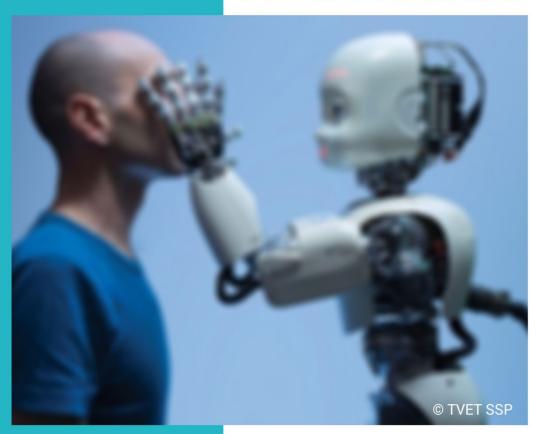








ROBOTICS TECHNICIAN



ASSESSMENT PACKAGE

National Vocational Certificate Level 4

Version 1 - October, 2019





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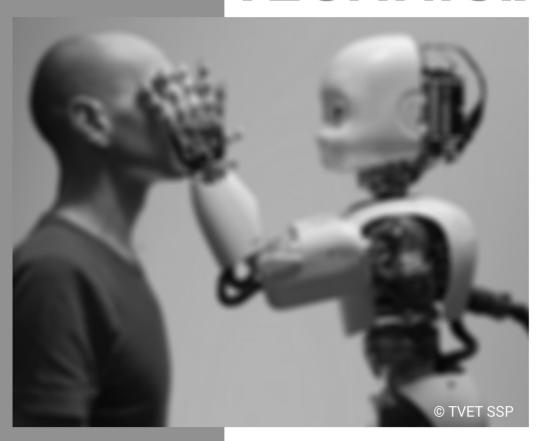
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ROBOTICS TECHNICIAN



ASSESSMENT PACKAGE
National Vocational Certificate Level 4

Version 1 - October, 2019

Self-Assessment Checklist

Candidate Name							
Registration No.							
Qualification	National Vocational Certificate Level1 -4 Robotics Technician						
Competency Standards	0714001072 Perform maintenance of robotics						
Assessment Task	 Develop maintenance schedule of robotic equipment and perform timely maintenance as per standard procedures and guidelines. Supervise maintenance staff and perform component / functionality test after maintenance and generate a maintenance report. 						

I ca	n												
· cu		 	•		•	•	•	•	•	•	•	•	

Performance Criteria		Yes	No
1. Identify equipment th	at require maintenance		
2. Determine frequency	of maintenance required		
3. Prioritize required ma	intenance		
4. Create database on ed	quipment to be inspected and maintained		
5. Draft maintenance pla	an		
6. Identify tool and equi	pment required for maintenance		
7. Arrange tool and equi workplace	pment required to perform maintenance at		
8. Read instruction man	uals thoroughly to perform maintenance		
9. Follow steps provided	in standard procedure and guidelines		
10. Formulate list of dutie	es as per staff skill set		
11. Assign duties to staff			
12. Ensure individual and	teamwork.		
13. Ensure maintenance of guidelines.	carried out as per standard procedure and		
14. Identify critical path in	n maintenance schedule		
15. Ensure timely reminde	ers are issued to the maintenance staff.		
16. Ensure timely execution	on of activity in critical path.		
17. Ensure strict adherence	ce to overall maintenance schedule.		
18. Identify post maintenance	ance test.		
19. Follow instruction to perating pr	perform post maintenance test as per ocedure.		
20. Perform corrective me system	easure to make sure smooth operation of		
21. Enlist result functiona	lity tests perform after maintenance		

22. Formulate maintenance report		
23. Propose any changes in maintenance plan		
Candidate's Signature Assessor's		
Signature		
Date:		

