. Perform functionality test for robot</li> <li>3. Ensure proper functionality of the equipment</li> <li>4. Identify interfacing modules for robot</li> <li>5. Perform functionality test</li> <li>6. Ensure proper functionality of the interface modules</li> <li>7. Specify the task which will require re configuration.</li> <li>8. List required tool and equipment for reconfiguration.</li> <li>9. List down robotic components necessary for reconfiguration</li> </ol>

Minimum Evidence Required	<b>10.</b> Arrange robotic components necessary for reconfiguration <b>11.</b> Identify standard procedure for integration <b>12.</b> Perform integration of reconfigured equipment <b>13.</b> Identify software modules that require up gradation <b>14.</b> Backup existing software and configuration. <b>15.</b> Perform up gradation of software modules according to the SOP. <b>16.</b> Identify standard testing procedures. <b>17.</b> Perform functionality test of the reconfigured equipment <b>18.</b> Ensure proper functionality of the reconfigured equipment <b>19.</b> Maintain log of equipment reconfiguration
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## Assessors Judgment Guide

<b>Qualification</b>	National Vocational Certificate Level 1 -4 Robotics Technician
<b>Competency Standard(s)</b>	Revise the configuration of robotics
<b>Candidate Details</b>	Name: _____ Registration/Roll Number: _____ Signature: _____
<b>Assessment Outcome</b>	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor _____ Assessor's code: _____ Signature: _____

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							

## Observation Checklist

<b>Assessment Task</b>	<ul style="list-style-type: none"> <li>Given a robotic system that needs to be reconfigured according to specified requirements (as per Manual of Robot).               <ol style="list-style-type: none"> <li>The candidate must identify tasks that require re-configuration of equipment and identify that will require upgradation.</li> <li>The candidate should perform re-configuration according to requirements by following all standard procedures.</li> <li>Upon completion of the re-configuration process the functionality of equipment and interfaces should be verified.</li> </ol> </li> </ul>			
<b>During the practical assessment, candidate demonstrated the following:</b>		<b>Yes</b>	<b>No</b>	<b>Remarks</b>
1.	Identified functionality tests for checking robot			
2.	Performed functionality test for robot			
3.	Ensured proper functionality of the equipment			
4.	Identified interfacing modules for robot			
5.	Performed functionality test			
6.	Ensured proper functionality of the interface modules			
7.	Specified the task which will require re configuration.			
8.	Listed required tool and equipment for reconfiguration.			
9.	Listed down robotic components necessary for reconfiguration			
10.	Arranged robotic components necessary for reconfiguration			
11.	Identified standard procedure for integration			
12.	Performed integration of reconfigured equipment			
13.	Identified software modules that require up gradation			
14.	Performed backup of existing software and configuration.			
15.	Performed up gradation of software modules according to the SOP.			
16.	Identified standard testing procedures.			
17.	Performed functionality test of the reconfigured equipment			
18.	Ensured proper functionality of the reconfigured equipment			
19.	Maintained log of equipment reconfiguration			
<b>Competent</b> <input type="checkbox"/>		<b>Not Yet Competent</b> <input type="checkbox"/>		



<b>Feedback to the Candidate</b>	
Candidate's Signature _____	Assessor's Signature _____

## Knowledge Assessment

<b>Qualification</b>	National Vocational Certificate Level 1 -4 Robotics Technician
<b>Competency Standard(s)</b>	0714001074 Revise the configuration of robotics
<b>Candidate Details</b>	Name: _____  Registration/Roll Number: _____ Candidate Signature: _____
<b>Assessment Outcome</b>	<div style="display: flex; justify-content: space-around; align-items: center;"> <span>COMPETENT <input type="checkbox"/></span> <span>NOT YETCOMPETENT <input type="checkbox"/></span> </div> Name of the Assessor: _____ Assessor's code: _____  Signature of the Assessor: _____

Candidate's response is not required to be identical, but similar concepts and/or keywords must be used. Oral questioning may be used to clarify candidate understanding of topic and its application.

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)		Satisfactory	Not Satisfactory
1.	Why do we need to reconfigure a robotic system?		
2.	What tools and equipment are required for reconfiguration?		
3.	What robotic components are required for reconfiguration?		
4.	Why do we perform integration of reconfigured equipment?		
5.	Why do we Backup existing software and configuration?		

6.	Why is it important to upgrade software modules?		
7.	Why do we perform functionality test of the reconfigured equipment?		
8.	Why is it important to maintain log of equipment reconfiguration?		
9.			
10.			

# ASSESSMENT GUIDE FOR ROBOTICS TECHNICIAN

## Self-Assessment Checklist

<b>Candidate Name</b>	
<b>Registration No.</b>	
<b>Qualification</b>	National Vocational Certificate Level-1-4 in Robotics Technician
<b>Competency Standards</b>	0714001075 Execute Up gradation of Robotics
<b>Assessment Task</b>	Perform standard procedure for up-gradation of software and physical modules of a given robot. Also Follow post up-gradation test as per standard operating procedure.

I can.....

