QUALIFICATION FILE

Industrial Control

☒ 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: 4.5

Submitted By:

Automotive Skills Development Council

E-113, Okhla Industrial Estate

Phase- III,

New Delhi-110020

Table of Contents

Section 1: Basic Details

1.	**Qualification Name**	**Industrial Control**	
2.	**Sector/s**	**Automotive**	
3.	**Type of Qualification: ☒ New ☐ Revised ☐ Has Electives/Options ☐OEM**	**NQR Code & version of existing/previous qualification:** *(change to previous, once approved)*	**Qualification Name of existing/previous version:**
4.	**a. OEM Name** **b. Qualification Name** (*Wherever applicable)*	**b. Industrial Control**	
5.	**National Qualification Register (NQR) Code & Version** (*Will be issued after NSQC approval)*	QG-4.5-AU-01813-2024-V1-ASDC	**6. NCrF/NSQF Level: 4.5**
7.	**Award (Certificate/Diploma/Advance Diploma/ Any Other** *(Wherever applicable specify multiple entry/exits also & provide details in annexure)*	Certificate	
8.	**Brief Description of the Qualification**	Industrial Control contains elements of both electrical installations and automation installations, with greater emphasis on automation installation. The industrial control practitioner requires a wide range of technical skills, such as installing conduits, cables, instruments, I/O devices and Programmable Logic Controllers. The industrial control practitioner also designs electrical circuits, programs Programmable Logic Controllers, parametrizes bus systems and configures Human Machine Interfaces.	
9.	**Eligibility Criteria for Entry for Student/Trainee/Learner/Employee**	**a. Entry Qualification & Relevant Experience: No formal education required.** **b. Age: Below 22 Years of age.**	
10.	**Credits Assigned to this Qualification, Subject to Assessment** *(as per National Credit Framework (NCrF))*	14	**11. Common Cost Norm Category (I/II/III)** *(wherever applicable)***: I**
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**	

Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)
Classroom (offline)	84:00	84:00	342:00		510:00
Online					

		(Refer Blended Learning Annexure for details)	
14.	**Aligned to NCO/ISCO Code/s** *(if no code is available mention the same)*	NCO-2015/2144.0801	
15.	**Progression path after attaining the qualification** *(Please show Professional and Academic progression)*	Engineer Supervisor	
16.	**Other Indian languages in which the Qualification & Model Curriculum are being submitted**	NA	
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**	No gender sensitization	
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** *(In case of CS or MS, provide details of both Lead AB & Supporting ABs)*	**Name:** Mr. Arindam Lahiri **Email:** ceo@asdc.org.in **Contact No.:** 011-42599800 **Website:** https://www.asdc.org.in/	
23.	**Final Approval Date by NSQC: 06-02-2024**	**24. Validity Duration: 2** Years	**25. Next Review Date: 06-02-2026**

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.	Work organization and management	ASC/N9830	Non-Core	4.5	1	6	6	18		30	15	25		10	50	10
2.	Circuit design and modification	ASC/N8368	Core	4.5	1	6	6	18		30	15	25		10	50	8
3.	Making of automation control panels/centres	ASC/N8369	Core	4.5	3	12	12	66		90	15	25		10	50	15
4.	Field Installation (electrical and automation)	ASC/N8370	Core	4.5	4	18	18	84		120	15	25		10	50	25
5.	Programming	ASC/N8371	Core	4.5	6	30	30	120		180	15	25		10	50	34
6.	Fault-finding	ASC/N8372	Core	4.5	2	12	12	36		60	15	25		10	50	8
Duration (in Hours) / Total Marks					**17**	**84**	**84**	**342**	**0**	**510**	**90**	**150**	**0**	**60**	**300**	**100**

Elective NOS/s:

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.																