Instruction Sheet for the Candidate

Qualification	National Vocational Certificate Level 1 -4 Robotics Technician
Competency Standard(s)	0714001072 Perform maintenance of robotics
Candidate Details	Name Registration/Roll Number
Guidance for Candidate	To meet this standard, you are required to complete the following within the giventimeframe (for practical demonstration & assessment): • The following must be perform for the given robot as per the work place requirement. 1. Perform maintenance as per procedure standards and guidelines 2. Ensure timely maintenance to avoid negative outcomes 3. Perform component / functionality test after maintenance 4. Generate maintenance report 5. Identify the problem 6. Attempt a fix based on findings 7. Revise configuration of a robotic system 8. Generate diagnostic report
Time: 3 Hrs.	During a practical assessment, under observation by an assessor, you are required to perform maintenance of the robotic equipment demonstrating the following criteria: 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
Minimum Evidence Required	 Follow steps provided in standard procedure and guidelines Formulate list of duties as per staff skill set Assign duties to staff Ensure individual and teamwork. Ensure maintenance carried out as per standard procedure and guidelines. Identify critical path in maintenance schedule Ensure timely reminders are issued to the maintenance staff. Ensure timely execution of activity in critical path. Ensure strict adherence to overall maintenance schedule. Identify post maintenance test. Follow instruction to perform post maintenance test as per standard operating procedure. Perform corrective measure to make sure smooth operation of system Enlist result functionality tests perform after maintenance Formulate maintenance report Identify equipment that require maintenance

Assessors Judgment Guide

Qualification	National Vocational Certificate Level 1 -4 Robotics Technician						
Competency	Perform maintenance of robotics						
Standard(s)							
Candidate Details	Name:	Signature:	_				
Assessment Outcome	COMPETENT Name of the Assessor	NOT YETCOMPETENTAssessor's code:	_				
	Signature:						

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

Observation Checklist

Asses	sment Task					
During follow	· -	essment, candidate demonstra	ted the	Yes	No	Remarks
1.	Identify equip	ment that require maintena	ance			
2.	Determine fre	quency of maintenance re	quired			
3.	Prioritize requ	uired maintenance				
4.	Create databa	ase on equipment to be ins ed	spected			
5.	Draft mainten	•				
6.	maintenance	and equipment required for				
7.	Arrange tool a maintenance	and equipment required to at workplace	perform			
8.	maintenance	ion manuals thoroughly to				
9.	guidelines	provided in standard proce				
10.	Formulate list	of duties as per staff skill	set			
11.	Assign duties					
12.		dual and teamwork.				
13.	Ensure mainte procedure and	enance carried out as per : d guidelines.	standard			
14.	Identify critica	al path in maintenance sch	edule			
15.	Ensure timely maintenance	reminders are issued to the staff.	ne			
16.	Ensure timely path.	execution of activity in cri	tical			
17.	Ensure strict schedule.	adherence to overall main	tenance			
18.	, ,	maintenance test.				
19.		ction to perform post mainto andard operating procedur				
20.	Perform corre smooth opera	ective measure to make su ation of system	re			
21.	Enlist result for maintenance	unctionality tests perform a	after			
22.		aintenance report				
23.	Identify equip	ment that require mainten	ance			
Compe	etent		Not Yet Com	petent		-

Feedback to the Candidate					
Candidate's SignatureSignature	Assessor's				

Knowledge Assessment

Qualification	National Vocational Certificate Level1 -4 Robotics Technician							
Competency	0714001072 Perform maintenance of robotics							
Standard(s)								
Candidate Details	Name:							
	Registration/Roll Number: Candid	late Signature:						
Assessment Outcome	COMPETENT NOT YETCO Name of the Assessor:As Signature of the Assessor:							
	se is not required to be identical, but similar concepts and/or key indidate understanding of topic and its application.	words must be used.	Oral questioning may					
	e confidently answered questions correctly and demonstrated	Satisfactory	Not Satisfactory					
understanding of the topics and their application)								

	stions (Candidate confidently answered questions correctly and demonstrated erstanding 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

Candidate Name	
Registration No.	
Qualification	National Vocational Certificate Level1 -4 Robotics Technician
Competency	0714001073 Perform trouble shooting
Standards	
Assessment Task	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

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

Candidate's Signature	Assessor's
Signature	
Date:	