Performance Criteria	Yes	No
1. Identify reason for up-gradation of equipment	<input type="checkbox"/>	<input type="checkbox"/>
2. Identify tasks and related component that need up-gradation	<input type="checkbox"/>	<input type="checkbox"/>
3. Ensure need to upgrade equipment	<input type="checkbox"/>	<input type="checkbox"/>
4. List components of equipment need to be upgraded	<input type="checkbox"/>	<input type="checkbox"/>
5. List the new upgraded equipment	<input type="checkbox"/>	<input type="checkbox"/>
6. Prepare report on recommended equipment	<input type="checkbox"/>	<input type="checkbox"/>
7. Identify software module that needs replacement	<input type="checkbox"/>	<input type="checkbox"/>
8. Follow standard procedure for up-gradation of software modules	<input type="checkbox"/>	<input type="checkbox"/>
9. Report software modules upgraded	<input type="checkbox"/>	<input type="checkbox"/>
10. Identify physical component that need replacement	<input type="checkbox"/>	<input type="checkbox"/>
11. Follow standard procedure for up-gradation of physical modules	<input type="checkbox"/>	<input type="checkbox"/>
12. Report physical components upgraded	<input type="checkbox"/>	<input type="checkbox"/>
13. Ensure proper packaging and storage of replaced modules	<input type="checkbox"/>	<input type="checkbox"/>
14. List post up-gradation tests	<input type="checkbox"/>	<input type="checkbox"/>
15. Follow post up-gradation test as per standard operating procedure	<input type="checkbox"/>	<input type="checkbox"/>
16. Evaluate and report post up-gradation tests results	<input type="checkbox"/>	<input type="checkbox"/>
17. Identify software module that needs replacement	<input type="checkbox"/>	<input type="checkbox"/>

18. Follow standard procedure for up-gradation of software modules	<input type="text"/>	<input type="text"/>
19. Report software modules upgraded	<input type="text"/>	<input type="text"/>

Candidate's Signature\_\_\_\_\_

Assessor's

Signature\_\_\_\_\_

Date: \_\_\_\_\_

## Instruction Sheet for the Candidate

Qualification	National Vocational Certificate Level-1-4 in Robotics Technician
Competency Standard(s)	0714001075 Execute Up gradation of Robotics

Candidate Details	Name_____
	Registration/Roll Number_____
Guidance for Candidate	<p><b>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration &amp; assessment):</b></p> <ol style="list-style-type: none"> <li>1. Perform standard procedure for up-gradation of software and physical modules. Also follow post up-gradation test as per standard operating procedure.</li> </ol>
Time: 120 min	<p><b>During a practical assessment, under observation by an assessor, you are required to perform the above task.</b> You are required to demonstrate the following criteria:</p> <ol style="list-style-type: none"> <li>1. Identify reason for up-gradation of equipment</li> <li>2. Identify tasks and related component that need up-gradation</li> <li>3. Ensure need to upgrade equipment</li> <li>4. List components of equipment need to be upgraded</li> <li>5. List the new upgraded equipment</li> <li>6. Prepare report on recommended equipment</li> <li>7. Identify software module that needs replacement</li> <li>8. Follow standard procedure for up-gradation of software modules</li> <li>9. Report software modules upgraded</li> <li>10. Identify physical component that need replacement</li> <li>11. Follow standard procedure for up-gradation of physical modules</li> <li>12. Report physical components upgraded</li> <li>13. Ensure proper packaging and storage of replaced modules</li> <li>14. List post up-gradation tests</li> </ol>
Minimum Evidence Required	

	<ol style="list-style-type: none"><li>15. Follow post up-gradation test as per standard operating procedure</li><li>16. Evaluate and report post up-gradation tests results</li><li>17. Identify software module that needs replacement</li><li>18. Follow standard procedure for up-gradation of software modules</li><li>19. Report software modules upgraded</li></ol>
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## Assessors Judgment Guide

<b>Qualification</b>	National Vocational Certificate Level-1-4 in Robotics Technician
<b>Competency Standard(s)</b>	Execute Up gradation of Robotics
<b>Candidate Details</b>	Name: _____ Registration/Roll Number: _____ Signature: _____
<b>Assessment Outcome</b>	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor _____ Assessor's code: _____ Signature: _____

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							



### 4- Observation Checklist

<b>Assessment Task</b>		Perform standard procedure for up-gradation of software and physical modules. Also Follow post up-gradation test as per standard operating procedure.		
<b>During the practical assessment, candidate demonstrated the following:</b>		<b>Yes</b>	<b>No</b>	<b>Remarks</b>
1.	Identify reason for up-gradation of equipment			
2.	Identify tasks and related component that need up-gradation			
3.	Ensure need to upgrade equipment			
4.	List components of equipment need to be upgraded			
5.	List the new upgraded equipment			
6.	Prepare report on recommended equipment			
7.	Identify software module that needs replacement			
8.	Follow standard procedure for up-gradation of software modules			
9.	Report software modules upgraded			
10.	Identify physical component that need replacement			
11.	Follow standard procedure for up-gradation of physical modules			
12.	Report physical components upgraded			
13.	Ensure proper packaging and storage of replaced modules			
14.	List post up-gradation tests			
15.	Follow post up-gradation test as per standard operating procedure			
16.	Evaluate and report post up-gradation tests results			
17.	Identify software module that needs replacement			
18.	Follow standard procedure for up-gradation of software modules			
19.	Report software modules upgraded			
<b>Competent</b> <input type="checkbox"/>		<b>Not Yet Competent</b> <input type="checkbox"/>		

Feedback to the Candidate	
Candidate's Signature _____ Assessor's Signature _____	

## Knowledge Assessment

<b>Qualification</b>	National Vocational Certificate Level-1-4 in Robotics Technician
<b>Competency Standard(s)</b>	0714001075 Execute Up gradation of Robotics
<b>Candidate Details</b>	Name: _____ Registration/Roll Number: _____ Candidate Signature: _____
<b>Assessment Outcome</b>	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: _____ Assessor's code: _____ Signature of the Assessor: _____

Candidate's response is not required to be identical, but similar concepts and/or keywords must be used. Oral questioning may be used to clarify candidate understanding of topic and its application.