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					Weightage (%) *(if applicable)*
						Th.	Pr.	OJT - Man.	OJT - Rec.	Total	Th.	Pr.	Proj.	Viva	Total	
2.																
Duration (in Hours) / Total Marks																

Optional NOS/s:

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					Weightage (%) *(if applicable)*
						Th.	Pr.	OJT - Man.	OJT - Rec.	Total	Th.	Pr.	Proj.	Viva	Total	
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)** *(as per NCVET guidelines)*	B.E/B.Tech (Mechanical/Automobile/ Electrical/ Electronics) with 4 years of industry and 1 year of training experience in Mechanical/ Automobile/ Electronics/ Instrumentation Or B.E/B.Tech (Mechanical/Automobile/ Electrical/ Electronics) with 5 years of industry experience in Mechanical/ Automobile/ Electronics/ Instrumentation Or Diploma (Mechanical/Automobile/ Electrical/ Electronics) with 3 years of industry and 1 year of training experience in Mechanical/ Automobile/ Electronics/ Instrumentation Or

		Diploma (Mechanical/Automobile/ Electrical/ Electronics) with 4 years of industry experience in Mechanical/ Automobile/ Electronics/ Instrumentation Or M.E/M.Tech (Mechanical/Automobile/ Electrical/ Electronics) with 2 years of industry and 1 year of training experience in Mechanical/ Automobile/ Electronics/ Instrumentation Or M.E/M.Tech (Mechanical/Automobile/ Electrical/ Electronics) with 3 years of industry experience in Mechanical/ Automobile/ Electronics/ Instrumentation
2.	**Master Trainer's Qualification and experience in the relevant sector (in years)** *(as per NCVET guidelines)*	M.E/M.Tech (Mechanical/Automobile/ Electrical/ Electronics) with 4 years of industry and 1 year of training experience in Mechanical/ Automobile/ Electronics/ Instrumentation
3.	**Tools and Equipment Required for Training**	☒Yes ☐No (*If "Yes", details to be provided in Annexure)*
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)** *(as per NCVET guidelines)*	Any Recognized certification with proven industrial and/or practical experience in the relevant skill (minimum 10 years). OR Have worked as a Jury member/expert in skill competitions and other competitions of similar nature at regional/national levels OR Trained/mentored competitors for IndiaSkills/ WorldSkills competitions (national/ international). **OR** As any change per NCVET guidelines.
2.	**Proctor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines)*	As per IndiaSkills/ WorldSkills guidelines
3.	**Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines)*	As per IndiaSkills/ WorldSkills guidelines
4.	**Assessment Mode** *(Specify the assessment mode)*	Blended

5.	**Tools and Equipment Required for Assessment**	☒ Same as for training ☐ Yes ☐ No *(details to be provided in Annexure-if it is different for Assessment)*

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:** 500
6.	**Evidence of Concurrence/Consultation with Line Ministry/State Departments:** In progress 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)*	*Attached*
2.	**Annexure:** List of tools and equipment relevant for qualification *(Mandatory, except in case of online course)*	*Attached*
3.	**Annexure:** Detailed Assessment Criteria *(Mandatory)*	*Attached*
4.	**Annexure:** Assessment Strategy *(Mandatory)*	*Attached*
5.	**Annexure:** Blended Learning *(Mandatory, in case selected Mode of delivery is "Blended Learning")*	*Filled*
6.	**Annexure:** Multiple Entry-Exit Details *(Mandatory, in case qualification has multiple Entry-Exit)*	*Filled*
7.	**Annexure:** Acronym and Glossary *(Optional)*	

8.	**Supporting Document:** Model Curriculum *(Mandatory – Public view)*	Attached
9.	**Supporting Document:** Career Progression *(Mandatory - Public view)*	Attached
10.	**Supporting Document:** Occupational Map *(Mandatory)*	Attached
11.	**Supporting Document:** Assessment SOP *(Mandatory)*	Attached
12.	**Any other document you wish to submit:**	