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

Instruction Sheet for the Candidate

Candidate Details	Name					
	Registration/Roll Number					
	To meet this standard, you are required to complete the following within the giventimeframe (for practical demonstration & assessment):					
Guidance for Candidate	 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					
Time: 180 min	During a practical assessment, under observation by an assessor, you are required trouble shoot the robotic equipment by demonstrating the following criteria:					
	Examine the robotic system.					
	Enlist the identified problems.					
	3. Classify the problems.					
	Identify reasons for the specified problem.					
	5. Observe the parameters and conditions at the time of problem occurred.					
	6. Prepare a detailed report on the problem.					
	7. Identify the troubleshooting manual.					
Minimum	8. Specify the corrective measures from the troubleshooting manual.					
Evidence Required	Arrange tools and equipment required to attempt fixing the problem.					
Required	10. Follow instructions from troubleshooting manual to resolve the problem.					
	11. Gather more information and repeat if the problem is not resolved.					
	12. Make a detailed report on rectification of the problem.					
	13. Note the parameters and conditions after fixing the problem.					
	 Prepare a comprehensive report on the observations and rectification of the problem. 					
	15. Maintain error logs.					

Assessors Judgment Guide

Qualification	National Vocational Certificate Level 1 -4 Robotics Technician
Competency Standard(s)	Perform trouble shooting
Candidate Details	Name:
Assessment Outcome	Not yetcompetent 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

Asses	sment Task					
During follow	•	essment, candidate demonstra	ated the	Yes	No	Remarks
1.	Performance C	Criteria				
2.	Examine the	robotic system.				
3.	Enlist the ider	ntified problems.				
4.	Classify the p	roblems.				
5.	Identify reaso	ons for the specified proble	em.			
6.	Observe the ptime of proble	parameters and condition moccurred.	s at the			
7.	Prepare a det	ailed report on the proble	m.			
8.	· · · · · · · · · · · · · · · · · · ·					
9.	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					
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					
Comp		and rectification of the pro	Not Yet Com	petent	\vdash	

Feedback to	the Candidate
Candidate's Signature Signature	_Assessor's

Knowledge Assessment

Qualification	National Vocational Certificate Level1 -4 Robotics Technician
Competency Standard(s)	0714001073 Perform trouble shooting
Candidate Details	Name:
	Registration/Roll Number: Candidate Signature:
Assessment	COMPETENT NOT YETCOMPETENT
Outcome	Name of the Assessor:Assessor's code:
	Signature of the Assessor:
,	se 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.

	stions (Candidate confidently answered questions correctly and demonstrated extraording 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?		
Τ.		_	

What are robot error logs?		
	What are robot error logs?	

Self-Assessment Checklist

Candidate Name	
Registration No.	
Qualification	National Vocational Certificate Level1 -4 Robotics Technician
Competency Standards	0714001074 Revise the configuration of robotics
Assessment Task	 Given a robotic system that needs to be reconfigured according to specified requirements (as per Manual of Robot). The candidate must identify tasks that require reconfiguration of equipment and identify that will require upgradation. The candidate should perform re-configuration according to requirements by following all standard procedures. Upon completion of the re-configuration process the functionality of equipment and interfaces should be verified.

I can.....

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

18. Ensure proper functionality of the reconfigured equipment			
19. Maintain log of equipment reconfiguration			
Candidate's Signature Assessor's			
Signature			
Date:			

Instruction Sheet for the Candidate

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

Candidate Details	NameRegistration/Roll Number
Guidance for Candidate	 To meet this standard, you are required to complete the following within the given timeframe (for practical demonstration & assessment): Given a robotic system that needs to be reconfigured according to specified requirements (as per Manual of Robot). The candidate must identify tasks that require re-configuration of equipment and identify that will require upgradation. The candidate should perform re-configuration according to requirements by following all standard procedures. Upon completion of the re-configuration process the functionality of equipment and interfaces should be verified. Knowledge assessment (Oral)
Time: 3 Hrs.	During a practical assessment, under observation by an assessor, you are required to Revise configuration of a robotic system demonstrating the following criteria: 1. Identify functionality tests for checking robot 2. Perform functionality test for robot 3. Ensure proper functionality of the equipment 4. Identify interfacing modules for robot 5. Perform functionality test 6. Ensure proper functionality of the interface modules 7. Specify the task which will require re configuration. 8. List required tool and equipment for reconfiguration. 9. List down robotic components necessary for reconfiguration

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

Qualification	National Vocational Certificate Level 1	-4 Robotics Technician	
Competency Standard(s)	Revise the configuration of robotics		
Candidate Details	Name:	Signature:	
Assessment	COMPETENT	NOT YETCOMPETENT	
Outcome	Name of the Assessor Signature:	Assessor's code: _	

