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Islamabad

INDUSTRIAL AUTOMATION

ASSESSMENT PACKAGE

National Vocational Certificate Level 2

Version 1 - July, 2019

NAVTTC

Implemented by
giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Published by
National Vocational and Technical Training Commission
Government of Pakistan

Headquarter
Plot 38, Kirthar Road, Sector H-9/4, Islamabad, Pakistan
www.navttc.org

Responsible
Director General Skills Standard and Curricula, National Vocational and Technical Training Commission
National Deputy Head, TVET Sector Support Programme, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Layout & design
SAP Communications

Photo Credits
TVET Sector Support Programme

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This document has been produced with the technical assistance of the TVET Sector Support Programme, which is funded by the European Union, the Federal Republic of Germany and the Royal Norwegian Embassy and has been commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ). The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in close collaboration with the National Vocational and Technical Training Commission (NAVTTC) as well as provincial Technical Education and Vocational Training Authorities (TEVTAs), Punjab Vocational Training Council (PVTC), Qualification Awarding Bodies (QABs)s and private sector organizations.

Document Version
July, 2019
Islamabad, Pakistan

INDUSTRIAL AUTOMATION

ASSESSMENT PACKAGE

National Vocational Certificate Level 2

Version 1 - July, 2019

Title of Qualification: National Vocational Certificate Level 2 in Industrial Automation(Assistant Automation Technicians)	CS Code:	Level: 2	Version: 01
Competency Standard Title: A:Apply Electric Circuit Concept C:Maintain personal Health, Hygiene and Safety D: Communicate the Workplace Policy and Procedure E: Perform Basic Communication (Specific)	**Assessment Date (DD/MM/YY):** **Assessment Time:**1 hour		

Guidance for Candidate	**To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.**

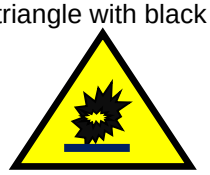
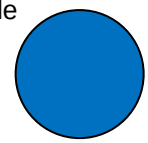
Assessors Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: ..... Registration/Roll Number: Candidate Signature:..... .....
Written Assessment Outcome	COMPETENT ☐ NOT YET COMPETENT ☐ Name of the Assessor: ..... Assessor's code: Signature of the Assessor:..... .....

Title of Qualification: National Vocational Certificate Level 2 in Industrial Automation(Assistant Automation Technicians)	CS Code:	Level:2	Version:01
Competency Standard Title: A:Apply Electric Circuit Concept C:Maintain personal Health, Hygiene and Safety D: Communicate the Workplace Policy and Procedure E: Perform Basic Communication (Specific)	**Assessment Date (DD/MM/YY):** **Assessment Time:** 1 hour		

WRITTEN ASSESSMENT

Question	**Candidate's answer**
1. Define resistance voltage current and units.	
2. Describe ohm's law.	
3. State the difference between AC and DC quantities.	
4. Enlist the names of measuring instruments.	
5. Compare series and parallel combination of resistances.	
6. Enlist the quantities which can be measured using multi-meter.	
7. Differentiate between power and energy.	
8. Describe star and delta configurations.	

Question	Candidate's answer
9. PPE stands for?	
10. What are the meaning of following shapes and colors? White circle with red outline and red diagonal bar 	
11. Red rectangle/square 	
12. Yellow triangle with black outline 	
13. Green rectangle/sequre 	
14. Blue circle 	
15. Enlist any five Verbal communication techniques?	
16. Model of Communication SMCR is stands for?	

ANSWER KEY

Sr.	Answers
1	Resistance; opposition to the flow of current. Its unit is Ohm. Voltage; Difference of potential between two points is called voltage. Its unit is Volt. Current: The rate of flow of electric charge is called current. Its unit is Ampere.
2	The current flowing through resistance is directly proportional to the applied voltage. $V \propto I$; V=IR (where R is a constant of proportionality).
3	In DC (direct current) the electric charge flows in one direction while in AC(alternating current) it changes directions periodically.
4	Volt meter, ampere meter, ohm meter, watt meter, multi-meter, clamp on meter
5	In series combination. • Total resistance is equal to the sum of the individual resistance. • Current is same in series circuit • Voltage is divided across all the resistances In parallel combination • The reciprocal of the total resistance is equal to the sum of the reciprocals of the individual resistances. • Voltage is same in parallel circuit • Current is divided across all the branches
6	DC/AC voltages, AC/DC current, resistance, capacitance, frequency.
7	Electric power is the rate, per unit time, at which electrical energy is transferred by an electric circuit. The SI unit of power is the watt, one joule per second. Electrical energy is a form of energy resulting from the flow of electric charge.
8	Star connection has a common point to which all the three terminals are connected forming star shape. In Star connection $I_P = I_L$ (I_P= Phase current, I_L = line current), $V_L = \sqrt{3}\, V_P$ (V_L = Line Voltage, V_P = Phase Voltage). In delta connection all the three terminals are connected together forming a close loop. In delta connection $I_L = \sqrt{3}\, I_P$ (I_P= Phase current, I_L = line current), $V_L = V_P$ (V_L = Line Voltage, V_P = Phase Voltage).
9	Personal Protective Equipment
10	Prohibition
11	Fire safety
12	Warning/Danger Flammable material
13	Information about safe condition
14	Mandatory action
15	• Active listening • Clarity and conciseness • Confidence • Empathy • Friendliness • Open-mindedness • Giving and soliciting feedback • Confidence • Respectfulness
16	Sender-Message-Channel-Receiver (SMCR)

Title of Qualification: National Vocational Certificate Level 2 in Industrial Automation (Assistant Automation Technicians)	CS Code:	Level: 2	Version: 01
Competency Standard Title: A:Apply Electric Circuit Concept C:Maintain personal Health, Hygiene and Safety D: Communicate the Workplace Policy and Procedure E: Perform Basic Communication (Specific)	**Assessment Date (DD/MM/YY):** **Assessment Time : 4 hours**		

Candidate Details	Name: ..... Registration/Roll Number: .....
Guidance for Candidate	**To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):** 1. **Assessment Task 1:** Candidate is required to select measuring instruments to measure electrical quantities, as instructed by assessor. 2. **Assessment Task 2:** Candidate is required to select appropriate tools and measuring instruments; demonstrate the correct configuration of the given circuit by validating it through calculations. 3. **Assessment Task 3:** Candidate is required to perform the wiring of circuit, by using standard procedures and appropriate tools as per given diagram. **And complete:** 4. **Knowledge assessment test (Written or Oral)** 5. **Portfolios at the time of assessment (if any)**

Minimum Evidence Required	**During a practical assessment, under observation by an assessor, you will complete:** **Assessment Task 1** Performance Criteria 1: Test electrical components as per requirement Performance Criteria 2: Test electrical quantities as per requirement Performance Criteria 3: Select personal protective equipment in terms of type and quantity according to work orders. Performance Criteria 4: Wear personal protective equipment according to job requirements. Performance Criteria 5: Stored Personal Protective equipments in proper place after use. Performance Criteria 6: Maintain cleanliness and hygiene as per organizational policy Performance Criteria 7: Comply organizational Health, hygiene and safety guidelines during work Performance Criteria 8: Place the tools equipment etc at their prescribed place after completion of work Performance Criteria 9: Identify organizational communication requirements and workplace procedures with assistance from relevant authority Performance Criteria 10: Use effective questioning, and active listening and speaking skills to gather and convey information Performance Criteria 11: Use appropriate non-verbal behavior at all times Performance Criteria 12: Treat team members with respect Performance Criteria 13: Maintain positive relationships to achieve common organizational goals Performance Criteria 14: Get work related information from team Performance Criteria 15: Identify interrelated work activities to avoid confusion Performance Criteria 16: Receive the instructions from Supervisor Performance Criteria 17: Carry out the instructions of the supervisor

	Assessment Task 2 Performance Criteria 1: Calculate current, voltage, resistance and power of a circuit as per requirement Performance Criteria 2: Solve series & parallel circuits as per requirement Performance Criteria 3: Identify risk to personal health Performance Criteria 4: Identify hygiene and safety at work place Performance Criteria 5: Identify processes Performance Criteria 6: Identify tools, equipment and consumable materials that have the potential to cause harm Performance Criteria 7: Report, identified risk to Health, hygiene and safety to concerned Performance Criteria 8: Select personal protective equipment in terms of type and quantity according to work orders. Performance Criteria 9: Wear personal protective equipment according to job requirements. Performance Criteria 10: Clean personal protective equipment Performance Criteria 11: Stored Personal Protective equipments in proper place after use Performance Criteria 12: Identify organizational communication requirements and workplace procedures with assistance from relevant authority Performance Criteria 13: Use effective questioning, and active listening and speaking skills to gather and convey information Performance Criteria 14: Use appropriate non-verbal behavior at all times Performance Criteria 15: Treat team members with respect Performance Criteria 16: Maintain positive relationships to achieve common organizational goals Performance Criteria 17: Get work related information from team Performance Criteria 18: Identify interrelated work activities to avoid confusion Performance Criteria 19: Receive the instructions from Supervisor Performance Criteria 20: Carry out the instructions of the supervisor Performance Criteria 21: Report to the supervisor as per organizational SOPs

	Assessment Task 3 Performance Criteria 1: Identify electrical and control symbols for components as per requirement. Performance Criteria 2: Draw electrical single line diagrams manually as per requirement. Performance Criteria 3: Select wiring tools, components, accessories and cables as per requirement. Performance Criteria 4: Connect DC components as per requirement Performance Criteria 5: Select wiring tools, accessories and cables as per requirement. Performance Criteria 6: Connect AC components as per requirement Performance Criteria 7: Select tools and accessories as per requirement Performance Criteria 8: Lay down cables as per requirement Performance Criteria 9: Select personal protective equipment in terms of type and quantity according to work orders. Performance Criteria 10: Wear personal protective equipment according to job requirements. Performance Criteria 11: Clean personal protective equipment Performance Criteria 12: Stored Personal Protective equipments in proper place after use. Performance Criteria 13: Maintain cleanliness and hygiene as per organizational policy Performance Criteria 14: Comply with Health, hygiene and safety precautions before starting work Performance Criteria 15: Comply organizational Health, hygiene and safety guidelines during work Performance Criteria 16: Deal with resolvable problems according to prescribed procedures Performance Criteria 17: Report un resolvable problems to concerned Performance Criteria 18: Place the tools equipment etc at their prescribed place after completion of work Performance Criteria 19: Identify appropriate lines of communication with supervisors and colleagues. Performance Criteria 20 : Use effective questioning, and active listening and speaking skills to gather and convey information Performance Criteria 21: Use appropriate non-verbal behavior at all times Performance Criteria 22: Receive the instructions from Supervisor Performance Criteria 23: Carry out the instructions of the supervisor Performance Criteria 24: Report to the supervisor as per organizational SOPs

