



QUALIFICATION FILE

Technician (Process Control & Automation)

☒ Short Term Training (STT) ☐ Long Term Training (LTT) ☐ Apprenticeship

☒ Upskilling ☐ Dual/Flexi Qualification ☐ For ToT ☐ For ToA

☒ General ☐ Multi-skill (MS) ☐ Cross Sectoral (CS) ☐ Future Skills ☐ OEM

NCrF/NSQF Level: 4

Submitted By:

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Table of Contents

Section 1: Basic Details 3

Section 2: Module Summary 6

 NOS/s of Qualifications..... 6

 Mandatory NOS/s: 6

 Elective NOS/s: 7

 Optional NOS/s: 7

 Assessment - Minimum Qualifying Percentage..... 7

Section 3: Training Related 8

Section 4: Assessment Related 8

Section 5: Evidence of the need for the Qualification 9

Section 6: Annexure & Supporting Documents Check List 9

 Annexure 1: Evidence of Level..... 10

 Annexure2: Tools and Equipment (Lab Set-Up) 12

 Annexure 3: Industry Validations Summary 13

 Annexure 4: Training & Employment Details 13

 Annexure 5: Blended Learning 14

 Annexure 6: Detailed Assessment Criteria 15

 Annexure 7: Assessment Strategy 17

 Annexure 8: Acronym and Glossary 18

Section 1: Basic Details

1.	Qualification Name	Technician (Process Control & Automation)	
2.	Sector/s	Automotive	
3.	Type of Qualification: ☐ New ☐ Revised ☐ Has Electives/Options ☐ OEM	NQR Code & version of existing/previous qualification: <i>(change to previous, once approved)</i> 2022/AUT/KSDC/05935	Qualification Name of existing/previous version: Technician (Process Control & Automation) _V1
4.	a. OEM Name b. Qualification Name <i>(Wherever applicable)</i>	Technician (Process Control & Automation)	
5.	National Qualification Register (NQR) Code &Version <i>(Will be issued after NSQC approval)</i>	QG-04-AU -05935-2025-V2-KSDC	6. NCrf/NSQF Level: 4
7.	Award (Certificate/Diploma/Advance Diploma/ Any Other <i>(Wherever applicable specify multiple entry/exits also & provide details in annexure)</i>	Certificate	
8.	Brief Description of the Qualification	This course is designed to develop skills in Advanced Painting Technology. It provides the opportunities to work in various industries It also provides unique opportunities to students for start-up their own business. This course is designed to give an understanding and hands on experience on process control and automation using latest software & Hardware. The course covers the topics such as to learn and build confidence in Process Control and Automation for versatile applications, adopt modern automation tools and techniques, understand the benefits of PLC, HMI and SCADA Programming in various manufacturing domains. To understand the concept of Industrial automation.	
9.	Eligibility Criteria for Entry for Student/Trainee/Learner/Employee	a. Entry Qualification & Relevant Experience: 12th grade pass OR Completed 2nd year of 3-year diploma (after 10th) OR Pursuing 2nd year of 3-year regular Diploma (after 10th) OR 10th grade pass with two years of any combination of NTC/NAC/CITS or equivalent OR 8th pass plus 2-year NTC plus 1-Year NAC plus 1-Year CITS OR	