Annexure: 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	The individual on the job needs to integrate machines, robots and Automation Systems, establish healthy communication using Network Protocols, Remote Monitoring and fetch vital machine data using IIOT Edge Devices within an organization for all its processes	The individual on the job is responsible for own work and learning and in automation environment.	4.5
Professional and Technical Skills/ Expertise/ Professional Knowledge	The individual on the job needs to have factual knowledge of: ● Different types of IIOT protocols. ● Different types of tools used in the automation and robotic process and their identification. ● Basic fundamentals of IIOT networking. ● Prepare and design project plan sand design ● Implement strategies for integration and installation of IIOT network in the system.	Factual knowledge of IIOT networking and use of different tools and equipment.	4.5
Employment Readiness & Entrepreneurship **Skills & Mind-set/Professional Skill**	Recall and demonstrate practical skill to routine and repetitive applications: ● Implementation of IIOT networking system. ● Inspection of IIOT system operation. ● Recognise a workplace problem or a potential problem and take action.	Recall and demonstrate practical skill, routine and repetitive in wide range of application, using appropriate rule and tool, using quality concepts.	4.5
Broad Learning Outcomes/Core Skill	The user individual on the job needs to have written and oral communication skills like: ● To prepare plans and designs.	Language to communicate written or oral, with required clarity, skill to basic arithmetic and algebraic principles, basic	4.5

	• Read and interpret designs and schedules. • Read machine drawings/ engineering drawings, sketches.	understanding of social political and natural environment.	
Responsibility	The individual on the job needs to know their own responsibility of strategize and integrate the IIOT system within an organization.	The individual on the job is responsible for own work and fully responsible for other's work and learning.	4.5

Annexure: Tools and Equipment (Lab Set-Up)

List of Tools and Equipment

Batch Size: 30

S. No.	Tool / Equipment Name	Specification	Quantity for specified Batch size
1	Connecting screwdriver	10 X 100 mm	10
2	Neon tester 500 V.	500 V	6
3	Screw driver set	Set of 7	10
4	Insulated combination pliers	150 mm	6
5	Insulated side cutting pliers	150mm	8
6	Long nose pliers	150mm	6
7	Soldering iron	25 Watt, 240 Volt	10
8	Electrician knife	100 mm	6
9	Tweezers	150 mm	10
10	Digital Multimeter	(3 3/4 digit) ,4000 Counts	10
11	Soldering Iron Changeable bits	15 Watt, 240 Volt	6
12	De- soldering pump electrical	230 V, 40 W	10
13	Steel rule graduated both in Metric and English Unit	300 mm,	4
14	Precision set of screw drivers	T5, T6, T7	2
15	Tweezers – Bend tip		2
16	Steel measuring tape	3 meter	4
17	Tools makers vice	100 mm (clamp)	1
18	Crimping tool (pliers)		4
19	File set		4
20	Allen key set (Hexagonal -set of 9)	1 - 12 mm, set of 24 Keys	1
21	Multiple Output DC regulated power supply	0-30V, 2 Amps, ± 15V Dual Tracking ,5V/5A, Display digital, Load & Line Regulation:	4

22	DC Regulated Variable Programmable DC Power Supply	± (0.05 %+100 mV), Ripple & Noise: 1 mVrms. Constant	2
23	LCR meter (Digital) Handheld	Voltage & Current operation	1
24	Analyzer	3GHz	1
25	Digital IC Trainer	Breadboard: Regular DC Supply: +5 V/1 A +12V/1A Clock Frequency 4 different steps from 1Hz – 100KHz Amplitude: (TTL), 128x64 Graphical LCD, Pulser Switches, Data Switches: 8 Nos, LED: 8 Nos. (TTL),Seven Segment Display, Teaching & Learning Simulation Software\	1
26	IT Workbench for computer hardware and networking		1
27	Electronic circuit simulation software	Circuit Design and Simulation Software with PCB Design with Gerber and G Code Generation, 3D View of PCB, Breadboard View, Fault Creation and Simulation.	5 License
28	Different types of electronic and electrical cables, connectors, sockets, terminations	Standard	As required
29	Different types of Analog electronic components, digital ICs, power electronic components, general purpose PCBs	Standard	As required
30	SMD Soldering & De soldering Station with necessary accessories	SMD Soldering &Desoldering Station Digitally Calibrated Temperature Control SMD Soldering &Desoldering Power Consumption : 60 Watts I/P Voltage : 170 to 270 V De-soldering : 70 Watt Temperature Range : 180 to 480º Centigrade Power Consumption : 270 Watts Hot Air Temperature : 200 to 550º Centigrade	1
31	SMD Technology Kit	SMD component identification board with SMD components Resistors, Capacitors, Inductors, Diodes, Transistors & IC's packages. Proto boards with readymade solder pads for various SMD components	1
32	Microcontroller kits (8051) along with programming software	Core 8051 MCU clocked at 11.0592 MHz., supporting both programming modes Keypad and computer ,LCD for both programming and run mode, ready to run programmer to support family of controllers AT89C52 ,DC Power Supplies +12V, -12V, +5V & -5V, Breadboard to make circuits, Learning content through simulation Software and following application modules	1
33	Sensor Trainer Kit Containing required Sensors	IoT enabled Android based 7" Graphical touch LCD with inbuilt cortex processor & DAQ for acquiring analog data and software	2