	Portfolios required at the time of assessment (if any) for Performance criteria 1 for the evaluation of portfolio: Practical file of electrical and control symbols for components Performance criteria 2 for the evaluation of portfolio: Practical file of manually electrical single line diagrams Performance criteria 3 for the evaluation of portfolio: Report on Disposal of hazardous Waste/materials in Industrial Automation Performance criteria 4 for the evaluation of portfolio: Report on Disposal of hazardous Waste/materials in Industrial Automation Performance criteria 5 for the evaluation of portfolio: Report on Disposal of hazardous Waste/materials in Industrial Automation Performance criteria 6 for the evaluation of portfolio: Report on Disposal of hazardous Waste/materials in Industrial Automation

Continued on following page

Assessors Judgment Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: ..... Registration/Roll Number: ..... Candidate Signature:..... .....
Assessment Outcome	COMPETENT ☐ NOT YET COMPETENT ☐ Name of the Assessor: ..... Assessor's code: ..... Signature of the Assessor:..... .....

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

Assessment Task 1	Description of assessment task 1 Candidate is required to select measuring instruments to measure electrical quantities, as instructed by assessor.

During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	Test electrical components as per requirement			
2	Test electrical quantities as per requirement			
3	Select personal protective equipment in terms of type and quantity			
4	Wear personal protective equipment according to job requirements.			
5	Stored Personal Protective equipments in proper place after use.			
6	Maintain cleanliness and hygiene as per organizational policy			
7	Comply organizational Health, hygiene and safety guidelines during work			
8	Place the tools equipment etc at their prescribed place after completion of work			
9	Identify organizational communication requirements and workplace procedures with assistance from relevant authority			
10	Use effective questioning, and active listening and speaking skills to gather and convey information			
11	Use appropriate non-verbal behavior at all times			
12	Treat team members with respect			
13	Maintain positive relationships to achieve common organizational goals			
14	Get work related information from team			
15	Identify interrelated work activities to avoid confusion			
16	Receive the instructions from Supervisor			
17	Carry out the instructions of the supervisor			

Competent ☐	Not Yet Competent ☐

Assessment Task 2	Description of assessment task 2 Candidate is required to select appropriate tools and measuring instruments; demonstrate the correct configuration of the given circuit by validating it through calculations.

During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	Calculate current, voltage, resistance and power of a circuit as per requirement			
2	Solve series & parallel circuits as per requirement			
3	Identify risk to personal health			
4	Identify hygiene and safety at work place			
5	Identify processes			
6	Identify tools, equipment and consumable materials that have the potential to cause harm			
7	Report, identified risk to Health, hygiene and safety to concerned			
8	Select personal protective equipment in terms of type and quantity according to work orders.			
9	Wear personal protective equipment according to job requirements.			
10	Clean personal protective equipment			
11	Stored Personal Protective equipments in proper place after use			
12	Identify organizational communication requirements and workplace procedures with assistance from relevant authority			
13	Use effective questioning, and active listening and speaking skills to gather and convey information			
14	Use appropriate non-verbal behavior at all times			
15	Treat team members with respect			
16	Maintain positive relationships to achieve common organizational goals			
17	Get work related information from team			
18	Identify interrelated work activities to avoid confusion			
19	Receive the instructions from Supervisor			
20	Carry out the instructions of the supervisor			
21	Report to the supervisor as per organizational SOPs			
Competent ☐		Not Yet Competent ☐		

Assessment Task 3	Description of assessment task 3 Candidate is required to perform the wiring of circuit, by using standard procedures and appropriate tools as per given diagram.

During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	Identify electrical and control symbols for components as per requirement.			
2	Draw electrical single line diagrams manually as per requirement.			
3	Select wiring tools, components, accessories and cables as per requirement.			
4	Connect DC components as per requirement			
5	Select wiring tools, accessories and cables as per requirement.			
6	Connect AC components as per requirement			
7	Select tools and accessories as per requirement			
8	Lay down cables as per requirement			
9	Select personal protective equipment in terms of type and quantity according to work orders.			
10	Wear personal protective equipment according to job requirements.			
11	Clean personal protective equipment			
12	Stored Personal Protective equipments in proper place after use.			
13	Maintain cleanliness and hygiene as per organizational policy			
14	Comply with Health, hygiene and safety precautions before starting work			
15	Comply organizational Health, hygiene and safety guidelines during work			
16	Deal with resolvable problems according to prescribed procedures			
17	Report un resolvable problems to concerned			
18	Place the tools equipment etc at their prescribed place after completion of work			
19	Identify appropriate lines of communication with supervisors and colleagues.			
20	Use effective questioning, and active listening and speaking skills to gather and convey information			
21	Use appropriate non-verbal behavior at all times			
22	Receive the instructions from Supervisor			
23	Carry out the instructions of the supervisor			
24	Report to the supervisor as per organizational SOPs			

Competent ☐	Not Yet Competent ☐

Portfolio (if any)	Description of portfolio • Practical file of electrical and control symbols for components • Practical file of manually electrical single line diagrams • Report on Disposal of hazardous Waste/materials in Industrial Automation
Current ☐ Sufficient ☐ Authentic ☐ Valid ☐ Reliable ☐	

Portfolio meet the following performance standards:		Yes	No	Remarks
1	Identify electrical and control symbols for components as per requirement.			
2	Draw electrical single line diagrams manually as per requirement			
3	Identify hazardous waste materials which needs to be disposed off			
4	Segregate hazardous or non-hazardous waste carefully from the designated area as per approved procedure			
5	Use proper disposal hazardous containers for dispose-off hazardous waste as per procedure			
6	Take necessary precautions like putting masks and gloves while disposing hazardous waste/ materials as per standard operating procedure			

Competent ☐	Not Yet Competent ☐

Title of Qualification: National Vocational Certificate Level 2 in Industrial Automation (Assistant Automation Technicians)	CS Code:	Level: 2	Version: 01
Competency Standard Title: G:Perform Basic Computer Operations C:Maintain personal Health, Hygiene and Safety D: Communicate the Workplace Policy and Procedure E: Perform Basic Communication (Specific) F: Perform Basic Computer Application (Specific)	**Assessment Date (DD/MM/YY):** **Assessment Time : 2 ½ hours**		

Candidate Details	Name: ..... Registration/Roll Number: .....
Guidance for Candidate	**To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):** **6. Assessment Task 1:** Candidate is required to install MS Office application and prepare a formatted document using MS word, specified by assessor. **7. Assessment Task 2:** Candidate is required to prepare a presentation in Power Point, specified by assessor. **8. Assessment Task 3:** Candidate is required to prepare a spreadsheet in MS Excel, specified by assessor. **And complete:** **9. Knowledge assessment test (Written or Oral)** **10. Portfolios at the time of assessment (if any)**

Minimum Evidence Required	**During a practical assessment, under observation by an assessor, you will complete:** **Assessment Task 1** Performance Criteria 1: Install drivers and applications according to the software specification Performance Criteria 2: Troubleshoot applications to trace and fix faults in a specific application to bring it in a running condition Performance Criteria 3: Compose a document as per the requirement. Performance Criteria 4: Format Word Document according to given requirements. Performance Criteria 5: Print Word Documents according to requirements. Performance Criteria 6: Identify risk to personal health Performance Criteria 7: Identify hygiene and safety at work place Performance Criteria 8: Identify processes Performance Criteria 9: Identify tools, equipment and consumable materials that have the potential to cause harm Performance Criteria 10: Report, identified risk to Health, hygiene and safety to concerned Performance Criteria 11: Identify organizational communication requirements and workplace procedures with assistance from relevant authority Performance Criteria 12: Use effective questioning, and active listening and speaking skills to gather and convey information Performance Criteria 13: Use appropriate non-verbal behavior at all times Performance Criteria 14: Treat team members with respect Performance Criteria 15: Maintain positive relationships to achieve common organizational goals Performance Criteria 16: Receive the instructions from Supervisor Performance Criteria 17: Carry out the instructions of the supervisor Performance Criteria 18: Report to the supervisor as per organizational SOPs
	Assessment Task 2 Performance Criteria 1: Insert Slides with different Layouts according to requirements of presentation. Performance Criteria 2: Insert text, tables, images, etc. according to the requirement. Performance Criteria 3: Apply a set of effects to animate the slide according to requirement. Performance Criteria 4: Apply Slide Transitions on Slides according to requirement. Performance Criteria 5: Apply Sound Effects on Objects/text/images according to requirement. Performance Criteria 6: Maintain cleanliness and hygiene as per organizational policy Performance Criteria 7: Use effective questioning, and active listening and speaking skills to gather and convey information Performance Criteria 8: Receive the instructions from Supervisor Performance Criteria 9: Carry out the instructions of the supervisor

	Assessment Task 3 Performance Criteria 1: Develop a worksheet as per given data. Performance Criteria 2: Format the worksheet according to given criteria. Performance Criteria 3: Apply Formulas according to the requirement. Performance Criteria 4: Generate Charts/Graphs according to the given data. Performance Criteria 5: Print Worksheet according to requirements. Performance Criteria 6: Comply organizational Health, hygiene and safety guidelines during work Performance Criteria7: Deal with resolvable problems according to prescribed procedures Performance Criteria 8: Identify appropriate lines of communication with supervisors and colleagues. Performance Criteria 9: Use appropriate non-verbal behavior at all times Performance Criteria 10: Maintain positive relationships to achieve common organizational goals Performance Criteria 11: Get work related information from team Performance Criteria 12: Identify interrelated work activities to avoid confusion Performance Criteria 13: Adopt communication skills, which are designed in a team.
	Portfolios required at the time of assessment (if any) for Performance criteria 1 for the evaluation of portfolio: Practical file of electrical Drawings in MS Visio Performance criteria 2 for the evaluation of portfolio: : Practical file of electrical Drawings in MS Visio Performance criteria 3 for the evaluation of portfolio: : Practical file of electrical Drawings in MS Visio Performance criteria 4 for the evaluation of portfolio: : Practical file of electrical Drawings in MS Visio

Continued on following page

Assessors Judgment Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: ..... Registration/Roll Number: ..... Candidate Signature:..... .....
Assessment Outcome	COMPETENT ☐ NOT YET COMPETENT ☐ Name of the Assessor: ..... Assessor's code: ..... Signature of the Assessor:..... .....