		11th Grade Pass with 1.5-year relevant experience OR 10th Grade Pass with 3-year relevant experience OR Previous relevant Qualification of NSQF Level 3.5 with 1.5-year relevant experience OR Previous relevant Qualification of NSQF Level 3.0 with 3-year relevant experience b. Age: Minimum Age: 16 Years																						
10.	Credits Assigned to this Qualification, Subject to Assessment (as per National Credit Framework (NCrF))	13	11. Common Cost Norm Category (I/II/III) (wherever applicable):																					
12.	Any Licensing requirements for Undertaking Training on This Qualification (wherever applicable)	NA																						
13.	Training Duration by Modes of Training Delivery (Specify Total Duration as per selected training delivery modes and as per requirement of the qualification)	☒ Offline ☐ Online ☐ Blended <table border="1"> <thead> <tr> <th>Training Delivery Modes</th><th>Theory (Hours)</th><th>Practical (Hours)</th><th>OJT Mandatory (Hours)</th><th>OJT Recommended (Hours)</th><th>Total (Hours)</th></tr> </thead> <tbody> <tr> <td>Classroom (offline)</td><td>100</td><td>170</td><td>120</td><td></td><td>390</td></tr> <tr> <td>Online</td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table> (Refer Blended Learning Annexure for details)					Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)	Classroom (offline)	100	170	120		390	Online					
Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)																			
Classroom (offline)	100	170	120		390																			
Online																								
14.	Aligned to NCO/ISCO Code/s (if no code is available mention the same)	7412.0101 - Automation Specialist.																						
15.	Progression path after attaining the qualification (Please show Professional and Academic progression)	- Technician (Process Control & Automation) → Sr. Technician (Process Control & Automation) → Supervisor (Process Control & Automation) - Entrepreneurship																						
16.	Other Indian languages in which the Qualification & Model Curriculum are being submitted	No																						
17.	Is similar Qualification(s) available on NQR-if yes, justification for this qualification	☐ Yes ☒ No URLs of similar Qualifications:																						
18.	Is the Job Role Amenable to Persons with Disability	☐ Yes ☒ No If "Yes", specify applicable type of Disability:																						
19.	How Participation of Women will be Encouraged																							
20.	Are Greening/ Environment Sustainability Aspects Covered (Specify the NOS/Module which covers it)	☐ Yes ☐ No																						
21.	Is Qualification Suitable to be Offered in Schools/Colleges	Schools ☐ Yes ☐ No Colleges ☒ Yes ☐ No																						

22.	Name and Contact Details of Submitting / Awarding Body SPOC <i>(In case of CS or MS, provide details of both Lead AB & Supporting ABs)</i>	Name: Nagaraja NM, IAS Managing Director Karnataka Skill Development Corporation. Bangalore-29, Karnataka Email: md.ksdc@karnataka.gov.in Website: https://kaushalkar.karnataka.gov.in/en Contact No.: 080 2952 2222	
23.	Final Approval Date by NSQC:	24. Validity Duration: 3 Years	25. Next Review Date

Section 2: Module Summary

NOS/s of Qualifications

(In exceptional cases these could be described as components)

Mandatory NOS/s:

Specify the training duration and assessment criteria at NOS/ Module level. For further details refer curriculum document.

Th.-Theory Pr.-Practical OJT-On the Job Man.-Mandatory Training Rec.-Recommended Proj.-Project

S. No	NOS/Module Name	NOS/Module Code & Version (if applicable)	Core/Non-Core	NCrF/NSQF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) (if applicable)
1.	Comply with workshop health and safety guidelines		Non core	4	1	10	20			30	2	4		3	9	9
2.	Conduct Market Survey to find market needs		Core	4	1	10	20			30	2	4		3	9	9
3.	Understand process control, automation and PLC.		Core	4	1	10	20			30	2	4		3	9	9
4.	Understanding and Interfacing PLC input output devices.		Core	4	1	10	20			30	3	6		5	14	14
5.	Assist in Advanced PLC programming and communication.		Core	4	1	10	20			30	4	6		5	15	15
6.	Study and understand details of HMI and SCADA system.		Core	4	1	10	20			30	2	4		3	9	9
7.	Assignment		core	4	2	30	30			60	3	5		5	13	13
8.	Mini Project		core	4	4	...		120		120	3	6		5	14	14
9.	Employability skills		Non-core	3	1	10	20			30	2	4		2	8	8
Duration (in Hours) / Total Marks					13	100	170	120	0	390	23	43	0	34	100	100

Elective NOS/s:

S. No	NOS/Module Name	NOS/Module Code & Version (if applicable)	Core/Non-Core	NCrF/NS QF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) (if applicable)
1.																
2.																
Duration (in Hours) / Total Marks																

Optional NOS/s:

S. No	NOS/Module Name	NOS/Module Code & Version (if applicable)	Core/Non-Core	NCrF/NS QF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) (if applicable)
1.																
2.																
Duration (in Hours) / Total Marks																

Assessment - Minimum Qualifying Percentage

Please specify **any one** of the following:

Minimum Pass Percentage – Aggregate at qualification level: 70 % (Every Trainee should score specified minimum aggregate passing percentage at qualification level to successfully clear the assessment.)