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)		Satisfactory	Not Satisfactory
1.	Define Industrial Instrumentation.		
2.	Why do you think to upgrade equipment?		
3.	How the quality of an instrument is measured?		
4.	What is the difference between software update and up-grade?		
5.	What is software and hardware installation?		
6.	What's the difference between installing and downloading?		

## Self-Assessment Checklist

<b>Candidate Name</b>	
<b>Registration No.</b>	
<b>Qualification</b>	National Vocational Certificate Level1 -4 Robotics Technician
<b>Competency Standards</b>	0714001076 Develop 3D Simulations
<b>Assessment Task</b>	Generate a 3D model & perform its simulation in a robotic environment. Your task should cover the following guidelines 1) Selection of 3D modeling tool for your model 2) Compatibility of 3D modelling tool for manufacturing thee part through available/compatible robot 3) Generation of G-Code for manufacturing the modelled design 4) Manufacture the part using G-Code generated in 3D environment

I can.....

Performance Criteria	Yes	No
1. List the available modelling tool	<input type="checkbox"/>	<input type="checkbox"/>
2. Select the required/related modelling tools	<input type="checkbox"/>	<input type="checkbox"/>
3. Keep an up to date documentation of modelling tools with respect to compatibility	<input type="checkbox"/>	<input type="checkbox"/>
4. Upgrade and troubleshooting modelling tools	<input type="checkbox"/>	<input type="checkbox"/>
5. List the available simulation modes.	<input type="checkbox"/>	<input type="checkbox"/>
6. Select the required simulation mode.	<input type="checkbox"/>	<input type="checkbox"/>
7. Interpret the given design specifications	<input type="checkbox"/>	<input type="checkbox"/>
8. Formulate the procedure to design the model	<input type="checkbox"/>	<input type="checkbox"/>
9. Design the model according to specifications	<input type="checkbox"/>	<input type="checkbox"/>
10. Cross-check design specifications with the built model	<input type="checkbox"/>	<input type="checkbox"/>
11. Prepare modelling tool for simulation.	<input type="checkbox"/>	<input type="checkbox"/>
12. Run basic simulation according to specifications	<input type="checkbox"/>	<input type="checkbox"/>
13. Generate basic G-codes	<input type="checkbox"/>	<input type="checkbox"/>
14. Prepare feasibility report	<input type="checkbox"/>	<input type="checkbox"/>
15. Generate system coordinates according to deployment requirements	<input type="checkbox"/>	<input type="checkbox"/>
16. Translate generated coordinates to physical workplace	<input type="checkbox"/>	<input type="checkbox"/>
17. Set up working environment for sample testing	<input type="checkbox"/>	<input type="checkbox"/>
18. Acquire sample work piece	<input type="checkbox"/>	<input type="checkbox"/>
19. Perform practical implementation of the generated G-code	<input type="checkbox"/>	<input type="checkbox"/>
20. Prepare performance report	<input type="checkbox"/>	<input type="checkbox"/>

21. Cross-check design specifications with the built model	<input type="text"/>	<input type="text"/>
22. Prepare modelling tool for simulation.	<input type="text"/>	<input type="text"/>

Candidate's Signature \_\_\_\_\_

Assessor's

Signature \_\_\_\_\_

Date: \_\_\_\_\_

Qualification	National Vocational Certificate Level 1 -4 ROBOTICS TECHNICIAN
Competency Standard(s)	0714001076 Use measuring instruments for mechanics

## Instruction Sheet for the Candidate

Candidate Details	Name _____ Registration/Roll Number _____
Guidance for Candidate	<p><b>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration &amp; assessment):</b></p> <p>Given is the engine block and parts of different vehicles as <b>Annexure –A</b> and available in-front of you in your lab. You are requested to take the measurements of each part and write its differences in necessary columns. Your task should be completed while utilizing the following tools:</p> <ol style="list-style-type: none"> <li>1) Use of graduated measurements tools</li> <li>2) Use of combination set for effective measurement</li> <li>3) Use of gauges for necessary measurements</li> <li>4) Use of micro-meter and Vernier tools for measurements where necessary</li> <li>5) Use of profile gauges, dial thickness gauges, dial caliper for necessary measurements</li> </ol>
Time: 3 Hrs.	<p>During a practical assessment, under observation by an assessor, you are required to perform the above task and demonstrating the following criteria:</p> <ol style="list-style-type: none"> <li>1. Take measurements using a Steel rule</li> <li>2. Take measurements using a Hook rule</li> <li>3. Take measurements using a Folding rule</li> <li>4. Take measurements with Trammels</li> <li>5. Take Measurement with Square head</li> <li>6. Perform leveling with square head as spirit level</li> <li>7. Measure depth with square head as depth gauge</li> <li>8. Measure height with square head as height gauge</li> <li>9. Take measurement with fixed gauge and plug gauge.</li> <li>10. Take measurement with adjustable gauge</li> <li>11. Take measurement with small hole gauge</li> <li>12. Take measurement with telescope gauge</li> </ol>