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

Assessment Task 1	Description of assessment task 1 Candidate is required to install MS Office application and prepare a formatted document using MS word, specified by assessor.

During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	Install drivers and applications according to the software specification			
2	Troubleshoot applications to trace and fix faults in a specific application to bring it in a running condition			
3	Compose a document as per the requirement.			
4	Format Word Document according to given requirements.			
5	Print Word Documents according to requirements.			
6	Identify risk to personal health			
	Identify hygiene and safety at work place			
8	Identify processes			
9	Identify tools, equipment and consumable materials that have the potential to cause harm			
10	Report, identified risk to Health, hygiene and safety to concerned			
11	Identify organizational communication requirements and workplace procedures with assistance from relevant authority			
12	Use effective questioning, and active listening and speaking skills to gather and convey information			
13	Use appropriate non-verbal behavior at all times			
14	Treat team members with respect			
15	Maintain positive relationships to achieve common organizational goals			
16	Receive the instructions from Supervisor			
17	Carry out the instructions of the supervisor			
18	Report to the supervisor as per organizational SOPs			

Competent ☐	Not Yet Competent ☐

Assessment Task 2	Description of assessment task 2 Candidate is required to prepare a presentation in Power Point, specified by assessor.

During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	Insert Slides with different Layouts according to requirements of presentation.			
2	Insert text, tables, images, etc. according to the requirement.			
3	Apply a set of effects to animate the slide according to requirement.			
4	Apply Slide Transitions on Slides according to requirement.			
5	Apply Sound Effects on Objects/text/images according to requirement.			
6	Maintain cleanliness and hygiene as per organizational policy			
7	Use effective questioning, and active listening and speaking skills to gather and convey information			
8	Receive the instructions from Supervisor			
9	Carry out the instructions of the supervisor			

Competent ☐	Not Yet Competent ☐

Assessment Task 3	Description of assessment task 3 Candidate is required to prepare a spreadsheet in MS Excel, specified by assessor.

During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	Develop a worksheet as per given data.			
2	Format the worksheet according to given criteria.			
3	Apply Formulas according to the requirement.			
4	Generate Charts/Graphs according to the given data.			
5	Print Worksheet according to requirements.			
6	Comply organizational Health, hygiene and safety guidelines during work			
7	Deal with resolvable problems according to prescribed procedures			
8	Identify appropriate lines of communication with supervisors and colleagues.			
9	Use appropriate non-verbal behavior at all times			
10	Maintain positive relationships to achieve common organizational goals			
11	Get work related information from team			
12	Identify interrelated work activities to avoid confusion			
13	Adopt communication skills, which are designed in a team.			

Competent ☐	Not Yet Competent ☐

Portfolio (if any)	Description of portfolio Practical file of electrical Drawings in MS Visio
Current ☐ Sufficient ☐ Authentic ☐ Valid ☐ Reliable ☐	

Portfolio meet the following performance standards:		Yes	No	Remarks
1	Set the Page Layout, size and format as per requirement.			
2	Identify and Insert the Electrical symbols as per requirement.			
3	Modify the given electrical drawings.			
4	Print the final electrical drawings.			

Competent ☐	Not Yet Competent ☐

Title of Qualification: National Vocational Certificate Level 2 in Industrial Automation(Assistant Automation Technicians)	CS Code:	Level: 2	Version: 01
Competency Standard Title: G:Perform Basic Computer Operations C:Maintain personal Health, Hygiene and Safety D: Communicate the Workplace Policy and Procedure E: Perform Basic Communication (Specific) F: Perform Basic Computer Application (Specific)	**Assessment Date (DD/MM/YY):** **Assessment Time:** 1 hour		

Guidance for Candidate	**To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.**

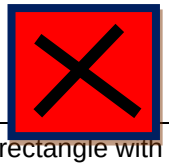
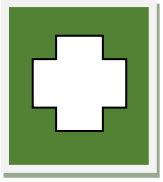
Assessors Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: ..... Registration/Roll Number: Candidate Signature:..... .....
Written Assessment Outcome	COMPETENT ☐ NOT YET COMPETENT ☐ Name of the Assessor: ..... Assessor's code: Signature of the Assessor:..... .....

Title of Qualification: National Vocational Certificate Level 2 in Industrial Automation(Assistant Automation Technicians)	CS Code:	Level:2	Version:01
Competency Standard Title: G:Perform Basic Computer Operations C:Maintain personal Health, Hygiene and Safety D: Communicate the Workplace Policy and Procedure E: Perform Basic Communication (Specific) F: Perform Basic Computer Application (Specific)	**Assessment Date (DD/MM/YY):** **Assessment Time:** 1 hour		

WRITTEN ASSESSMENT

Question	Candidate's answer
17. Ctrl+Esc	
18. Ctrl+Shift+Esc	
19. Ctrl+X in MS word	
20. Ctrl+V in MS word	
21. Ctrl+A in MS word	
22. What is MS Excel spreadsheet?	
23. What are the four uses of Microsoft Power Point?	

Question	Candidate's answer
24. What are the benefits of PowerPoint?	
25. What are PPE requirements??	
26. Red rectangle/square with black x 	
27. Green rectangle with white cross 	
28. What are the 5 C's of communication?	
29. Write any five barriers to communication?	

ANSWER KEY

Sr.	Answers
1	Opens the Start menu.
2	Opens Windows Task Manager.
3	Cut
4	Paste
5	Select whole document
6	Spreadsheets present tables of values arranged in rows and columns that can be manipulated mathematically using both basic and complex arithmetic operations and functions.
7	• Documents • Performed calculations • Analyzed data • Reports in slides shows
8	• Increasing visual impact. • Improving audience focus. • Providing annotations and highlights. • Analyzing and synthesizing complexities. • Enriching curriculum with interdisciplinary. • Increasing spontaneity and interactivity. • Increasing wonder
9	PPE is equipment that will protect the user against health or safety risks at work.
10	Harmful
11	First aid station
12	• Clarity, • Consistency, • Creativity • Content • Connections
13	• The use of jargon. Over-complicated or unfamiliar terms. • Emotional barriers and taboos. • Lack of attention, interest, distractions, or irrelevance to the receiver. • Differences in perception and viewpoint. • Physical disabilities such as hearing problems or speech difficulties. • Language differences and the difficulty in understanding unfamiliar accents. • Cultural differences.

Title of Qualification: National Vocational Certificate Level 2 in Industrial Automation(Assistant Automation Technicians)	CS Code:	Level: 2	Version: 01
Competency Standard Title: B:Install Automation Instruments C:Maintain personal Health, Hygiene and Safety D: Communicate the Workplace Policy and Procedure E: Perform Basic Communication (Specific)	**Assessment Date (DD/MM/YY):** **Assessment Time: 4 hours**		

Candidate Details	Name: ..... Registration/Roll Number: .....
Guidance for Candidate	**To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):** 11. **Assessment Task 1:** Candidate is required to develop and operate a conventional control circuit using digital instruments as per instruction of assessor. 12. **Assessment Task 2:** Candidate is required to install analogue instruments and measure the output signal using measuring instruments as per instruction of assessor. 13. **Assessment Task 3:** Candidate is required to draw the circuit diagram and make pneumatic circuit and operate it as per given task 14. **Assessment Task 4:** Candidate is required to develop a hydraulic circuit as per given diagram, operate and troubleshoot it as per instruction of assessor. **And complete:** 15. **Knowledge assessment test (Written or Oral)** 16. **Portfolios at the time of assessment (if any)**

Minimum Evidence Required	**During a practical assessment, under observation by an assessor, you will complete:** **Assessment Task 1** Performance Criteria 1: Select tools and accessories as per requirement Performance Criteria 2: Identify digital instruments as per requirement Performance Criteria 3: Install digital instruments as per requirement Performance Criteria 4: Operate digital instruments as per requirement Performance Criteria5: Identify risk to personal health Performance Criteria 6: Identify hygiene and safety at work place Performance Criteria 7: Identify tools, equipment and consumable materials that have the potential to cause harm Performance Criteria 8: Select personal protective equipment in terms of type and quantity according to work orders. Performance Criteria 9: Wear personal protective equipment according to job requirements. Performance Criteria 10: Clean personal protective equipment Performance Criteria 11: Stored Personal Protective equipments in proper place after use. Performance Criteria 12:Maintain cleanliness and hygiene as per organizational policy Performance Criteria 13: Comply with Health, hygiene and safety precautions before starting work Performance Criteria 14: Place the tools equipment etc at their prescribed place after completion of work Performance Criteria 15: Treat team members with respect Performance Criteria 16: Maintain positive relationships to achieve common organizational goals Performance Criteria 17: Get work related information from team Performance Criteria 18: Identify interrelated work activities to avoid confusion Performance Criteria 19: Adopt communication skills, which are designed in a team. Performance Criteria 20: Identify problems in communication with a team