		for viewing the output waveforms with USB storage and HDMI output. Ethernet port to connect real world. Inverting, Non – Inverting, Power, Current, Instrumentation and Differential Amplifier, F to V, V to F, I to V, V to I Converter, High Pass and Low Pass Filter, Buffer, LED, Buzzer, LED Bar Graph, Touch Switch	
34	Internet of Things Explorer	Processor : 64bit ARMv7 with 1GB RAM , Memory 32GB ,OS: Open source Linux, Connectivity: Wireless LAN, Bluetooth, Zigbee, USB & Ethernet, HDMI interface, 1.77" Color TFT LCD	1
35	Wireless Communication modules for interfacing with microcontrollers	Standard	1
36	Any other as per requirement of world skills occupation standard	Standard	Standard

Classroom Aids

The aids required to conduct sessions in the classroom are:

1. Whiteboard
2. Projector
3. Computer/Laptop
4. Chairs
5. Tables
6. Whiteboard marker

Annexure: 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)*
1							
2							
3							
4							
5							
6							
7							
8							
9							

Annexure: 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
2023-24	500	350	200	140	50	35
2024-25	1000	700	400	280	100	70
2025-26	1500	1050	600	420	150	105

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: 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	• Books/ e-books • Presentations • Reference Material • Audio / Video Modules	100:0
2	☒Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners	• Self-Learning Videos • Broadcasts • Mobile Learning • Curated Digital content	100:0
3	☒Showing Practical Demonstrations to the learners	• Video Content • E-Resource library • AR/ VR/ XR	100:0
4	☒Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training	• Training tools (tools list attached) • Video Play • Presentations	100:0
5	☒Tutorials/ Assignments/ Drill/ Practice	• Online Question Bank • Mobile Quick test app • MCQ based tests	100:0
6	☒Proctored Monitoring/ Assessment/ Evaluation/ Examinations	• Assessment engine for Essays • Up-loadable file examinations • Mock test sessions	100:0
7	☒On the Job Training (OJT)/ Project Work Internship/ Apprenticeship Training	• Online tests • Offline assessments	100:0

Annexure: 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
Work organization and management	PC1. Consistently promote and comply with health and safety regulations and industry best practices in all working environments	2	3	-	1
	PC2. Correctly use all safety equipment and personal protection equipment (PPE), lock off systems, and warning indicators	2	3	-	2
	PC3. Recognize hazards and potentially hazardous situations and take appropriate actions to minimize risk to self and others	2	3	-	1
	PC4. Work effectively as part of a team	2	3	-	1
	PC5. Communicate effectively with other professionals including work-shop supervisors and other staff where installations are being carried out	2	4	-	1
	PC6. Explain complex mechanical and engineering projects to colleagues who may not have specialist knowledge	1	2	-	1
	PC7. Provide expert advice and guidance regarding on-going use, care, and maintenance of equipment	2	3	-	1
	PC8. Think logically and work systematically	1	2	-	1
	PC9. Reduce waste as much as possible and apply sorting	1	2	-	1
	Total Marks	**15**	**25**	**-**	**10**
Circuit design and modification	PC1. Read and interpret and make additions to technical diagrams in a simulation software according to a function description	3	5	-	3
	PC2. Advise on modifications to circuit design	4	6	-	2
	PC3. Interpret drawing standard sections (DIN ISO 1219) that are to be used	4	7	-	2
	PC4. Design electrical circuits	4	7	-	3