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

Observation Checklist

Asses	sment Task		ven a robotic system that n			_
		sp	ecified requirements (as pe	r Manu	al of Ro	obot).
		1.	The candidate must ident	ify tasks	s that r	equire re-configuration of
			equipment and identify the	nat will	require	upgradation.
		2.	The candidate should per	form re	-config	uration according to
			requirements by following	g all sta	ndard p	procedures.
		3.	Upon completion of the r	e-config	guratio	n process the functionality
			of equipment and interface	ces shou	ال Jld be	verified.
Durin	g the practical a	ssessment,	candidate demonstrated	Vaa	Na	Domonko
the fo	ollowing:			Yes	No	Remarks
1.	Identified func	tionality tes	ts for checking robot			
2.	Performed fun	ctionality te	st for robot			
3.	Ensured prope	r functionali	ty of the equipment			
4.	Identified inter	facing modu	ıles for robot			
5.	Performed fun	ctionality te	st			
6.	Ensured prope	r functionali	ty of the interface			
0.	modules					
7.	Specified the ta	ask which w	ill require re configuration.			
8.	Listed required tool and equipment for					
ο.	reconfiguration.					
9.	Listed down robotic components necessary for					
9.	reconfiguration	1				
10.	Arranged robotic components necessary for		nts necessary for			
10.	reconfiguration	า				
11.	Identified stand	dard proced	ure for integration			
12.	Performed inte	egration of re	econfigured equipment			
13.	Identified softv	ware module	es that require up			
13.	gradation					
1.4	Performed bac	kup of existi	ng software and			
14.	configuration.					
15	Performed up gradation of software modules					
15.	according to the SOP.					
16.	Identified standard testing procedures.					
47			st of the reconfigured			1
17.	equipment	•	Ŭ			
10	Ensured prope	r functionali	ty of the reconfigured			
18.	equipment					
10		of caulings	nt reconfiguration			

Not Yet Competent [

Competent

Feedback to the Candidate		
Candidate's SignatureSignature		

Knowledge Assessment

Qualification	National Vocational Certificate Level 1 -4 Robotics Technician
Competency	0714001074 Revise the configuration of robotics
Standard(s)	
Candidate Details	Name:
	Registration/Roll Number: Candidate Signature:
Assessment	COMPETENT NOT YETCOMPETENT
Outcome	Name of the Assessor:Assessor's code:
	Signature of the Assessor:
· ·	se 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.

	stions (Candidate confidently answered questions correctly and demonstrated rstanding 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

Candidate Name	
Registration No.	
Qualification	National Vocational Certificate Level-1-4 in Robotics Technician
Competency	0714001075 Execute Up gradation of Robotics
Standards	
Assessment Task	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.

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Performance Criteria	Yes	No
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		
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		

1	8. Follow standard procedure for up-gradation of software modules	
19.	Report software modules upgraded	
Candio Signati	date's Signature Assessor's ure	
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

	1							
Candidate Details	Name Registration/Roll Number							
	To meet this standard, you are required to complete the following within the given to							
Guidance for	frame (for practical demonstration & assessment): 1. Perform standard procedure for up-gradation of software and							
Candidate								
	physical modules. Also follow post up-gradation test as per standard							
	operating procedure.							
Time: 120 min	During a practical assessment, under observation by an assessor, you are							
	required to perform the above task. You are required to demonstrate the							
	following criteria:							
	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							
Minimum Evidence	7. Identify software module that needs replacement							
Required	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

Assessors Judgment Guide

Qualification	National Vocational Certificate Level-1-4 in Robotics Technician						
Competency	Execute Up gradation of Robotics						
Standard(s)							
Candidate	Name:						
Details	Registration/Roll Number:	Signature:					
Assessment	сомретент	NOT YET COMPETENT					
Outcome	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