	Assessment Task 2 Performance Criteria 1: Select tools and accessories as per requirement Performance Criteria 2: Identify Instruments for different output signals as per requirement Performance Criteria 3:Install Analogue Instruments as per requirement Performance Criteria 4: Maintain cleanliness and hygiene as per organizational policy Performance Criteria 5:Comply with Health, hygiene and safety precautions before starting work Performance Criteria 6: Comply organizational Health, hygiene and safety guidelines during work Performance Criteria 7: Select personal protective equipment in terms of type and quantity according to work orders. Performance Criteria 8: Wear personal protective equipment according to job requirements. Performance Criteria 9: Clean personal protective equipment Performance Criteria 10: Stored Personal Protective equipments in proper place after use. Performance Criteria 11:Deal with resolvable problems according to prescribed procedures Performance Criteria 12 Identify appropriate lines of communication with supervisors and colleague Performance Criteria 13: Seek advice on the communication method/equipment most appropriate for the task Performance Criteria 14: Use appropriate non-verbal behavior at all times Performance Criteria 15: Receive the instructions from Supervisor Performance Criteria 16: Carry out the instructions of the supervisor

	Assessment Task 3 . Performance Criteria 1: Select tools as per requirement. Performance Criteria 2: Identify hydraulic and pneumatic symbols. Performance Criteria 3: Draw hydraulic and pneumatic systems diagrams manually. Performance Criteria 4: Identify different Pneumatic components and instruments as per requirement. Performance Criteria 5: Install pneumatic components and instruments as per requirement . Performance Criteria 6: Operate pneumatic equipment as per requirement. Performance Criteria 7: Troubleshoot hydraulic and pneumatic system. Performance Criteria 8: List the Personal Protective equipment Performance Criteria 9: Select personal protective equipment in terms of type and quantity according to work orders. Performance Criteria 10: Wear personal protective equipment according to job requirements Performance Criteria 11: Clean personal protective equipment Performance Criteria 12: Stored Personal Protective equipments in proper place after use. Performance Criteria 13: Maintain cleanliness and hygiene as per organizational policy Performance Criteria 14: Comply with Health, hygiene and safety precautions before starting work Performance Criteria 15: Place the tools equipment etc at their prescribed place after completion of work Performance Criteria 16: Identify appropriate lines of communication with supervisors and colleagues. Performance Criteria 17: Use appropriate non-verbal behavior at all times Performance Criteria 18: Receive the instructions from Supervisor Performance Criteria 19: Carry out the instructions of the supervisor Performance Criteria 20: Report to the supervisor as per organizational SOPs

	Assessment Task 4 Performance Criteria 1: Select tools as per requirement. Performance Criteria 2: Identify hydraulic and pneumatic symbols. Performance Criteria 3: Draw hydraulic and pneumatic systems diagrams manually. Performance Criteria 4: Operate hydraulic equipment as per requirement. Performance Criteria 5: Identify different hydraulic components and instruments as per requirement. Performance Criteria 6: Operate pneumatic equipment as per requirement Performance Criteria 7: Troubleshoot hydraulic and pneumatic system Performance Criteria 8: Select personal protective equipment in terms of type and quantity according to work orders. Performance Criteria 9: Wear personal protective equipment according to job requirements. Performance Criteria 10: Clean personal protective equipment Performance Criteria 11: Stored Personal Protective equipments in proper place after use. Performance Criteria 12: Maintain cleanliness and hygiene as per organizational policy Performance Criteria 13: Comply with Health, hygiene and safety precautions before starting work Performance Criteria 14: Comply organizational Health, hygiene and safety guidelines during work Performance Criteria 15: Place the tools equipment etc at their prescribed place after completion of work Performance Criteria 16: Use appropriate non-verbal behavior at all times Performance Criteria 17: Treat team members with respect Performance Criteria 18: Receive the instructions from Supervisor Performance Criteria 19: Carry out the instructions of the supervisor

Continued on following page

Assessors Judgment Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: ..... Registration/Roll Number: ..... Candidate Signature:..... .....
Assessment Outcome	COMPETENT ☐ NOT YET COMPETENT ☐ Name of the Assessor:..... Assessor's code: ..... Signature of the Assessor:..... .....

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

Each Assessment Task (with performance criteria)	
Assessment Task 1	Description of assessment task 1 Candidate is required to develop and operate a conventional control circuit using digital instruments as per instruction of assessor.

During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	Select tools and accessories as per requirement			
2	Identify digital instruments as per requirement			
3	Install digital instruments as per requirement			
4	Operate digital instruments as per requirement			
5	Identify risk to personal health			
6	Identify hygiene and safety at work place			
7	Identify tools, equipment and consumable materials that have the potential to cause harm			
8	Select personal protective equipment in terms of type and quantity according to work orders.			
9	Wear personal protective equipment according to job requirements.			
10	Clean personal protective equipment			
11	Stored Personal Protective equipments in proper place after use.			
12	Maintain cleanliness and hygiene as per organizational policy			
13	Comply with Health, hygiene and safety precautions before starting work			
14	Place the tools equipment etc at their prescribed place after completion of work			
15	Treat team members with respect			
16	Maintain positive relationships to achieve common organizational goals			
17	Get work related information from team			
18	Identify interrelated work activities to avoid confusion			
19	Adopt communication skills, which are designed in a team.			
20	Identify problems in communication with a team			

Competent ☐	Not Yet Competent ☐

Assessment Task 2	Description of assessment task 2 Candidate is required to install analogue instruments and measure the output signal using measuring instruments as per instruction of assessor.

During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	Select tools and accessories as per requirement			
2	Identify Instruments for different output signals as per requirement			
3	Install Analogue Instruments as per requirement			
4	Maintain cleanliness and hygiene as per organizational policy			
5	Comply with Health, hygiene and safety precautions before starting work			
6	Comply organizational Health, hygiene and safety guidelines during work			
7	Select personal protective equipment in terms of type and quantity according to work orders.			
8	Wear personal protective equipment according to job requirements.			
9	Clean personal protective equipment			
10	Stored Personal Protective equipments in proper place after use			
11	Deal with resolvable problems according to prescribed procedures			
12	Identify appropriate lines of communication with supervisors and colleague			
13	Seek advice on the communication method/equipment most appropriate for the task			
14	Use appropriate non-verbal behavior at all times			
15	Receive the instructions from Supervisor			
16	Carry out the instructions of the supervisor			
Competent ☐		Not Yet Competent ☐		

Assessment Task 3	Description of assessment task 3 Candidate is required to draw the circuit diagram and make pneumatic circuit and operate it as per given task

During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	Select tools as per requirement			
2	Identify hydraulic and pneumatic symbols.			
3	Draw hydraulic and pneumatic systems diagrams manually.			
4	Identify different Pneumatic components and instruments as per requirement.			
5	Troubleshoot hydraulic and pneumatic system.			
6	Operate pneumatic equipment as per requirement.			
7	Install pneumatic components and instruments as per requirement.			
8	List the Personal Protective equipment			
9	Select personal protective equipment in terms of type and quantity according to work orders.			
10	Wear personal protective equipment according to job requirements			
11	Clean personal protective equipment			
12	Stored Personal Protective equipments in proper place after use.			
13	Maintain cleanliness and hygiene as per organizational policy			
14	Comply with Health, hygiene and safety precautions before starting work			
15	Place the tools equipment etc at their prescribed place after completion of work			
16	Identify appropriate lines of communication with supervisors and colleagues.			
17	Use appropriate non-verbal behavior at all times			
18	Receive the instructions from Supervisor			
19	Carry out the instructions of the supervisor			
20	Report to the supervisor as per organizational SOPs			

Competent ☐	Not Yet Competent ☐

Assessment Task 4	Description of assessment task 4 Candidate is required to develop a hydraulic circuit as per given diagram, operate and troubleshoot it as per instruction of assessor

During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	Select tools as per requirement.			
2	Identify hydraulic and pneumatic symbols.			
3	Draw hydraulic and pneumatic systems diagrams manually.			
4	Operate hydraulic equipment as per requirement.			
5	Identify different hydraulic components and instruments as per requirement.			
6	Operate pneumatic equipment as per requirement			
7	Troubleshoot hydraulic and pneumatic system			
8	Select personal protective equipment in terms of type and quantity according to work orders.			
9	Wear personal protective equipment according to job requirements.			
10	Clean personal protective equipment			
11	Stored Personal Protective equipments in proper place after use.			
12	Maintain cleanliness and hygiene as per organizational policy			
13	Comply with Health, hygiene and safety precautions before starting work			
14	Comply organizational Health, hygiene and safety guidelines during work			
15	Place the tools equipment etc at their prescribed place after completion of work			
16	Use appropriate non-verbal behavior at all times			
17	Treat team members with respect			
18	Receive the instructions from Supervisor			
19	Carry out the instructions of the supervisor			

Competent ☐	Not Yet Competent ☐

itle of Qualification: National Vocational Certificate Level 2 in Industrial Automation(Assistant Automation Technicians)	CS Code:	Level: 2	Version: 01
Competency Standard Title: B:Install Automation Instruments C:Maintain personal Health, Hygiene and Safety D: Communicate the Workplace Policy and Procedure E: Perform Basic Communication (Specific)	**Assessment Date (DD/MM/YY):** **Assessment Time:**1 hour		

Guidance for Candidate	**To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.**

Assessors Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: ..... Registration/Roll Number: Candidate Signature:..... .....
Written Assessment Outcome	COMPETENT ☐ NOT YET COMPETENT ☐ Name of the Assessor: ..... Assessor's code: Signature of the Assessor:..... .....

Title of Qualification: National Vocational Certificate Level 2 in Industrial Automation(Assistant Automation Technicians)	CS Code:	Level: 2	Version: 01
Competency Standard Title: B:Install Automation Instruments C:Maintain personal Health, Hygiene and Safety D: Communicate the Workplace Policy and Procedure E: Perform Basic Communication (Specific)	**Assessment Date (DD/MM/YY):** **Assessment Time:**1 hour		

WRITTEN ASSESSMENT

Question	**Candidate's answer**
30. State difference between digital and analogue instruments.	
31. What is the sensor?	
32. What is NPN & PNP switching?	
33. Describe the types of proximity sensors.	
34. What are the process variables?	
35. What are the standard analogue signals?	
36. Differentiate between Hydraulic and pneumatic systems.	