Minimum Evidence Required	13. Take measurement with outside micro-meter 14. Take measurement with inside micrometer 15. Take measurement with depth micrometer 16. Measure threads with micrometer 17. Take measurement with Vernier micrometer 18. Take measurement with Vernier caliper 19. Take measurement with height gauge 20. Take measurement with Vernier depth gauge 21. Take measurement with dial calliper 22. Take measurement with dial thickness gauge 23. Take measurement with dial Indicator 24. Exercise on gauge blocks 25. Exercise on tool makers microscope 26. Practice on Profile Projector 27. Practice Of Digital Instruments 28. Measure tolerance and allowances
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## Assessors Judgment Guide

<b>Qualification</b>	National Vocational Certificate Level 1 -4 Robotics Technician
<b>Competency Standard(s)</b>	Develop 3D Simulations
<b>Candidate Details</b>	Name: _____ Registration/Roll Number: _____ Signature: _____
<b>Assessment Outcome</b>	COMPETENT <input type="checkbox"/> NOT YETCOMPETENT <input type="checkbox"/> Name of the Assessor _____ Assessor's code: _____ Signature: _____

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							



## Observation Checklist

<b>Assessment Task</b>	Generate a 3D model & perform its simulation in a robotic environment. Your task should cover the following guidelines 1) Selection of 3D modeling tool for your model 2) Compatibility of 3D modelling tool for manufacturing the part through available/compatible robot 3) Generation of G-Code for manufacturing the modelled design 4) Manufacture the part using G-Code generated in 3D environment			
<b>During the practical assessment, candidate demonstrated the following:</b>		<b>Yes</b>	<b>No</b>	<b>Remarks</b>
1.	Listed the available modelling tool			
2.	Selected the required/related modelling tools			
3.	Kept an up to date documentation of modelling tools with respect to compatibility			
4.	Upgraded and troubleshooting modelling tools			
5.	Listed the available simulation modes.			
6.	Selected the required simulation mode.			
7.	Interpreted the given design specifications			
8.	Formulated the procedure to design the model			
9.	Designed the model according to specifications			
10.	Crossed check design specifications with the built model			
11.	Prepared modelling tool for simulation.			
12.	Ran basic simulation according to specifications			
13.	Generated basic G-codes			
14.	Prepared feasibility report			
15.	Generated system coordinates according to deployment requirements			
16.	Translated generated coordinates to physical workplace			
17.	Set up working environment for sample testing			
18.	Acquired sample work piece			
19.	Performed practical implementation of the generated G-code			
20.	Prepared performance report			
21.	Crossed-check design specifications with the built model			
22.	Prepared modelling tool for simulation.			
<b>Competent</b> <input type="checkbox"/>		<b>Not Yet Competent</b> <input type="checkbox"/>		

## Knowledge Assessment

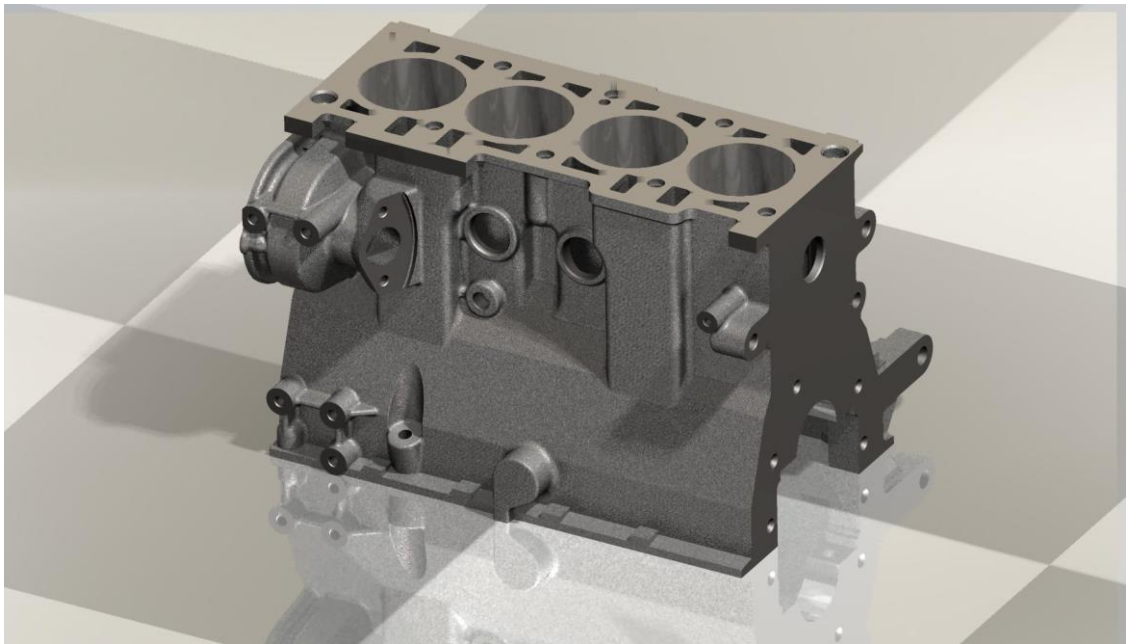
<b>Qualification</b>	National Vocational Certificate ROBOTICS TECHNICIAN Level 1 -4
<b>Competency Standard(s)</b>	Use measuring instruments for mechanics
<b>Candidate Details</b>	Name: _____ Registration/Roll Number: _____ Candidate Signature: _____
<b>Assessment Outcome</b>	<div style="display: flex; justify-content: space-around; align-items: center;"> <span><b>COMPETENT</b> <input type="checkbox"/></span> <span><b>NOT YET COMPETENT</b> <input type="checkbox"/></span> </div> Name of the Assessor: _____ Assessor's code: _____ Signature of the Assessor: _____