Assessment Task			Perform standard procedure for up-gradation of software and physical modules.				
Also Follow post up-gradation test as p						ard ope	erating procedure.
During	the practical a	sses	sment, candidate demonstra	ted the	Yes	No	Remarks
followi	ng:				163	140	Remarks
1.	Identify reas	on f	or up-gradation of equipmo	ent			
	Identify task	s an	d related component that r	need up-			
2.	gradation						
3.	Ensure need	toι	ipgrade equipment				
4.	List compon	ents	of equipment need to be u	ıpgraded			
5.	List the new	upg	raded equipment				
6.	Prepare rep	ort o	n recommended equipmer	nt			
7.	Identify soft	ware	e module that needs replac	ement			
	Follow stand	dard	procedure for up-gradation	n of			
8.	software mo	dule	es				
9.	Report softv	vare	modules upgraded				
10.	Identify phy	sical	component that need repl	acement			
44		dard	procedure for up-gradation	n of physical			
11.	modules						
12.	Report phys	ical d	components upgraded				
	Ensure prop	er pa	ackaging and storage of rep	olaced			
13.	modules						
14.	List post up-gradation tests						
	Follow post up-gradation test as per standard						
15.							
16.	Evaluate and report post up-gradation tests results						
	Identify software module that needs replacement						
17.	· .						
Follow standard procedure for up-gradation of							
18. software modules							
19.	19. Report software modules upgraded						
Compe	tent			Not Yet Com	petent		•

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

Knowledge Assessment

Qualification	National Vocational Certificate Level-1-4 in Robotics Technician					
Competency	0714001075 Execute Up gradation of Robotics					
Standard(s)						
Candidate	Name:					
Details	Registration/Roll Number: Candidate Signature:					
Assessment Outcome	COMPETENT NOT YET COMPETENT 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 Satisfactory Not Satisfactory						

 Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)
 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

Candidate Name					
Registration No.					
Qualification	National Vocational Certificate Level1 -4 Robotics Technician				
Competency	0714001076 Develop 3D Simulations				
Standards					
Assessment Task	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				

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

21. Cross-check design specifications with the built model	
22. Prepare modelling tool for simulation.	
Candidate's Signature Assessor's	
Signature	
Date:	

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

Instruction Sheet for the Candidate

	Name				
Candidate Details	Registration/Roll Number				
	To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):				
	Given is the engine block and parts of different vehicles as Annexure –A 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				
Guidance for	task should be completed while utilizing the following tools:				
Candidate	 Use of graduated measurements tools Use of combination set for effective measurement 				
	3) Use of gauges for necessary measurements				
	4) Use of micro-meter and Vernier tools for measurements where necessary				
	Use of profile gauges, dial thickness gauges, dial caliper for necessary measurements				
	During a practical assessment, under observation by an assessor, you are				
	required to perform the above task and demonstrating the following criteria:				
	Take measurements using a Steel rule				
	2. Take measurements using a Hook rule				
	3. Take measurements using a Folding rule				
T: 0.11	4. Take measurements with Trammels 5. Take Measurement with Square head				
Time: 3 Hrs.	5. Take Measurement with Square head6. Perform leveling with square head as spirit level				
	7. Measure depth with square head as depth gauge				
	8. Measure height with square head as height gauge				
	9. Take measurement with fixed gauge and plug gauge.				
	10. Take measurement with adjustable gauge				
	11. Take measurement with small hole gauge				
	12. Take measurement with telescope gauge				

	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
Minimum	21. Take measurement with dial calliper
Evidence Required	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

Qualification	National Vocational Certificate	Level 1 -4 Robotics Technician	
Competency	Develop 3D Simulations		
Standard(s)			
Candidate Details	Name:		
Assessment Outcome	COMPETENT Name of the Assessor	NOT YETCOMPETENTAssessor's code:_	
	Signature:		

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

Observation Checklist

Asses	sment Task		te a 3D model & perform its sin		n in a r	obotic environment. Your	
		task should cover the following guidelines					
		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 man	ufactur	ring the	e modelled design	
		4)	Manufacture the part using G-	Code g	enerat	ed in 3D environment	
During	g the practical ass	essment, d	candidate demonstrated the	Yes	No	Remarks	
follow	ving:			163	NO	Kelliaiks	
1.	Listed the avai	lable mod	delling tool				
2.	Selected the re	equired/re	elated modelling tools				
2	Kept an up to o	date docu	mentation of modelling tools				
3.	with respect to	o compati	bility				
4.	Upgraded and	troublesh	nooting modelling tools				
5.	Listed the avai	lable simu	ulation modes.				
6.	Selected the re	equired si	mulation mode.				
7.	Interpreted the	e given de	esign specifications				
8.	Formulated the	e procedu	re to design the model				
9.	Designed the n	nodel acc	ording to specifications				
10	Crossed check	design sp	ecifications with the built				
10.	model						
11.	Prepared mode	elling too	l for simulation.				
12.	Ran basic simu	lation acc	cording to specifications				
13.	Generated bas	sic G-code	rs ·				
14.	Prepared feasi	bility repo	ort				
1.5	Generated syst	tem coord	dinates according to				
15.	deployment re	quiremer	nts				
1.0	Translated gen	nerated co	oordinates to physical				
16.	workplace						
17.	Set up working	g environr	nent for sample testing				
18.	Acquired samp	ole work p	viece				
10	Performed pra	ctical imp	lementation of the				
19.	generated G-co						
20.	Prepared perfo	ormance i	eport				
24	Crossed-check	design sp	ecifications with the built				
21.	model						
22.	Prepared mode	elling too	l for simulation.				