Question	Candidate's answer
37. Describe types of cylinder?	
38. What are the 3P's in first aid?	
39. What is the basic concept communication?	
40. Yellow triangle with black outline and zigzag arrow 	
41. Enlist non –verbal communication techniques?	
42. Enlist any three technology skills?	

ANSWER KEY

Sr.	Answers
1	In digital instruments output signal will always be discrete signal. (0,1) The analogue instrument is defined as the instrument whose output is continues function of time but it has constant relation to the input.
2	A device that detect and respond to some type of input from the physical environment.
3	In PNP switching signal will always be positive (sourcing) In NPN switching signal will always be negative (sinking)
4	Inductive proximity sensor; work on the principle of electromagnetic induction to detect the metal object. Capacitive proximity sensor; work on the principle of capacitive coupling to detect anything that is conductor or other than air Photoelectric sensor; is an equipment used to detect absence or presence of an object by using a light emitter and photoelectric receiver.
5	• Temperature • Pressure
6	• In current 4-20 mA • In voltage 0-10 V • In pressure 3-15 psi
7	The system which works non compressible pressurized fluid and transmits the power is called hydraulic system. The system which works compressed air and transmits the power is called pneumatic system.
8	Single acting cylinder Double acting cylinder Non differential Actuating cylinder
9	**"Three P's**": • Preserve life • Prevent further injury • Provide pain relief
10	The basic concept of communication is the process of sending and receiving messages or transferring information from one part (sender) to another (receiver).
11	Warning sign – a sign giving warning of a hazard or danger (e.g. 'danger: electricity')
12	• Body language • Tone of voice
13	• Word Processing Skills. • Spreadsheets Skills. • Database Skills. • Electronic Presentation Skills. • Web Site Design Skills. • E-Mail Management Skills. • Digital Cameras etc.

of Qualification: National Vocational Certificate Level 2 in Industrial Automation (Assistant Automation Technicians)	CS Code:	Level: 2	Version: 01
Competency Standard Title: A-Apply Electric Circuit Concepts B-Install Automation Instruments C-Maintain personal Health, Hygiene and Safety D-Perform basic communication Skills E-Dispose the waste material F-Demonstrate Basic Numeracy Skills G-Perform Basic Computer Operations	**Assessment Date (DD/MM/YY):** **Assessment Time :** 1 hours		

Guidance for Candidate	**To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.**

Assessors Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: ..... Registration/Roll Number: Candidate Signature:..... .....
Written Assessment Outcome	COMPETENT ☐ NOT YET COMPETENT ☐ Name of the Assessor: ..... Assessor's code: Signature of the Assessor:..... .....

Title of Qualification: National Vocational Certificate Level 2 in Industrial Automation (Assistant Automation Technicians)	CS Code:	Level: 2	Version: 01
Competency Standard Title: A-Apply Electric Circuit Concepts B-Install Automation Instruments C-Maintain personal Health, Hygiene and Safety D-Perform basic communication Skills E-Dispose the waste material F-Demonstrate Basic Numeracy Skills G-Perform Basic Computer Operations	**Assessment Date (DD/MM/YY):** **Assessment Time :** 1 hours		

WRITTEN ASSESSMENT

Question	Candidate's answer
1. Describe star and delta configurations.	Star connection has a common point to which all the three terminals are connected forming star shape. In Star connection $I_P = I_L$ (I_P= Phase current, I_L = line current), $V_L = \sqrt{3}\, V_P$ (V_L = Line Voltage, V_P = Phase Voltage). In delta connection all the three terminals are connected together forming a close loop. In delta connection $I_L = \sqrt{3}\, I_P$ (I_P= Phase current, I_L = line current), $V_L = V_P$ (V_L = Line Voltage, V_P = Phase Voltage).
2. Describe ohm's law.	The current flowing through resistance is directly proportional to the applied voltage. $V \propto I$; V=IR (where R is a constant of proportionality and value of R is equal to the electrical resistance).
3. Describe the types of proximity sensors.	• Inductive proximity sensor; works on the principle of electromagnetic induction to detect the metal object. • Capacitive proximity sensor; work on the principle of capacitive coupling to detect a range of targets including even if they are not conductors e.g. plastic, human skin (mobile touch screens), rubber etc. • Photoelectric sensor; is an instrument used to detect absence or presence of an object by using a light emitter and photoelectric receiver.
4. Describe types of cylinder?	• Single acting cylinder • Double acting cylinder • Non differential • Actuating cylinder
5. What are the process variables?	A process variable; process value or process parameter is the current status of a process under control or at a set value. • Temperature • Pressure • Level • Flow
6. What is PPE?	PPE includes anything someone can use or wear to mitigate the threats that workplace hazards pose to health and safety; • Gloves • Boots • Ear plugs • Helmet, hardhats and facial protection • Hi-viz clothing etc

Question	Candidate's answer
7. Enlist workplace hazards?	• Tripping hazards • Burn hazards • Falling debris hazards etc
8. Write down key types of safety symbols?	Most safety signs and symbols fall into one of four categories: • Prohibition • Warning • Mandatory • Emergency
9. How many data formats are available in Excel?	Eleven data formats are available in Microsoft Excel for data Storage.

Title of Qualification: National Vocational Certificate Level 2 in Industrial Automation (Assistant Automation Technicians)	CS Code:	Level: 2	Version: 01
Competency Standard Title: A:Apply Electric Circuit Concept B:Install Automation Instruments C:Maintain personal Health, Hygiene and Safety D: Communicate the Workplace Policy and Procedure F: Perform Basic Computer Application (Specific) G:Perform Basic Computer Operations	**Assessment Date (DD/MM/YY):** **Assessment Time :** 4 hours		

Candidate Details	Name: ..... Registration/Roll Number: .....
Guidance for Candidate	**To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):** 17. **Assessment Task 1:** Candidate is required to connect three resistors of 5k ohm, 10k ohm and 20k ohm in parallel to the source of 24 VDC. Find current and power through each resistor and total current drawn. Also implement the circuit on project board and verify results. (Assessor is requested to give one faulty resistor to the candidate) 18. **Assessment Task 2:** Candidate is required to draw control and power diagram of three phase motor for forward and reverse operations, manually as well on computer. Also implement the circuit using appropriate tools. 19. **Assessment Task 3:** Candidate is required to develop an industrial process in which the following steps are specified by your assessor: • A conveyor is running for the bottle filling operation. • At first station bottle stops and filling starts until the required fluid level is achieved. • After filling the conveyor starts again and at the second station its capping is processed. • At third station label pasting around the bottle. Candidate is required to suggest appropriate sensors and draw the block diagram of process. 20. **Assessment Task 4:** Candidate is required to use solenoid operated valves and double acting cylinders implement the following sequence(Both hydraulic and Pneumatic) and draw its circuit diagram: • Make a cylinder extend when a push button is pressed. Make the second cylinder extend after the first cylinder extended. After the second cylinder is extended both cylinders should retract simultaneously. **And complete:** 21. **Knowledge assessment test (Written or Oral)** 22. **Portfolios at the time of assessment (if any)**

Minimum Evidence Required	**During a practical assessment, under observation by an assessor, you will complete:** **Assessment Task 1** Performance Criteria 1: Test electrical components as per requirement. Performance Criteria 2: Test electrical quantities as per requirement. Performance Criteria 3: Calculate current, voltage, resistance and power of a circuit as per requirement. Performance Criteria 4: Solve series & parallel circuits as per requirement. Performance Criteria 5: Identify electrical and control symbols for components as per requirement. Performance Criteria 6: Select wiring tools, components, accessories and cables as per requirement. Performance Criteria 7: Connect DC components as per requirement. Performance Criteria 8: Select personal protective equipment in terms of type and quantity according to work orders. Performance Criteria 9: Wear personal protective equipment according to job requirements. Performance Criteria 10: Clean personal protective equipment Performance Criteria 11: Stored Personal Protective equipments in proper place after use Performance Criteria 12: Place the tools equipment etc at their prescribed place after completion of work. Performance Criteria 13: Segregate hazardous or non-hazardous waste carefully from the designated area as per approved procedure. Performance Criteria 14: Identify organizational communication requirements and workplace procedures with assistance from relevant authority Performance Criteria 15: Identify appropriate lines of communication with supervisors and colleagues. Performance Criteria 16: Seek advice on the communication method/equipment most appropriate for the task. Performance Criteria 17: Treat team members with respect

	Assessment Task 2 Performance Criteria 1: Set the Page Layout, size and format as per requirement. Performance Criteria 2: Identify and Insert the Electrical symbols as per requirement. Performance Criteria 3: Modify the given electrical drawings. Performance Criteria 4: Print the final electrical drawings. Performance Criteria 5: Draw electrical single line diagrams manually as per requirement. Performance Criteria 6: Select wiring tools, accessories and cables as per requirement. Performance Criteria 7: Connect AC components as per requirement. Performance Criteria 8: Select tools and accessories as per requirement. Performance Criteria 9: Lay down cables as per requirement. Performance Criteria 10: Comply with Health, hygiene and safety precautions before starting work Performance Criteria 11: Comply organizational Health, hygiene and safety guidelines during work Performance Criteria 12: Place the tools equipment etc at their prescribed place after completion of work Performance Criteria 13: Wear personal protective equipment according to job requirements. Performance Criteria 14: Maintain cleanliness and hygiene as per organizational policy. Performance Criteria 15: Comply with Health, hygiene and safety precautions before starting work. Performance Criteria 16: Deal with resolvable problems according to prescribed procedures. Performance Criteria17: Report un resolvable problems to immediate supervisor. Performance Criteria 18: Place the tools equipment etc at their prescribed place after completion of work. Performance Criteria 19: Segregate hazardous or non-hazardous waste carefully from the designated area as per approved procedure Performance Criteria 20: Use effective questioning, and active listening and speaking skills to gather and convey information Performance Criteria 21: Listen to instructions carefully & comply with those Instructions. Performance Criteria 22: Carry out the instructions of the supervisor. Performance Criteria 23: Maintain positive relationships to achieve common organizational goals.