Minimum Pass Percentage – NOS/Module-wise: ____ % (Every Trainee should score specified minimum passing percentage in each mandatory and selected elective NOS/Module to successfully clear the assessment.)

Section 3: Training Related

1.	Trainer's Qualification and experience in the relevant sector (in years) <i>(as per NCVET guidelines)</i>	Graduate in Engineering with 2-year experience in relevant field and domain certification.
2.	Master Trainer's Qualification and experience in the relevant sector (in years) <i>(as per NCVET guidelines)</i>	Graduate in Engineering with 4-year experience in relevant field and domain certification.
3.	Tools and Equipment Required for Training	☒ Yes ☐ No <i>(If "Yes", details to be provided in Annexure)</i>
4.	In Case of Revised Qualification, Details of Any Upskilling Required for Trainer	

Section 4: Assessment Related

1.	Assessor's Qualification and experience in relevant sector (in years) <i>(as per NCVET guidelines)</i>	Graduate in Engineering with 4-year experience in relevant field.
2.	Proctor's Qualification and experience in relevant sector (in years) <i>(as per NCVET guidelines)</i>	Graduate in Engineering with 2-year experience in relevant field.
3.	Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years) <i>(as per NCVET guidelines)</i>	Graduate in Engineering with 6-year experience in industry or training experience.
4.	Assessment Mode <i>(Specify the assessment mode)</i>	Offline
5.	Tools and Equipment Required for Assessment	☒ Same as for training ☐ Yes ☐ No <i>(details to be provided in Annexure-if it is different for Assessment)</i>

Section 5: Evidence of the need for the Qualification

Provide Annexure/Supporting documents name.

1.	Latest Skill Gap Study (not older than 2 years) (Yes/No): Yes
2.	Latest Market Research Reports or any other source (not older than 2 years) (Yes/No): Yes
3.	Government /Industry initiatives/ requirement (Yes/No): Yes
4.	Number of Industry validation provided:
5.	Estimated nos. of persons to be trained and employed:
6.	Evidence of Concurrence/Consultation with Line Ministry/State Departments: NA If "No", why:

Section 6: Annexure & Supporting Documents Check List

Specify Annexure Name / Supporting document file name

1.	Annexure: NCrf/NSQF level justification based on NCrf level/NSQF descriptors (Mandatory)	Annexure 1
2.	Annexure: List of tools and equipment relevant for qualification (Mandatory, except in case of online course)	Annexure 2
3.	Annexure: Detailed Assessment Criteria (Mandatory)	Annexure 6
4.	Annexure: Assessment Strategy (Mandatory)	Annexure 7
5.	Annexure: Blended Learning (Mandatory, in case selected Mode of delivery is "Blended Learning")	NA
6.	Annexure: Multiple Entry-Exit Details (Mandatory, in case qualification has multiple Entry-Exit)	NA
7.	Annexure: Acronym and Glossary (Optional)	Annexure 8
8.	Supporting Document: Model Curriculum (Mandatory – Public view)	Model Curriculum
9.	Supporting Document: Career Progression (Mandatory - Public view)	
10.	Supporting Document: Occupational Map (Mandatory)	
11.	Supporting Document: Assessment SOP (Mandatory)	
12.	Any other document you wish to submit:	