Not Yet Competent

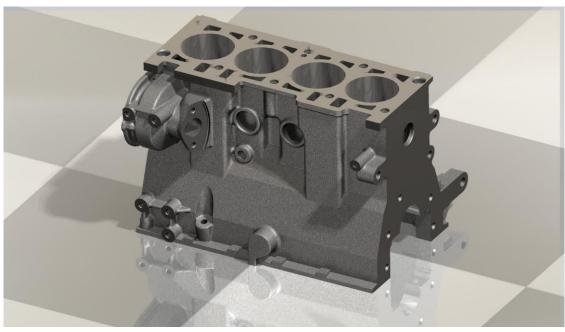
Competent

Qua	lification	National Vocational Certificate ROBOTICS TECHNICIAN Level 1 -4						
Con	petency	Use measuring instruments for mechanics						
Star	ndard(s)							
C	ما الماء الماء	Manage						
Deta	didate	Name:						
Deta	alis	Registration/Roll Number: Candid	date Signature:					
		registration/Non-Hamber:	date dignature					
		COMPETENT NOT YETCO	MPETENT]				
Asse	essment							
Out	come	Name of the Assessor:As	Assessor's code:					
		Signature of the Assessor:						
		orginatore of the Assessori						
Cand	lidate's response	is not required to be identical, but similar concepts and/or keyw	ords must be used.	Oral questioning may				
	-	didate understanding of topic and its application.						
	•	e confidently answered questions correctly and demonstrated	Satisfactory	Not Satisfactory				
		topics and their application) ations is first required before the physical manufacturing						
1.	by the robot?							
	Candidate's re							
2.	Explain the 3	BD 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?							
	M/by the gen	aratad 2D madal is nagassaru ta ha arass abadkad2						
5.	why the ger	erated 3D model is necessary to be cross checked?						
			1					
	344							
6.		east count error for dial thickness gauge which you						
	are using for	your current task?						
7.	What is the	east count for micro-meter available in-front of						
	you?							
	Have as a	librate variation of the state						
8.	actual situat	u recalibrate your measurement tool/gauge in an						
	actual Situat	ion:	-					
9.	What is the i	mportance of G-Code in 3D manufacturing?						

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

Feedback to the Candidate			
Candidate's SignatureSignature	_Assessor's		





Qualification	National Vocational Certificate Level 1 -4 Robotics Technician				
Competency Standard(s)	0714001076 Use measuring instruments for mechanics				
Candidate Details	Name:				
Assessment Outcome	COMPETENT NOT YETCOMPETENT 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.

	stions (Candidate confidently answered questions correctly and demonstrated erstanding of the topics and their application)	Satisfactory	Not Satisfactory
1.	Why 3D simulations is first required before the physical manufacturing by the robot?		
	Candidate's response		
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

Candidate Name	
Registration No.	
Qualification	National Vocational Certificate Level1 -4 Robotics Technician
Competency 0714001077 Assist engineers in design, configuration and	
Standards	application processes
Assessment Task	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.

rformance Criteria	Yes	No
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.		

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	To meet this standard you are required to complete the following within the given timeframe (for practical demonstration & assessment): 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. 2. Knowledge Assessment (oral)
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	 Collect the design process instruction from an Engineer. Follow the instructions to execute the design process. Report problems occurred during the design process. Identify tools and equipment to be used. Follow instructions to arrange and calibrate the tools and equipment. Ensure availability of tools and equipment for a specified job. Gather the tools and equipment after completion of the job. Prepare the test environment. Arrange test tools and equipment. Follow instruction to perform test. Report the results of the executed test.