	Assessment Task 3 Performance Criteria 1: Select tools and accessories as per requirement. Performance Criteria 2: Identify digital instruments as per requirement. Performance Criteria 3: Install digital instruments as per requirement. Performance Criteria 4: Operate digital instruments as per requirement. Performance Criteria 5: Select tools and accessories as per requirement. Performance Criteria 6: Identify Instruments for different output signals as per requirement. Performance Criteria 7: Install Analogue Instruments as per requirement. Performance Criteria 8: Identify tools, equipment and consumable materials that have the potential to cause harm Performance Criteria 9: Maintain cleanliness and hygiene as per organizational policy Performance Criteria 10: Comply with Health, hygiene and safety precautions before starting work Performance Criteria 11: Comply organizational Health, hygiene and safety guidelines during work Performance Criteria 12: Use appropriate non-verbal behavior at all times Performance Criteria 13: Get work related information from team Performance Criteria 14: Identify interrelated work activities to avoid confusion Performance Criteria 15: Adopt communication skills, which are designed in a team Performance Criteria 16: Carry out the instructions of the supervisor Performance Criteria 17: Report to the supervisor as per organizational SOPs

	Assessment Task 4 Performance Criteria 1: Select tools as per requirement. Performance Criteria 2: Identify hydraulic and pneumatic symbols. Performance Criteria 3: Draw hydraulic and pneumatic systems diagrams manually. Performance Criteria 4: Identify different hydraulic components and instruments as per requirement. Performance Criteria 5: Identify different Pneumatic components and instruments as per requirement. Performance Criteria 6: Install hydraulic components and instruments as per requirement. Performance Criteria 7: Install pneumatic components and instruments as per requirement. Performance Criteria 8: Operate hydraulic equipment as per requirement. Performance Criteria 9: Operate pneumatic equipment as per requirement. Performance Criteria 10: Troubleshoot hydraulic and pneumatic system. Performance Criteria 11: Select personal protective equipment in terms of type and quantity according to work orders. Performance Criteria 12: Wear personal protective equipment according to job requirements. Performance Criteria 13: Clean personal protective equipment Performance Criteria 14: Stored Personal Protective equipments in proper place after use. Performance Criteria 15: Place the tools equipment etc at their prescribed place after completion of work. Performance Criteria 16: Use proper disposal hazardous containers for dispose-off hazardous waste as per procedure. Performance Criteria17: Take necessary precautions like putting masks and gloves while disposing hazardous waste/ materials as per standard operating procedure. Performance Criteria 18: Use effective questioning, and active listening and speaking skills to gather and convey information Performance Criteria 19: Receive the instructions from Supervisor Performance Criteria 20: Carry out the instructions of the supervisor. Performance Criteria 21: Identify interrelated work activities to avoid confusion Performance Criteria 22: Adopt communication skills, which are designed in a team.

	Portfolios required at the time of assessment (if any) for Performance criteria 1 for the evaluation of portfolio: Report about identified risk to Health, hygiene and safety. Performance criteria 2 for the evaluation of portfolio: Report about identified risk to Health, hygiene and safety. Performance criteria 3 for the evaluation of portfolio: Report about identified risk to Health, hygiene and safety. Performance criteria 4 for the evaluation of portfolio: Report about identified risk to Health, hygiene and safety. Performance criteria 5for the evaluation of portfolio: Report about identified risk to Health, hygiene and safety. Performance criteria 1 for the evaluation of portfolio: Generate office reports using MS Excel. Performance criteria 2 for the evaluation of portfolio: Generate office reports using MS Excel.. Performance criteria 3 for the evaluation of portfolio: Generate office reports using MS Excel. Performance criteria 4 for the evaluation of portfolio: Generate office reports using MS Excel. Performance criteria 5 for the evaluation of portfolio: Generate office reports using MS Excel.

Continued on following page

Assessors Judgment Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: ..... Registration/Roll Number: ..... Candidate Signature:..... .....
Assessment Outcome	COMPETENT ☐ NOT YET COMPETENT ☐ Name of the Assessor: ..... Assessor's code: ..... Signature of the Assessor:..... .....

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

Assessment Task 1	Description of assessment task 1 Candidate is required to connect three resistors of 5k ohm, 10k ohm and 20k ohm in parallel to the source of 24 VDC. Find current and power through each resistor and total current drawn. Also implement the circuit on project board and verify results. (Note: Assessor is requested to give one faulty resistor to the candidate)

During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	Test electrical components as per requirement			
2	Test electrical quantities as per requirement.			
3	Calculate current, voltage, resistance and power of a circuit as per requirement.			
4	Solve series & parallel circuits as per requirement.			
5	Identify electrical and control symbols for components as per			
6	Select wiring tools, components, accessories and cables as per requirement.			
7	Connect DC components as per requirement.			
8	Select personal protective equipment in terms of type and quantity according to work orders.			
9	Wear personal protective equipment according to job requirements.			
10	Clean personal protective equipment			
11	Stored Personal Protective equipments in proper place after use			
12	Place the tools equipment etc at their prescribed place after completion of work.			
13	Segregate hazardous or non-hazardous waste carefully from the designated area as per approved procedure.			
14	Identify organizational communication requirements and workplace procedures with assistance from relevant authority			
15	Identify appropriate lines of communication with supervisors and colleagues.			
16	Seek advice on the communication method/equipment most appropriate for the task.			
17	Treat team members with respect			
Competent ☐		Not Yet Competent ☐		

Assessment Task 2	Description of assessment task 2 Candidate is required to draw control and power diagram of three phase motor for forward and reverse operations, manually as well on computer. Also implement the circuit using appropriate tools.

During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	Set the page layout, size and format as per requirement			
2	Identify and Insert the Electrical symbols as per requirement.			
3	Modify the given electrical drawings.			
4	Print the final electrical drawings.			
5	Performance Criteria 1: Draw electrical single line diagrams manually as per requirement.			
6	Select wiring tools, accessories and cables as per requirement.			
7	Select tools and accessories as per requirement.			
8	Lay down cables as per requirement.			
9	Comply with Health, hygiene and safety precautions before starting work			
10	Comply organizational Health, hygiene and safety guidelines during work			
11	Place the tools equipment etc at their prescribed place after completion of work			
12	Wear personal protective equipment according to job requirements.			
13	Maintain cleanliness and hygiene as per organizational policy.			
14	Comply with Health, hygiene and safety precautions before starting work.			
15	Deal with resolvable problems according to prescribed procedures.			
16	Report un resolvable problems to immediate supervisor.			
17	Place the tools equipment etc at their prescribed place after completion of work			
18	Segregate hazardous or non-hazardous waste carefully from the designated area as per approved procedure			
19	Use effective questioning, and active listening and speaking skills to gather and convey information			
20	Listen to instructions carefully & comply with those Instructions.			
21	Carry out the instructions of the supervisor.			
22	Maintain positive relationships to achieve common organizational goals.			

Competent ☐	Not Yet Competent ☐

Assessment Task 3	Description of assessment task 3 Candidate is required to develop an industrial process in which the following steps are specified by your assessor: A conveyor is running for the bottle filling operation. • At first station bottle stops and filling starts until the required fluid level is achieved. • After filling the conveyor starts again and at the second station its capping is processed. • At third station label pasting around the bottle. Candidate is required to suggest appropriate sensors and draw the block diagram of process.

During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	Select tools and accessories as per requirement.			
2	Identify digital instruments as per requirement.			
3	Install digital instruments as per requirement			
4	Operate digital instruments as per requirement.			
5	Select tools and accessories as per requirement.			
6	Identify Instruments for different output signals as per requirement.			
7	Install Analogue Instruments as per requirement.			
8	Identify tools, equipment and consumable materials that have the potential to cause harm			
9	Maintain cleanliness and hygiene as per organizational policy			
10	Comply with Health, hygiene and safety precautions before starting work			
11	Comply organizational Health, hygiene and safety guidelines during work			
12	Use appropriate non-verbal behavior at all times			
13	Get work related information from team			
14	Identify interrelated work activities to avoid confusion			
15	Adopt communication skills, which are designed in a team			
16	Carry out the instructions of the supervisor			
17	Report to the supervisor as per organizational SOPs			

Competent ☐	Not Yet Competent ☐

Assessment Task 4	Description of assessment task 4 Candidate is required to using solenoid operated valves and double acting cylinders implement the following sequence(Both hydraulic and Pneumatic) and draw its circuit diagram: • Make a cylinder extend when a push button is pressed. Make the second cylinder extend after the first cylinder extended. After the second cylinder is extended both cylinders should retract simultaneously.

During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	Select tools as per requirement.			
2	Identify hydraulic and pneumatic symbols.			
3	Draw hydraulic and pneumatic systems diagrams manually.			
4	Identify different hydraulic components and instruments as per requirement.			
5	Identify different Pneumatic components and instruments as per requirement.			
6	Install hydraulic components and instruments as per requirement.			
7	Install pneumatic components and instruments as per requirement.			
8	Operate hydraulic equipment as per requirement.			
9	Operate pneumatic equipment as per requirement.			
10	Troubleshoot hydraulic and pneumatic system.			
11	Select personal protective equipment in terms of type and quantity according to work orders.			
12	Wear personal protective equipment according to job requirements.			
13	Clean personal protective equipment			
14	Stored Personal Protective equipments in proper place after use.			
15	Place the tools equipment etc at their prescribed place after completion of work.			
16	Use proper disposal hazardous containers for dispose-off hazardous waste as per procedure.			
17	Take necessary precautions like putting masks and gloves while disposing hazardous waste/ materials as per standard operating procedure			
18	Use effective questioning, and active listening and speaking skills to gather and convey information			
19	Receive the instructions from Supervisor			
20	Carry out the instructions of the supervisor.			
21	Identify interrelated work activities to avoid confusion			
22	Adopt communication skills, which are designed in a team.			