Annexure 1: Evidence of Level

NCrF/NSQF Level Descriptors	Key requirements of the job role/ outcome of the qualification	How the job role/ outcomes relate to the NCrF/NSQF level descriptor	NCrF/NSQF Level
Professional Theoretical Knowledge/Process	- Automation assistants are there to help you find your customers' needs and design, process, develop and maintain products. Operate the PLC system, I/O devices and perform minor repairs. - Maintain your work area, tools, and equipment, and keep the tools you need functioning properly.	Recognize the needs of the supervisor and act accordingly. Ability to perform basic and advanced operations. Understand demand and supply to carry out multiple operations and update accordingly. Machine settings according to the order. Quality needs to be properly controlled by senior management to meet engineering and design value expectations.	4
Professional and Technical Skills/ Expertise/ Professional Knowledge	- Process control assistants are expected to have a basic knowledge of process control and automation for product development, identify customer needs, and design products using computer software. - Basic knowledge of measuring devices such as ladder diagrams, input / output devices, sensors, HMIs, multi-meters, and technologies and methods to ensure product quality. - General knowledge of general engineering standards, symbols, and units for reading ladder diagrams, with basic expert considerations in mind. - Knowledge necessary for product designers and developers to support the development of new products and the updates of existing products.	Understand the basic process, selection of hardware and various I/O's, their specification, material knowledge. Learn about the development process, how to handle basic electrical components, and how to inspect those using tools. To use sensors, actuators, PLC, HMI, VFD to create programmable logic and execute accordingly.	4
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	- Working as a member of a team/ within a team. Display Personal Motivation. Positive Attitude & Passion for Work - Good skills in written and oral communication with some clarity, basic knowledge of Language to support such communication. - Intermediate literacy and Numeracy skills - Skills for workshop calculations and basic of arithmetic and algebraic principles. - Good logical and analytical reasoning skills.	With the help of the knowledge gained, the technician assists in the design and enhancement of products in response to site requirements. Automation assistants learn how to use a PLC, HMI, VFD, SCADA, sensors and actuators as per level of accuracy which is routine and repetitive in narrow range of application.	4
Broad Learning Outcomes/Core Skill	Process Control Assistant is relied upon to recognize the	The candidate will be able to complete the work with	4

	client's needs, create logic-based ladder diagrams and interface with HMI. - Planning GUI with HMI connection point to controls and activity. Guarantee the item quality with the assistance of estimating instruments like Multimeter and programming debuggers. In the event that any help is required adhere to better's directions Expected than be great in relational abilities. - Jobholder is relied upon to behave in manners, which show a fundamental comprehension of the social and expert working space at studios and on-field visits	specified precision and accuracy. The work will be within the tolerances as per the guidelines. Also possess skills to understand the customer's requirement, build product, select the material, prepare the BOM, testing connectivity and operate various electronic development tools.	
Responsibility	The jobholder is responsible to: - Assist to identify the customer needs. - Assist to conduct the market survey. - Assist to create the schematic & circuit diagram assemble the product using design software. - Assist to create and develop program, maintain the relevant documents - Assist to optimize the design for programs and hardware. - Assist to make set up and operate communication between cloud and devices. - Maintain tools and work area. - He has the limited responsibility for own work and majorly function in close supervision in his routine activity he is responsible for his own work.	- Responsibility for conducting market survey to find client's needs, create schematic and circuit diagrams, assembly of product. - The responsibility of job role further includes, optimization of product design, development of programs for PLC, SCADA, HMI, VFD and maintaining the communication between multiple devices and platforms.	4

Annexure2: Tools and Equipment (Lab Set-Up)

List of Tools and Equipment

Batch Size:

S. No.	Tool / Equipment Name	Specification	Quantity for specified Batch size
1	Industrial Workstation (Computer)	Latest version compatible for running CAD software, preloaded with latest configurations and Internet connection with standard operating system.	20
2	UPS		1 Nos
4	PLC Software		
5	AC Drives		
6	Energy Meters		
7	Sensors		
8	Electrical wiring and Accessories		
9	Mounting kit		
10	Network accessories and cables		
11	System Set up and integration with Design.		
12	SCADA Software		

Classroom Aids

The aids required to conduct sessions in the classroom are:

1. Laptop
2. Whiteboard and Markers
3. Projector
4. Screen
5. Stationary

Annexure 3: Industry Validations Summary

Provide the summary information of all the industry validations in table. This is not required for OEM qualifications.