Assessors Judgment Guide

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

Candidate Details	Name:	_Signature:	
Assessment	COMPETENT	NOT YETCOMPETENT	
Outcome	Name of the Assessor Signature:	Assessor's code:_	

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

Asses	sment Task	Assemble an available robot in the lab Prepare a list of the tools and equipm this task.		•	,
During follow	· -	essment, candidate demonstrated the	Yes	No	Remarks
1.	Collect the des Engineer.	ign process instruction from an			
2.	Follow the inst	ructions to execute the design process.			
3.	Report probler	ns 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 instruct	ion to perform test.			
11.	Report the resi	ults of the executed test.			
Comp	etent	Not Yet Cor	npetent		1

Feedback to the Candidate			
Candidate's SignatureSignature	Assessor's		

Qualification	National Vocational Certificate Level1 -4 Robotics Technician
Competency Standard(s)	0714001077 Assist engineers in design, configuration and application processes
Candidate Details	Name: Registration/Roll Number: Candidate Signature:
Assessment Outcome	Name of the Assessor:Assessor's code:

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.

	stions (Candidate confidently answered questions correctly and demonstrated extraording 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?		
	Established Francisco Charletter Tration		
5.	Enlist main Features of Installation Testing.		
6.	How is Installation Testing Done?		

7.		
8.		
9.		
10.		

Assessors Judgment Guide

Qualification	National Vocational Certificate Level-4 Robotics Technician
Competency Standard(s)	 Perform maintenance of robotics Perform Troubleshooting Revise the configuration of robotics
Candidate Details	Name: Registration/Roll Number:Signature:
Assessment Outcome	COMPETENT NOT YETCOMPETENT Name of the Assessor Assessor's code: Signature:

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

Observation Checklist

Asse	ssment Task			
	ng the practical assessment, candidate onstrated 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 modu	ıles			
55.	according to the SOP.				
34.	Perform functionality test of the reconfig	gured			
54.	equipment				
35.	5. Maintain log of equipment reconfiguration				
Comp	Competent Not Yet Co			nt 🔲	

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

Instruction Sheet for the Candidate

Qualification	National Vocational Certificate Level 4 Robotics Technician
Competency	Perform maintenance of robotics
Standard(s)	 Perform Troubleshooting Revise the configuration of robotics

Candidate	Name					
Details	Registration/Roll					
	Number					
	To meet this standard, you are required to complete the following within the given timeframe (for practical demonstration & assessment):					
Guidance for Candidate	 Perform maintenance as per procedure standards and guidelines Ensure timely maintenance to avoid negative outcomes Perform component / functionality test after maintenance Generate maintenance report Identify the problem Attempt a fix based on findings Revise configuration of a robotic system Generate diagnostic report 					
Time: 4 hrs.	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: 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.					

r	
	Identify critical path in maintenance schedule
	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.
	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.
Minimum	20. Follow instructions from troubleshooting manual to resolve the
Evidence	problem.
Required	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

Qualification	National Vocational Certificate Level-4 Robotics Technician
Competency Standard(s)	Perform maintenance of robotics
	Name:
Candidate Details	Registration/Roll Number:
	Candidate Signature:
Assessment Outcome	COMPETENT NOT YETCOMPETENT
Outcome	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.

corı	estions (Candidate confidently answered questions ectly and demonstrated understanding of the topics and rapplication)	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

Candidate Name			
Registration No.			
Qualification	National Vocational Certificate Level-4 ROBOTICS TECHNICIAN		
Competency	1. Perform maintenance of robotics		
Standards	2. Perform Troubleshooting		
	3. Revise the configuration of robotics		
Assessment Task			
	 Develop maintenance schedule of robotic equipment and supervise timely maintenance as per standard procedures and generate a maintenance report. 		
	 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. 		

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Performance Criteria		No
Identify equipment that require maintenance		
2. Create database on equipment to be inspected and maintained		
3. Draft maintenance plan		
 Arrange tool and equipment required to perform maintenance at workplace 		
5. Follow steps provided in standard procedure and guidelines		
6. Assign duties to staff		
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.		
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.	
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	
Candidate's Signature Assessor's Signature Date:	

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