Competent ☐	Not Yet Competent ☐

Portfolio	Description of portfolio • Report about identified risk to Health, hygiene and safety. • Prepare office report using MS Excel.
Current ☐ Sufficient ☐ Authentic ☐ Valid ☐ Reliable ☐	

	Portfolio meet the following performance standards:	Yes	No	Remarks
1	Identify risk to personal health			
2	Identify hygiene and safety at work place			
3	Identify processes			
4	Identify tools, equipment and consumable materials that have the potential to cause harm			
5	Report, identified risk to Health, hygiene and safety to concerned			
6	Develop a worksheet as per given data			
7	Format the worksheet according to given criteria			
8	Apply Formulas according to the requirement			
9	Generate Charts/Graphs according to the given data			
10	Print Worksheet according to requirements			

Competent ☐	Not Yet Competent ☐

Title of Qualification: National Vocational Certificate Level 2 in Industrial Automation (Assistant Automation Technicians)	CS Code:	Level: 2	Version: 01
Competency Standard Title: A:Apply Electric Circuit Concept B:Install Automation Instruments C:Maintain personal Health, Hygiene and Safety D: Communicate the Workplace Policy and Procedure F: Perform Basic Computer Application (Specific) G:Perform Basic Computer Operations	**Assessment Date (DD/MM/YY):** **Assessment Time :** 1 hours		

Guidance for Candidate	**To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.**

Assessors Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: ..... Registration/Roll Number: Candidate Signature:..... .....
Written Assessment Outcome	COMPETENT ☐ NOT YET COMPETENT ☐ Name of the Assessor: ..... Assessor's code: Signature of the Assessor:..... .....

Title of Qualification: National Vocational Certificate Level 2 in Industrial Automation (Assistant Automation Technicians)	CS Code:	Level: 2	Version: 01
Competency Standard Title: A:Apply Electric Circuit Concept B:Install Automation Instruments C:Maintain personal Health, Hygiene and Safety D: Communicate the Workplace Policy and Procedure F: Perform Basic Computer Application (Specific) G:Perform Basic Computer Operations	**Assessment Date (DD/MM/YY):** **Assessment Time :** 1 hours		

WRITTEN ASSESSMENT

Question	**Candidate's answer**
10. Describe star and delta configurations.	
11. Describe ohm's law.	
12. Describe the types of proximity sensors.	
13. Describe types of cylinder?	
14. What are the process variables?	
15. What is PPE?	

Question	Candidate's answer
16. Enlist workplace hazards?	
17. Write down key types of safety symbols?	
18. How many data formats are available in Excel?	
19. Ctrl+X in MS word	
20. Ctrl+A in MS word	
21. Enlist any five Verbal communication techniques?	

ANSWER KEY

Sr.	Answers
1	Star connection has a common point to which all the three terminals are connected forming star shape. In Star connection $I_P = I_L$ (I_P= Phase current, I_L = line current), $V_L = \sqrt{3}\, V_P$ (V_L = Line Voltage, V_P = Phase Voltage). In delta connection all the three terminals are connected together forming a close loop. In delta connection $I_L = \sqrt{3}\, I_P$ (I_P= Phase current, I_L = line current), $V_L = V_P$ (V_L = Line Voltage, V_P = Phase Voltage).
2	The current flowing through resistance is directly proportional to the applied voltage. $V \propto I$; V=IR (where R is a constant of proportionality and value of R is equal to the electrical resistance).
3	• Inductive proximity sensor; works on the principle of electromagnetic induction to detect the metal object. • Capacitive proximity sensor; work on the principle of capacitive coupling to detect a range of targets including even if they are not conductors e.g. plastic, human skin (mobile touch screens), rubber etc. • Photoelectric sensor; is an instrument used to detect absence or presence of an object by using a light emitter and photoelectric receiver.
4	• Single acting cylinder • Double acting cylinder • Non differential • Actuating cylinder
5	A process variable; process value or process parameter is the current status of a process under control or at a set value. • Temperature • Pressure • Level • Flow
6	PPE includes anything someone can use or wear to mitigate the threats that workplace hazards pose to health and safety; • Gloves • Boots • Ear plugs • Helmet, hardhats and facial protection • Hi-viz clothing etc
7	• Tripping hazards • Burn hazards • Falling debris hazards etc
8	Most safety signs and symbols fall into one of four categories: • Prohibition • Warning • Mandatory • Emergency
9	Eleven data formats are available in Microsoft Excel for data Storage.
10	Cut
11	Select whole document
12	• Active listening

	• Clarity and conciseness • Confidence • Empathy • Friendliness • Open-mindedness • Giving and soliciting feedback • Confidence • Respectfulness

itle of Qualification: National Vocational Certificate Level 2 in Industrial Automation (Assistant Automation Technicians)	CS Code:	Level: 2	Version: 01
Competency Standard Title: A:Apply Electric Circuit Concept B:Install Automation Instruments C:Maintain personal Health, Hygiene and Safety D: Communicate the Workplace Policy and Procedure F: Perform Basic Computer Application (Specific) G:Perform Basic Computer Operations	**Assessment Date (DD/MM/YY):** **Assessment Time :** 4 hours		

Candidate Details	Name: ..... Registration/Roll Number: .....
Guidance for Candidate	**To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):** **23. Assessment Task 1:** Candidate is required to connect three resistors of 5k ohm, 10k ohm and 20k ohm in parallel to the source of 24 VDC. Find current and power through each resistor and total current drawn. Also implement the circuit on project board and verify results. (Assessor is requested to give one faulty resistor to the candidate) **24. Assessment Task 2:** Candidate is required to draw control and power diagram of three phase motor for forward and reverse operations, manually as well on computer. Also implement the circuit using appropriate tools. **25. Assessment Task 3:** Candidate is required to develop an industrial process in which the following steps are specified by your assessor: • A conveyor is running for the bottle filling operation. • At first station bottle stops and filling starts until the required fluid level is achieved. • After filling the conveyor starts again and at the second station its capping is processed. • At third station label pasting around the bottle. Candidate is required to suggest appropriate sensors and draw the block diagram of process. **26. Assessment Task 4:** Candidate is required to use solenoid operated valves and double acting cylinders implement the following sequence(Both hydraulic and Pneumatic) and draw its circuit diagram: • Make a cylinder extend when a push button is pressed. Make the second cylinder extend after the first cylinder extended. After the second cylinder is extended both cylinders should retract simultaneously. **And complete:** **27. Knowledge assessment test (Written or Oral)** **28. Portfolios at the time of assessment (if any)**

Minimum Evidence Required	**During a practical assessment, under observation by an assessor, you will complete:** **Assessment Task 1** Performance Criteria 1: Test electrical components as per requirement. Performance Criteria 2: Test electrical quantities as per requirement. Performance Criteria 3: Calculate current, voltage, resistance and power of a circuit as per requirement. Performance Criteria 4: Solve series & parallel circuits as per requirement. Performance Criteria 5: Identify electrical and control symbols for components as per requirement. Performance Criteria 6: Select wiring tools, components, accessories and cables as per requirement. Performance Criteria 7: Connect DC components as per requirement. Performance Criteria 8: Select personal protective equipment in terms of type and quantity according to work orders. Performance Criteria 9: Wear personal protective equipment according to job requirements. Performance Criteria 10: Clean personal protective equipment Performance Criteria 11: Stored Personal Protective equipments in proper place after use Performance Criteria 12: Place the tools equipment etc at their prescribed place after completion of work. Performance Criteria 13: Segregate hazardous or non-hazardous waste carefully from the designated area as per approved procedure. Performance Criteria 14: Identify organizational communication requirements and workplace procedures with assistance from relevant authority Performance Criteria 15: Identify appropriate lines of communication with supervisors and colleagues. Performance Criteria 16: Seek advice on the communication method/equipment most appropriate for the task. Performance Criteria 17: Treat team members with respect

	Assessment Task 2 Performance Criteria 1: Set the Page Layout, size and format as per requirement. Performance Criteria 2: Identify and Insert the Electrical symbols as per requirement. Performance Criteria 3: Modify the given electrical drawings. Performance Criteria 4: Print the final electrical drawings. Performance Criteria 5: Draw electrical single line diagrams manually as per requirement. Performance Criteria 6: Select wiring tools, accessories and cables as per requirement. Performance Criteria 7: Connect AC components as per requirement. Performance Criteria 8: Select tools and accessories as per requirement. Performance Criteria 9: Lay down cables as per requirement. Performance Criteria 10: Comply with Health, hygiene and safety precautions before starting work Performance Criteria 11: Comply organizational Health, hygiene and safety guidelines during work Performance Criteria 12: Place the tools equipment etc at their prescribed place after completion of work Performance Criteria 13: Wear personal protective equipment according to job requirements. Performance Criteria 14: Maintain cleanliness and hygiene as per organizational policy. Performance Criteria 15: Comply with Health, hygiene and safety precautions before starting work. Performance Criteria 16: Deal with resolvable problems according to prescribed procedures. Performance Criteria17: Report un resolvable problems to immediate supervisor. Performance Criteria 18: Place the tools equipment etc at their prescribed place after completion of work. Performance Criteria 19: Segregate hazardous or non-hazardous waste carefully from the designated area as per approved procedure Performance Criteria 20: Use effective questioning, and active listening and speaking skills to gather and convey information Performance Criteria 21: Listen to instructions carefully & comply with those Instructions. Performance Criteria 22: Carry out the instructions of the supervisor. Performance Criteria 23: Maintain positive relationships to achieve common organizational goals.