Candidate's response is not required to be identical, but similar concepts and/or keywords must be used. Oral questioning may be used to clarify candidate understanding of topic and its application.

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)		Satisfactory	Not Satisfactory
1.	Why 3D simulations is first required before the physical manufacturing by the robot? <i>Candidate's response</i>		
2.	Explain the 3D modelling basic tools?		
3.	Why trouble shooting is required for the 3D modelling tool?		
4.	Explain how 3D simulated model is close to reality and why we need it?		
5.	Why the generated 3D model is necessary to be cross checked?		
6.	What is the least count error for dial thickness gauge which you are using for your current task?		
7.	What is the least count for micro-meter available in-front of you?		
8.	How can you recalibrate your measurement tool/gauge in an actual situation?		
9.	What is the importance of G-Code in 3D manufacturing?		

10.	Explain the generation of G-Code through 3D simulated environment?		

Feedback to the Candidate	
Candidate's Signature _____ Assessor's Signature _____	



## Knowledge Assessment

<b>Qualification</b>	National Vocational Certificate Level 1 -4 Robotics Technician
<b>Competency Standard(s)</b>	0714001076 Use measuring instruments for mechanics
<b>Candidate Details</b>	Name: _____ Registration/Roll Number: _____ Candidate Signature: _____
<b>Assessment Outcome</b>	<div style="display: flex; justify-content: space-around; align-items: center;"> <span><b>COMPETENT</b> <input type="checkbox"/></span> <span><b>NOT YETCOMPETENT</b> <input type="checkbox"/></span> </div> Name of the Assessor: _____ Assessor's code: _____ Signature of the Assessor: _____

Candidate's response is not required to be identical, but similar concepts and/or keywords must be used. Oral questioning may be used to clarify candidate understanding of topic and its application.

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)		Satisfactory	Not Satisfactory
1.	Why 3D simulations is first required before the physical manufacturing by the robot?		
	<i>Candidate's response</i>		
2.	Explain the 3D modelling basic tools?		
3.	Why trouble shooting is required for the 3D modelling tool?		
4.	Explain how 3D simulated model is close to reality and why we need it?		
5.	Why the generated 3D model is necessary to be cross checked?		
6.	What is the least count error for dial thickness gauge which you are using for your current task?		

7.	What is the least count for micro-meter available in-front of you?		
8.	How can you recalibrate your measurement tool/gauge in an actual situation?		
9.	What is the importance of G-Code in 3D manufacturing?		
10.	Explain the generation of G-Code through 3D simulated environment?		

## Self-Assessment Checklist

<b>Candidate Name</b>	
<b>Registration No.</b>	
<b>Qualification</b>	National Vocational Certificate Level1 -4 Robotics Technician
<b>Competency Standards</b>	0714001077 Assist engineers in design, configuration and application processes
<b>Assessment Task</b>	Assemble an available robot in the lab with the help of assembly drawing as per given manual. Prepare a list of the tools and equipment, with their applications used for doing this task.

I can.....

Performance Criteria	Yes	No
1. Collect the design process instruction from an Engineer.	<input type="checkbox"/>	<input type="checkbox"/>
2. Follow the instructions to execute the design process.	<input type="checkbox"/>	<input type="checkbox"/>
3. Report problems occurred during the design process.	<input type="checkbox"/>	<input type="checkbox"/>
4. Identify tools and equipment to be used.	<input type="checkbox"/>	<input type="checkbox"/>
5. Follow instructions to arrange and calibrate the tools and equipment.	<input type="checkbox"/>	<input type="checkbox"/>
6. Ensure availability of tools and equipment for a specified job.	<input type="checkbox"/>	<input type="checkbox"/>
7. Gather the tools and equipment after completion of the job.	<input type="checkbox"/>	<input type="checkbox"/>
8. Prepare the test environment.	<input type="checkbox"/>	<input type="checkbox"/>
9. Arrange test tools and equipment.	<input type="checkbox"/>	<input type="checkbox"/>
10. Follow instruction to perform test.	<input type="checkbox"/>	<input type="checkbox"/>
11. Report the results of the executed test.	<input type="checkbox"/>	<input type="checkbox"/>

Candidate's Signature\_\_\_\_\_

Assessor's

Signature\_\_\_\_\_

Date: \_\_\_\_\_

## Instruction Sheet for the Candidate

Qualification	National Vocational Certificate ROBOTICS TECHNICIAN Level 1 -4
Competency Standard(s)	0714001077 Assist engineers in design, configuration and application processes