S. No	Organization Name	Representative Name	Designation	Contact Address	Contact Phone No	E-mail ID	LinkedIn Profile (if available)

Annexure 4: Training & Employment Details

Training and Employment Projections:

Year	Total Candidates		Women		People with Disability	
	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities

Data to be provided year-wise for next 3 years

Training, Assessment, Certification, and Placement Data for previous versions of qualifications:

Qualification Version	Year	Total Candidates				Women				People with Disability			
		Trained	Assessed	Certified	Placed	Trained	Assessed	Certified	Placed	Trained	Assessed	Certified	Placed

Applicable for revised qualifications only, data to be provided year-wise for past 3 years.

List Schemes in which the previous version of Qualification was implemented:

1.
2.

Content availability for previous versions of qualifications:

☐ Participant Handbook ☐ Facilitator Guide ☐ Digital Content ☐ Qualification Handbook ☐ Any Other:

Languages in which Content is available:

Annexure 5: Blended Learning

Blended Learning Estimated Ratio & Recommended Tools:

Refer NCVET “Guidelines for Blended Learning for Vocational Education, Training & Skilling” available on:

<https://ncvet.gov.in/sites/default/files/Guidelines%20for%20Blended%20Learning%20for%20Vocational%20Education,%20Training%20&%20Skilling.pdf>

S. No.	Select the Components of the Qualification	List Recommended Tools – for all Selected Components	Offline : Online Ratio
1	☐ Theory/ Lectures - Imparting theoretical and conceptual knowledge		
2	☐ Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners		
3	☐ Showing Practical Demonstrations to the learners		
4	☐ Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training		
5	☐ Tutorials/ Assignments/ Drill/ Practice		
6	☐ Proctored Monitoring/ Assessment/ Evaluation/ Examinations		
7	☐ On the Job Training (OJT)/ Project Work Internship/ Apprenticeship Training		

Annexure 6: Detailed Assessment Criteria

Detailed assessment criteria for each NOS/Module are as follows:

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Comply with workshop health and safety guidelines	PC1. Follow safety, health, and environmental guidelines in the workshop.				
	PC2. Identify hazards and use PPE correctly.				
	PC3. Maintain a clean and organized workspace.				
	PC4. Respond to emergencies and report incidents.				
	Total Marks	2	4		3
Conduct Market Survey to find market needs	PC1. Design and conduct a market survey using questionnaires or interviews.				
	PC1. Collect and analyze data to identify industry trends and customer needs.				
	PC2. Prepare and present a report on market findings.				
	PC3. suggest improvements or innovations based on survey results.				
	Total Marks	2	4		3
Understand process control, automation and PLC.	PC1. Understand the fundamentals of automation and control systems.				
	PC2. Identify PLC components and their functions.				
	PC3. Explain the role of PLCs in industrial automation.				
	PC4. Demonstrate basic PLC programming using ladder logic.				
	Total Marks	2	4		3
Understanding and Interfacing PLC input output devices.	PC1. Connect and configure input devices (sensors, switches) and output devices (relays, actuators).				
	PC2. Simulate I/O operations using PLC software.				
	PC3. Interpret wiring diagrams and signal flow.				
	PC4. Test and troubleshoot I/O connections.				
	PC5. Simulate I/O operations using PLC software.				
	Total Marks	3	6		5
Assist in Advanced PLC programming and communication.	PC1. Develop advanced PLC programs using structured logic.				
	PC2. Implement timers, counters, and analog signal processing.				
	PC3. Configure PLC communication protocols (e.g., Modbus, Profibus).				
	PC4. Integrate multiple PLCs or devices in a networked environment.				
	Total Marks	4	6		5
Study and understand details of HMI and SCADA system.	PC1. Understand the architecture and components of HMI and SCADA systems.				
	PC2. Design HMI screens for real-time monitoring and control.				
	PC3. Configure alarms, trends, and data logging in SCADA.				