	Assessment Task 3 Performance Criteria 1: Select tools and accessories as per requirement. Performance Criteria 2: Identify digital instruments as per requirement. Performance Criteria 3: Install digital instruments as per requirement. Performance Criteria 4: Operate digital instruments as per requirement. Performance Criteria 5: Select tools and accessories as per requirement. Performance Criteria 6: Identify Instruments for different output signals as per requirement. Performance Criteria 7: Install Analogue Instruments as per requirement. Performance Criteria 8: Identify tools, equipment and consumable materials that have the potential to cause harm Performance Criteria 9: Maintain cleanliness and hygiene as per organizational policy Performance Criteria 10: Comply with Health, hygiene and safety precautions before starting work Performance Criteria 11: Comply organizational Health, hygiene and safety guidelines during work Performance Criteria 12: Use appropriate non-verbal behavior at all times Performance Criteria 13: Get work related information from team Performance Criteria 14: Identify interrelated work activities to avoid confusion Performance Criteria 15: Adopt communication skills, which are designed in a team Performance Criteria 16: Carry out the instructions of the supervisor Performance Criteria 17: Report to the supervisor as per organizational SOPs

	Assessment Task 4 Performance Criteria 1: Select tools as per requirement. Performance Criteria 2: Identify hydraulic and pneumatic symbols. Performance Criteria 3: Draw hydraulic and pneumatic systems diagrams manually. Performance Criteria 4: Identify different hydraulic components and instruments as per requirement. Performance Criteria 5: Identify different Pneumatic components and instruments as per requirement. Performance Criteria 6: Install hydraulic components and instruments as per requirement. Performance Criteria 7: Install pneumatic components and instruments as per requirement. Performance Criteria 8: Operate hydraulic equipment as per requirement. Performance Criteria 9: Operate pneumatic equipment as per requirement. Performance Criteria 10: Troubleshoot hydraulic and pneumatic system. Performance Criteria 11: Select personal protective equipment in terms of type and quantity according to work orders. Performance Criteria 12: Wear personal protective equipment according to job requirements. Performance Criteria 13: Clean personal protective equipment Performance Criteria 14: Stored Personal Protective equipments in proper place after use. Performance Criteria 15: Place the tools equipment etc at their prescribed place after completion of work. Performance Criteria 16: Use proper disposal hazardous containers for dispose-off hazardous waste as per procedure. Performance Criteria17: Take necessary precautions like putting masks and gloves while disposing hazardous waste/ materials as per standard operating procedure. Performance Criteria 18: Use effective questioning, and active listening and speaking skills to gather and convey information Performance Criteria 19: Receive the instructions from Supervisor Performance Criteria 20: Carry out the instructions of the supervisor. Performance Criteria 21: Identify interrelated work activities to avoid confusion Performance Criteria 22: Adopt communication skills, which are designed in a team.

	Portfolios required at the time of assessment (if any) for Performance criteria 1 for the evaluation of portfolio: Report about identified risk to Health, hygiene and safety. Performance criteria 2 for the evaluation of portfolio: Report about identified risk to Health, hygiene and safety. Performance criteria 3 for the evaluation of portfolio: Report about identified risk to Health, hygiene and safety. Performance criteria 4 for the evaluation of portfolio: Report about identified risk to Health, hygiene and safety. Performance criteria 5for the evaluation of portfolio: Report about identified risk to Health, hygiene and safety. Performance criteria 1 for the evaluation of portfolio: Generate office reports using MS Excel. Performance criteria 2 for the evaluation of portfolio: Generate office reports using MS Excel.. Performance criteria 3 for the evaluation of portfolio: Generate office reports using MS Excel. Performance criteria 4 for the evaluation of portfolio: Generate office reports using MS Excel. Performance criteria 5 for the evaluation of portfolio: Generate office reports using MS Excel.

Continued on following page

Assessors Judgment Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: ..... Registration/Roll Number: ..... Candidate Signature:..... .....
Assessment Outcome	COMPETENT ☐ NOT YET COMPETENT ☐ Name of the Assessor:..... Assessor's code: ..... Signature of the Assessor:..... .....

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

Each Assessment Task (with performance criteria)	
Assessment Task 1	Description of assessment task 1 Candidate is required to connect three resistors of 5k ohm, 10k ohm and 20k ohm in parallel to the source of 24 VDC. Find current and power through each resistor and total current drawn. Also implement the circuit on project board and verify results. (Note: Assessor is requested to give one faulty resistor to the candidate)

During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	Test electrical components as per requirement			
2	Test electrical quantities as per requirement.			
3	Calculate current, voltage, resistance and power of a circuit as per requirement.			
4	Solve series & parallel circuits as per requirement.			
5	Identify electrical and control symbols for components as per			
6	Select wiring tools, components, accessories and cables as per requirement.			
7	Connect DC components as per requirement.			
8	Select personal protective equipment in terms of type and quantity according to work orders.			
9	Wear personal protective equipment according to job requirements.			
10	Clean personal protective equipment			
11	Stored Personal Protective equipments in proper place after use			
12	Place the tools equipment etc at their prescribed place after completion of work.			
13	Segregate hazardous or non-hazardous waste carefully from the designated area as per approved procedure.			
14	Identify organizational communication requirements and workplace procedures with assistance from relevant authority			
15	Identify appropriate lines of communication with supervisors and colleagues.			
16	Seek advice on the communication method/equipment most appropriate for the task.			
17	Treat team members with respect			

Competent ☐	Not Yet Competent ☐

Assessment Task 2	Description of assessment task 2 Candidate is required to draw control and power diagram of three phase motor for forward and reverse operations, manually as well on computer. Also implement the circuit using appropriate tools.

During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	Set the page layout, size and format as per requirement			
2	Identify and Insert the Electrical symbols as per requirement.			
3	Modify the given electrical drawings.			
4	Print the final electrical drawings.			
5	Performance Criteria 1: Draw electrical single line diagrams manually as per requirement.			
6	Select wiring tools, accessories and cables as per requirement.			
7	Select tools and accessories as per requirement.			
8	Lay down cables as per requirement.			
9	Comply with Health, hygiene and safety precautions before starting work			
10	Comply organizational Health, hygiene and safety guidelines during work			
11	Place the tools equipment etc at their prescribed place after completion of work			
12	Wear personal protective equipment according to job requirements.			
13	Maintain cleanliness and hygiene as per organizational policy.			
14	Comply with Health, hygiene and safety precautions before starting work.			
15	Deal with resolvable problems according to prescribed procedures.			
16	Report un resolvable problems to immediate supervisor.			
17	Place the tools equipment etc at their prescribed place after completion of work			
18	Segregate hazardous or non-hazardous waste carefully from the designated area as per approved procedure			
19	Use effective questioning, and active listening and speaking skills to gather and convey information			
20	Listen to instructions carefully & comply with those Instructions.			
21	Carry out the instructions of the supervisor.			
22	Maintain positive relationships to achieve common organizational goals.			

Competent ☐	Not Yet Competent ☐

Assessment Task 3	Description of assessment task 3 Candidate is required to develop an industrial process in which the following steps are specified by your assessor: A conveyor is running for the bottle filling operation. • At first station bottle stops and filling starts until the required fluid level is achieved. • After filling the conveyor starts again and at the second station its capping is processed. • At third station label pasting around the bottle. Candidate is required to suggest appropriate sensors and draw the block diagram of process.

During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	Select tools and accessories as per requirement.			
2	Identify digital instruments as per requirement.			
3	Install digital instruments as per requirement			
4	Operate digital instruments as per requirement.			
5	Select tools and accessories as per requirement.			
6	Identify Instruments for different output signals as per requirement.			
7	Install Analogue Instruments as per requirement.			
8	Identify tools, equipment and consumable materials that have the potential to cause harm			
9	Maintain cleanliness and hygiene as per organizational policy			
10	Comply with Health, hygiene and safety precautions before starting work			
11	Comply organizational Health, hygiene and safety guidelines during work			
12	Use appropriate non-verbal behavior at all times			
13	Get work related information from team			
14	Identify interrelated work activities to avoid confusion			
15	Adopt communication skills, which are designed in a team			
16	Carry out the instructions of the supervisor			
17	Report to the supervisor as per organizational SOPs			
Competent ☐		Not Yet Competent ☐		

Assessment Task 4	Description of assessment task 4 Candidate is required to using solenoid operated valves and double acting cylinders implement the following sequence(Both hydraulic and Pneumatic) and draw its circuit diagram: • Make a cylinder extend when a push button is pressed. Make the second cylinder extend after the first cylinder extended. After the second cylinder is extended both cylinders should retract simultaneously.

During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
1	Select tools as per requirement.			
2	Identify hydraulic and pneumatic symbols.			
3	Draw hydraulic and pneumatic systems diagrams manually.			
4	Identify different hydraulic components and instruments as per requirement.			
5	Identify different Pneumatic components and instruments as per requirement.			
6	Install hydraulic components and instruments as per requirement.			
7	Install pneumatic components and instruments as per requirement.			
8	Operate hydraulic equipment as per requirement.			
9	Operate pneumatic equipment as per requirement.			
10	Troubleshoot hydraulic and pneumatic system.			
11	Select personal protective equipment in terms of type and quantity according to work orders.			
12	Wear personal protective equipment according to job requirements.			
13	Clean personal protective equipment			
14	Stored Personal Protective equipments in proper place after use.			
15	Place the tools equipment etc at their prescribed place after completion of work.			
16	Use proper disposal hazardous containers for dispose-off hazardous waste as per procedure.			
17	Take necessary precautions like putting masks and gloves while disposing hazardous waste/ materials as per standard operating procedure			
18	Use effective questioning, and active listening and speaking skills to gather and convey information			
19	Receive the instructions from Supervisor			
20	Carry out the instructions of the supervisor.			
21	Identify interrelated work activities to avoid confusion			
22	Adopt communication skills, which are designed in a team.			

Competent ☐	Not Yet Competent ☐

Portfolio	Description of portfolio • Report about identified risk to Health, hygiene and safety. • Prepare office report using MS Excel.
Current ☐ Sufficient ☐ Authentic ☐ Valid ☐ Reliable ☐	

Portfolio meet the following performance standards:		Yes	No	Remarks
1	Identify risk to personal health			
2	Identify hygiene and safety at work place			
3	Identify processes			
4	Identify tools, equipment and consumable materials that have the potential to cause harm			
5	Report, identified risk to Health, hygiene and safety to concerned			
6	Develop a worksheet as per given data			
7	Format the worksheet according to given criteria			
8	Apply Formulas according to the requirement			
9	Generate Charts/Graphs according to the given data			
10	Print Worksheet according to requirements			
Competent ☐		Not Yet Competent ☐		

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