Candidate Details	Name _____ Registration/Roll Number _____
Guidance for Candidate	<p><b>To meet this standard you are required to complete the following within the given timeframe (for practical demonstration &amp; assessment):</b></p> <ol style="list-style-type: none"> <li>1. Assemble an available robot in the lab with the help of assembly drawing as per given manual. Prepare a list of the tools and equipment, with their applications used for doing this task.</li> <li>2. Knowledge Assessment (oral)</li> </ol>
Time: 3 hrs.	During a practical assessment, under observation by an assessor, you are required perform the above task and demonstrating the following criteria:
Minimum Evidence Required	<ol style="list-style-type: none"> <li>1. Collect the design process instruction from an Engineer.</li> <li>2. Follow the instructions to execute the design process.</li> <li>3. Report problems occurred during the design process.</li> <li>4. Identify tools and equipment to be used.</li> <li>5. Follow instructions to arrange and calibrate the tools and equipment.</li> <li>6. Ensure availability of tools and equipment for a specified job.</li> <li>7. Gather the tools and equipment after completion of the job.</li> <li>8. Prepare the test environment.</li> <li>9. Arrange test tools and equipment.</li> <li>10. Follow instruction to perform test.</li> <li>11. Report the results of the executed test.</li> </ol>



## Assessors Judgment Guide

<b>Qualification</b>	National Vocational Certificate Level1 -4 ROBOTICS TECHNICIAN
<b>Competency Standard(s)</b>	Assist engineers in design, configuration and application processes

<b>Candidate Details</b>	Name: _____ Registration/Roll Number: _____ Signature: _____
<b>Assessment Outcome</b>	<div style="display: flex; justify-content: space-around; align-items: center;"> <span>COMPETENT <input type="checkbox"/></span> <span>NOT YETCOMPETENT <input type="checkbox"/></span> </div> Name of the Assessor _____ Assessor's code: _____ Signature: _____

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							

## Observation Checklist

<b>Assessment Task</b>	Assemble an available robot in the lab with the help of assembly drawing. Prepare a list of the tools and equipment, with their applications used for doing this task.			
<b>During the practical assessment, candidate demonstrated the following:</b>		<b>Yes</b>	<b>No</b>	<b>Remarks</b>
1.	Collect the design process instruction from an Engineer.			
2.	Follow the instructions to execute the design process.			
3.	Report problems occurred during the design process.			
4.	Identify tools and equipment to be used.			
5.	Follow instructions to arrange and calibrate the tools and equipment.			
6.	Ensure availability of tools and equipment for a specified job.			
7.	Gather the tools and equipment after completion of the job.			
8.	Prepare the test environment.			
9.	Arrange test tools and equipment.			
10.	Follow instruction to perform test.			
11.	Report the results of the executed test.			
<b>Competent</b> <input type="checkbox"/>		<b>Not Yet Competent</b> <input type="checkbox"/>		

Feedback to the Candidate	
Candidate's Signature _____	Assessor's Signature _____

## Knowledge Assessment

<b>Qualification</b>	National Vocational Certificate Level1 -4 Robotics Technician
<b>Competency Standard(s)</b>	0714001077 Assist engineers in design, configuration and application processes
<b>Candidate Details</b>	Name: _____  Registration/Roll Number: _____ Candidate Signature: _____
<b>Assessment Outcome</b>	<div style="display: flex; justify-content: space-around; align-items: center;"> <span><b>COMPETENT</b> <input type="checkbox"/></span> <span><b>NOT YETCOMPETENT</b> <input type="checkbox"/></span> </div> Name of the Assessor: _____ Assessor's code: _____  Signature of the Assessor: _____

Candidate's response is not required to be identical, but similar concepts and/or keywords must be used. Oral questioning may be used to clarify candidate understanding of topic and its application.

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)		Satisfactory	Not Satisfactory
1.	How do you read engineering drawings?		
2.	What are the 4 basic components of an engineering drawing?		
3.	What is purpose of engineering drawing?		
4.	What is the purpose of testing an installation?		
5.	Enlist main Features of Installation Testing.		
6.	How is Installation Testing Done?		

7.			
8.			
9.			
10.			

## Assessors Judgment Guide

<b>Qualification</b>	National Vocational Certificate Level-4 Robotics Technician
<b>Competency Standard(s)</b>	<b>1. Perform maintenance of robotics</b> <b>2. Perform Troubleshooting</b> <b>3. Revise the configuration of robotics</b>
<b>Candidate Details</b>	Name: _____  Registration/Roll Number: _____ Signature: _____
<b>Assessment Outcome</b>	<div style="display: flex; justify-content: space-between; align-items: center;"> <span><b>COMPETENT</b> <input type="checkbox"/></span> <span><b>NOT YET COMPETENT</b> <input type="checkbox"/></span> </div> Name of the Assessor _____ Assessor's code: _____  Signature: _____