	Total Marks	**15**	**25**	**-**	**10**
Making of the automation control panel/centre	PC1. Read, understand, and interpret complex technical drawing, circuit diagrams, layouts, function descriptions, and terminal drawings	3	5	-	2
	PC2. Apply information from technical specifications to effective work planning and solutions to engineering and operational problems	3	5	-	2
	PC3. Install ducts, terminals, components, and wiring of the control panel according to the drawings and given tolerances	3	5	-	2
	PC4. Complete appropriate panel building operations according to specifications	3	5	-	2
	PC5. Interpret operations manuals and follow guidelines and instructions	3	5	-	2
	Total Marks	**15**	**25**	**-**	**10**
Field Installation (electrical and automation)	PC1. Measure and calculate the correct positions for the components to be installed	2	3	-	1
	PC2. Prepare and install wire trays within given tolerances	2	3	-	2
	PC3. Install conduits, cables, devices, instruments, and control centre fittings	2	3	-	1
	PC4. Install complex cabling systems that combine power and communications	2	4	-	2
	PC5. Plan work effectively to meet time schedule requirements	2	3	-	1
	PC6. Use all tools effectively and safely without risk to self or others in the workplace	2	3	-	1
	PC7. Test and commission installed equipment	2	3	-	1
	PC8. Complete all necessary documentation following installation	1	3	-	1
	Total Marks	**15**	**25**	**-**	**10**
Programming	PC1. Create programmes according to written specifications and diagrams	2	3	-	1
	PC2. Configure the HMI-screens according to written specifications and diagrams	2	3	-	2
	PC3. Configure HMI-screens to switch automatically to customised start screens	2	3	-	1

	PC4. Configure the VSD or Servodrive as required in the function descriptions	2	4	-	2
	PC5. Configure VSDs or Servodrives to startup without error messages	2	3	-	1
	PC6. Test functions thoroughly and safely	2	3	-	1
	PC7. Demonstrate functions to users and provide expert advice and guidance	2	3	-	1
	PC8. Conform to IEC sequence programming specifications	1	3	-	1
	Total Marks	**15**	**25**	**-**	**10**
Fault-finding	PC1. Apply all safety precautions	3	5	-	2
	PC2. Read, understand, and interpret complex written specifications and diagrams, understanding all technical symbols	3	5	-	2
	PC3. Analyse the correct principles of fault finding	3	5	-	2
	PC4. Recognize incorrect principles of fault finding	2	4	-	2
	PC5. Utilize the correct fault-finding principles	2	3	-	1
	PC6. Utilize a range of tools and software to isolate faults	2	3	-	1
	Total Marks	**15**	**25**	**-**	**10**
Grand Total		**90**	**150**		**60**

Annexure: 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 SDMS/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:
   - Confirm that the centre is available at the same address as mentioned on SDMS or SIP
   - Check the duration of the training.
   - Check the Assessment Start and End time to be as 10 a.m. and 5 p.m.
   - 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.
   - Check the mode of assessment—Online (TAB/Computer) or Offline (OMR/PP).
   - Confirm the number of TABs on the ground are correct to execute the Assessment smoothly.
   - Check the availability of the Lab Equipment for the particular Job Role.

3. Assessment Quality Assurance levels / Framework:
   - Question papers created by the Subject Matter Experts (SME)
   - Question papers created by the SME verified by the other subject Matter Experts
   - Questions are mapped with NOS and PC
   - Question papers are prepared considering that level 1 to 3 are for the unskilled & semi-skilled individuals, and level 4 and above are for the skilled, supervisor & higher management
   - Assessor must be ToA certified & trainer must be ToT Certified
   - Assessment agency must follow the assessment guidelines to conduct the assessment

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
   - Biometric or manual attendance sheet (stamped by TP) of the trainees during the training period
   - Time-stamped & geotagged assessment (Theory + Viva + Practical) photographs & videos

5. Method of verification or validation:

- Surprise visit to the assessment location
- Random audit of the batch
- Random audit of any candidate

6. Method for assessment documentation, archiving, and access
   - Hard copies of the documents are stored
   - Soft copies of the documents & photographs of the assessment are uploaded / accessed from Cloud Storage
   - Soft copies of the documents & photographs of the assessment are stored in the Hard Drives

Annexure: 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