	PC4. Simulate and test HMI/SCADA interfaces with PLCs.				
	Total Marks	3	5		5
Assignments	PC1 Based on case studies and Industrial application				
	Total Marks	3	6		5
Mini Projects (Based on case studies and Industrial application)	- PC1 Conducting Market survey / Market Research - PC2 Addressing basic problems in society / industry by using empathize tool. - PC3 Concept Design a specific product in line with current customer needs - PC4 Brainstorming sessions with industry experts to design specific product - PC5 3D Printing for Prototyping of Mechanical Component - PC6 Exposure to Product Innovation				
	Total Marks	3	6		5
Employability Skills	- PC1 Understanding the Significance of Employability skills - PC2 Identification the Constitutional values - PC3 Explaining Becoming a professional in the 21st century - PC4 Speak with Others in Basic English skills - PC5 Significance of Career development and goal setting - PC6 Etiquette of Communication skills - PC7 Use Various Financial and legal literacy - PC8 Awareness to Essential Digital Skills				
	Total Marks	2	2		4
Grand Total		23	43		34

Annexure 7: Assessment Strategy

This section includes the processes involved in identifying, gathering, and interpreting information to evaluate the Candidate on the required competencies of the program.

Mention the detailed assessment strategy in the provided template.

<1. Assessment System Overview:

- Batches assigned to the assessment agencies for conducting the assessment on SIP or email
- Assessment agencies send the assessment confirmation to VTP/TC looping SSC
- Assessment agency deploys the ToA certified Assessor for executing the assessment
- SSC monitors the assessment process & records

2. Testing Environment:

- Check the Assessment location, date and time
- If the batch size is more than 30, then there should be 2 Assessors.
- Check that the allotted time to the candidates to complete Theory & Practical Assessment is correct.

3. Assessment Quality Assurance levels/Framework:

- Question bank is created by the Subject Matter Experts (SME) are verified by the other SME
- Questions are mapped to the specified assessment criteria
- Assessor must be ToA certified & trainer must be ToT Certified

4. Types of evidence or evidence-gathering protocol:

- Time-stamped & geotagged reporting of the assessor from assessment location
- Centre photographs with signboards and scheme specific branding

5. Method of verification or validation:

- Surprise visit to the assessment location

6. Method for assessment documentation, archiving, and access

- Hard copies of the documents are stored

On the Job:

1. Each module will be assessed separately.
2. The candidate must score 60% in each module to successfully complete the OJT.
3. Tools of Assessment that will be used for assessing whether the candidate is having desired skills and etiquette of dealing with customers, understanding needs & requirements, assessing the customer and perform Soft Skills effectively:
 - Videos of Trainees during OJT
 -
4. Assessment of each Module will ensure that the candidate is able to:
 - Effective engagement with the customers
 - Understand the working of various tools and equipment
 ->

Annexure 8: Acronym and Glossary

Acronym

Acronym	Description
AA	Assessment Agency
AB	Awarding Body
ISCO	International Standard Classification of Occupations
NCO	National Classification of Occupations
NCrF	National Credit Framework
NOS	National Occupational Standard(s)
NQR	National Qualification Register
NSQF	National Skills Qualifications Framework
OJT	On the Job Training

Glossary

Term	Description
National Occupational Standards (NOS)	NOS define the measurable performance outcomes required from an individual engaged in a particular task. They list down what an individual performing that task should know and also do.
Qualification	A formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards
Qualification File	A Qualification File is a template designed to capture necessary information of a Qualification from the perspective of NSQF compliance. The Qualification File will be normally submitted by the awarding body for the qualification.
Sector	A grouping of professional activities on the basis of their main economic function, product, service or technology.
Long Term Training	Long-term skilling means any vocational training program undertaken for a year and above. https://ncvet.gov.in/sites/default/files/NCVET.pdf