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							

## Observation Checklist

Assessment Task				
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1.	Identify equipment that require maintenance			
2.	Create database on equipment to be inspected and maintained			
3.	Draft maintenance plan			
4.	Arrange tool and equipment required to perform maintenance at workplace			
5.	Follow steps provided in standard procedure and guidelines			
6.	Assign duties to staff			
7.	Ensure maintenance carried out as per standard procedure and guidelines.			
8.	Identify critical path in maintenance schedule			
9.	Ensure timely execution of activity in critical path.			
10.	Ensure strict adherence to overall maintenance schedule.			
11.	Identify post maintenance test.			
12.	Perform corrective measure to make sure smooth operation of system			
13.	Formulate maintenance report			
14.	Propose any changes in maintenance plan			
15.	Enlist the identified problems.			
16.	Observe the parameters and conditions at the time of problem occurred.			
17.	Prepare a detailed report on the problem.			
18.	Specify the corrective measures from the troubleshooting manual.			
19.	Arrange tools and equipment required to attempt fixing the problem.			
20.	Follow instructions from troubleshooting manual to resolve the problem.			
21.	Make a detailed report on rectification of the problem.			
22.	Maintain error logs.			
23.	Perform functionality test for robot			
24.	Ensure proper functionality of the equipment			
25.	Identify interfacing modules for robot			
26.	Perform functionality test			
27.	Specify the task which will require re configuration.			
28.	List down robotic components necessary for reconfiguration			
29.	Arrange robotic components necessary for reconfiguration			
30.	Perform integration of reconfigured equipment			
31.	Identify software modules that require up			

	gradation			
32.	Backup existing software and configuration.			
33.	Perform up gradation of software modules according to the SOP.			
34.	Perform functionality test of the reconfigured equipment			
35.	Maintain log of equipment reconfiguration			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		



<b>Feedback to the Candidate</b>	
<b>Candidate's Signature</b> _____	<b>Assessor's Signature</b> _____

## Instruction Sheet for the Candidate

Qualification	National Vocational Certificate Level 4 Robotics Technician
Competency Standard(s)	<ol style="list-style-type: none"> <li>1. <b>Perform maintenance of robotics</b></li> <li>2. <b>Perform Troubleshooting</b></li> <li>3. <b>Revise the configuration of robotics</b></li> </ol>
Candidate Details	Name_____ Registration/Roll Number_____
Guidance for Candidate	<p><b>To meet this standard, you are required to complete the following within the given timeframe (for practical demonstration &amp; assessment):</b></p> <ol style="list-style-type: none"> <li>1. Perform maintenance as per procedure standards and guidelines</li> <li>2. Ensure timely maintenance to avoid negative outcomes</li> <li>3. Perform component / functionality test after maintenance</li> <li>4. Generate maintenance report</li> <li>5. Identify the problem</li> <li>6. Attempt a fix based on findings</li> <li>7. Revise configuration of a robotic system</li> <li>8. Generate diagnostic report</li> </ol>
Time: 4 hrs.	<p>During a practical assessment, under observation by an assessor, you are required to perform maintenance and Troubleshooting of the robotic equipment and Revise the configuration demonstrating the following criteria:</p> <ol style="list-style-type: none"> <li>1. Identify equipment that require maintenance</li> <li>2. Create database on equipment to be inspected and maintained</li> <li>3. Draft maintenance plan</li> <li>4. Arrange tool and equipment required to perform maintenance at workplace</li> <li>5. Follow steps provided in standard procedure and guidelines</li> <li>6. Assign duties to staff</li> <li>7. Ensure maintenance carried out as per standard procedure and guidelines.</li> </ol>

Minimum Evidence Required	<ol style="list-style-type: none"> <li>8. Identify critical path in maintenance schedule</li> <li>9. Ensure timely execution of activity in critical path.</li> <li>10. Ensure strict adherence to overall maintenance schedule.</li> <li>11. Identify post maintenance test.</li> <li>12. Perform corrective measure to make sure smooth operation of system</li> <li>13. Formulate maintenance report</li> <li>14. Propose any changes in maintenance plan</li> <li>15. Enlist the identified problems.</li> <li>16. Observe the parameters and conditions at the time of problem occurred.</li> <li>17. Prepare a detailed report on the problem.</li> <li>18. Specify the corrective measures from the troubleshooting manual.</li> <li>19. Arrange tools and equipment required to attempt fixing the problem.</li> <li>20. Follow instructions from troubleshooting manual to resolve the problem.</li> <li>21. Make a detailed report on rectification of the problem.</li> <li>22. Maintain error logs.</li> <li>23. Perform functionality test for robot</li> <li>24. Ensure proper functionality of the equipment</li> <li>25. Identify interfacing modules for robot</li> <li>26. Perform functionality test</li> <li>27. Specify the task which will require re configuration.</li> <li>28. List down robotic components necessary for reconfiguration</li> <li>29. Arrange robotic components necessary for reconfiguration</li> <li>30. Perform integration of reconfigured equipment</li> <li>31. Identify software modules that require up gradation</li> <li>32. Backup existing software and configuration.</li> <li>33. Perform up gradation of software modules according to the SOP.</li> <li>34. Perform functionality test of the reconfigured equipment</li> <li>35. Maintain log of equipment reconfiguration</li> </ol>
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## Knowledge Assessment

<b>Qualification</b>	National Vocational Certificate Level-4 Robotics Technician
<b>Competency Standard(s)</b>	Perform maintenance of robotics
<b>Candidate Details</b>	Name: _____  Registration/Roll Number: _____  Candidate Signature: _____
<b>Assessment Outcome</b>	<div style="display: flex; justify-content: space-around; align-items: center;"> <span><b>COMPETENT</b> <input type="checkbox"/></span> <span><b>NOT YET COMPETENT</b> <input type="checkbox"/></span> </div> Name of the Assessor: _____ Assessor's code: _____  Signature of the Assessor: _____

Candidate's response is not required to be identical, but similar concepts and/or keywords must be used. Oral questioning may be used to clarify candidate understanding of topic and its application.

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)		Satisfactory	Not Satisfactory
1.	What Is scheduled maintenance?		
2.	List the common guidelines for maintenance of a robot?		
3.	What are the necessary tips for maintenance staff supervision?		

4.	<i>What is functionality test after maintenance?</i>		
5.	<i>What is the purpose of a robot maintenance report?</i>		
6.			
7.			
8.			
9.			
10.			

## Self-Assessment Checklist

<b>Candidate Name</b>	
<b>Registration No.</b>	
<b>Qualification</b>	National Vocational Certificate Level-4 ROBOTICS TECHNICIAN
<b>Competency Standards</b>	<b>1. Perform maintenance of robotics</b> <b>2. Perform Troubleshooting</b> <b>3. Revise the configuration of robotics</b>
<b>Assessment Task</b>	<ul style="list-style-type: none"> <li>Develop maintenance schedule of robotic equipment and supervise timely maintenance as per standard procedures and generate a maintenance report.</li> <li>Given a robotic system that needs error rectification or reconfigured according to specified requirements. The candidate must identify problem with robotic equipment and perform re-configuration of equipment. Upon completion of resolving anomalies or re-configuration process, generate a detailed report.</li> </ul>

I can.....

Performance Criteria	Yes	No
1. Identify equipment that require maintenance	<input type="checkbox"/>	<input type="checkbox"/>
2. Create database on equipment to be inspected and maintained	<input type="checkbox"/>	<input type="checkbox"/>
3. Draft maintenance plan	<input type="checkbox"/>	<input type="checkbox"/>
4. Arrange tool and equipment required to perform maintenance at workplace	<input type="checkbox"/>	<input type="checkbox"/>
5. Follow steps provided in standard procedure and guidelines	<input type="checkbox"/>	<input type="checkbox"/>
6. Assign duties to staff	<input type="checkbox"/>	<input type="checkbox"/>
7. Ensure maintenance carried out as per standard procedure and guidelines.	<input type="checkbox"/>	<input type="checkbox"/>
8. Identify critical path in maintenance schedule	<input type="checkbox"/>	<input type="checkbox"/>
9. Ensure timely execution of activity in critical path.	<input type="checkbox"/>	<input type="checkbox"/>
10. Ensure strict adherence to overall maintenance schedule.	<input type="checkbox"/>	<input type="checkbox"/>
11. Identify post maintenance test.	<input type="checkbox"/>	<input type="checkbox"/>
12. Perform corrective measure to make sure smooth operation of system	<input type="checkbox"/>	<input type="checkbox"/>
13. Formulate maintenance report	<input type="checkbox"/>	<input type="checkbox"/>

14. Propose any changes in maintenance plan	<input type="checkbox"/>	<input type="checkbox"/>
15. Enlist the identified problems.	<input type="checkbox"/>	<input type="checkbox"/>
16. Observe the parameters and conditions at the time of problem occurred.	<input type="checkbox"/>	<input type="checkbox"/>
17. Prepare a detailed report on the problem.	<input type="checkbox"/>	<input type="checkbox"/>
18. Specify the corrective measures from the troubleshooting manual.	<input type="checkbox"/>	<input type="checkbox"/>
19. Arrange tools and equipment required to attempt fixing the problem.	<input type="checkbox"/>	<input type="checkbox"/>
20. Follow instructions from troubleshooting manual to resolve the problem.	<input type="checkbox"/>	<input type="checkbox"/>
21. Make a detailed report on rectification of the problem.	<input type="checkbox"/>	<input type="checkbox"/>
22. Maintain error logs.	<input type="checkbox"/>	<input type="checkbox"/>
23. Perform functionality test for robot	<input type="checkbox"/>	<input type="checkbox"/>
24. Ensure proper functionality of the equipment	<input type="checkbox"/>	<input type="checkbox"/>
25. Identify interfacing modules for robot	<input type="checkbox"/>	<input type="checkbox"/>
26. Perform functionality test	<input type="checkbox"/>	<input type="checkbox"/>
27. Specify the task which will require re configuration.	<input type="checkbox"/>	<input type="checkbox"/>
28. List down robotic components necessary for reconfiguration	<input type="checkbox"/>	<input type="checkbox"/>
29. Arrange robotic components necessary for reconfiguration	<input type="checkbox"/>	<input type="checkbox"/>
30. Perform integration of reconfigured equipment	<input type="checkbox"/>	<input type="checkbox"/>
31. Identify software modules that require up gradation	<input type="checkbox"/>	<input type="checkbox"/>
32. Backup existing software and configuration.	<input type="checkbox"/>	<input type="checkbox"/>
33. Perform up gradation of software modules according to the SOP.	<input type="checkbox"/>	<input type="checkbox"/>
34. Perform functionality test of the reconfigured equipment	<input type="checkbox"/>	<input type="checkbox"/>
35. Maintain log of equipment reconfiguration	<input type="checkbox"/>	<input type="checkbox"/>

Candidate's Signature\_\_\_\_\_

Assessor's

Signature\_\_\_\_\_

Date: \_\_\_\_\_

