



QUALIFICATION FILE

Automotive Welding Simulation Trainee (using AR)

☒ 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:

Automotive Skills Development Council

E-113, Okhla Industrial Estate

Phase- III,

New Delhi-110020

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Section 1: Basic Details

1.	Qualification Name	Automotive Welding Simulation Trainee (using AR)													
2.	Sector/s	Automotive													
3.	Type of Qualification: ☒ New ☐ Revised ☐ Has Electives/Options ☒ OEM	NQR Code & version of existing/previous qualification:	Qualification Name of existing/previous version:												
4.	a. OEM Name b. Qualification Name (Wherever applicable)	a. Seabery Soluciones S.L. b. Automotive Welding Simulation Trainee (using AR)													
5.	National Qualification Register (NQR) Code & Version (Will be issued after NSQC approval)	QG-04-AU-04195-2025-V1-ASDC	6. NCrF/NSQF Level: 4												
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	An augmented reality (AR) welding technician uses AR technology to learn, practice, and refine welding skills. An AR welding technician primarily uses augmented reality technology to perform welding process by visualizing weld paths, inspecting welds in real-time, and ensuring accuracy by overlaying digital information onto the physical work area, while still performing the core responsibilities of a traditional welder, such as preparing materials, setting up welding equipment, and executing various welding techniques.													
9.	Eligibility Criteria for Entry for Student/Trainee/Learner/Employee	a. Entry Qualification & Relevant Experience: <table border="1"> <thead> <tr> <th>S. No.</th> <th>Academic/Skill Qualification (with Specialization - if applicable)</th> <th>Required Experience (with Specialization - if applicable)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>12th Pass or Equivalent</td> <td></td> </tr> <tr> <td>2</td> <td>10th Pass or Equivalent</td> <td>3 years of Experience in Welding/ AR/VR Simulation</td> </tr> <tr> <td>3</td> <td>Completed NSQF Level 3.0</td> <td>3 years of relevant experience</td> </tr> </tbody> </table> b. Age: 18 years		S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)	1	12th Pass or Equivalent		2	10th Pass or Equivalent	3 years of Experience in Welding/ AR/VR Simulation	3	Completed NSQF Level 3.0	3 years of relevant experience
S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)													
1	12th Pass or Equivalent														
2	10th Pass or Equivalent	3 years of Experience in Welding/ AR/VR Simulation													
3	Completed NSQF Level 3.0	3 years of relevant experience													
10.	Credits Assigned to this Qualification, Subject to Assessment (as per National Credit Framework (NCrF))	16	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 (<i>Specify Total Duration as per selected training delivery modes and as per requirement of the qualification</i>)	☐ Offline ☒ Online ☐ Blended					
		Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)
		Classroom (offline)					
		Online	132:00	228:00	120:00		480
		(Refer Blended Learning Annexure for details)					
14.	Aligned to NCO/ISCO Code/s (<i>if no code is available mention the same</i>)	NCO-2015/7212.0303					
15.	Progression path after attaining the qualification (<i>Please show Professional and Academic progression</i>)	Automotive AR Welding Simulation Trainer (NSQF Level-4.5)					
16.	Other Indian languages in which the Qualification & Model Curriculum are being submitted	Hindi					
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, by creating awareness in women and training them					
20.	Are Greening/ Environment Sustainability Aspects Covered (<i>Specify the NOS/Module which covers it</i>)	☐ 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: Mr. Arindam Lahiri Email: ceo@asdc.org.in Contact No.: 011-42599800 Website: https://www.asdc.org.in/					
23.	Final Approval Date by NSQC: 08 May 2025	24. Validity Duration: 3 Years				25. Next Review Date: 08 May 2028	

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.	Organize work and resources (Manufacturing)	ASC/N9803, v3.0	Non-Core	4	2	25	35			60	50	30		20	100	15
2.	Employability Skills (30 hours)	DGT/VSQ/N0101, v1.0	Non-Core	4	1	12	18			30	20	30			50	10
3.	Perform SMAW welding using AR technology	ASC/N3129, v1.0	Core	4	3	35	55			90	30	50		20	100	25
4.	Perform GMAW welding using AR technology	ASC/N3130, v1.0	Core	4	3	30	60			90	30	50		20	100	25
5.	Perform GTAW welding using AR technology	ASC/N3131, v1.0	Core	4	3	30	60			90	30	50		20	100	25
6.	OJT	N/A			4			120		120						
Duration (in Hours) / Total Marks					16	132	228	120		480	160	210		80	450	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.																
2.																
Duration (in Hours) / Total Marks																

Optional NOS/s:

Option 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					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) (if applicable)
1.	Perform robotic welding using AR technology	ASC/N3132, v1.0	Core	4	4	40	80			120	30	50		20	100	25
Duration (in Hours) / Total Marks					4	40	80			120	30	50		20	100	25

Option 2

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.	Advanced Automotive Welding Mastery	ASC/N3133, v1.0	Core	4	4	40	80			120	30	50		20	100	25
Duration (in Hours) / Total Marks					4	40	80			120	30	50		20	100	25

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)	Diploma (Mechanical) with 5 year of industry and 1 year of training experience in Welding (preferably CTI/ATI cleared) Or B.Tech (Mechanical) with 3 years of industry and 1 year of training experience in Welding
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2.	Master Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)	M.Tech (Mechanical/Electrical/Electronics/Automobile/Instrumentation) with 5 years of industry and 2 years 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)	Diploma (Mechanical) with 5 year of industry and 1 year of training experience in Welding (preferably CTI/ATI cleared) Or B.Tech (Mechanical) with 3 years of industry and 1 year of training experience in Welding
2.	Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)	NA
3.	Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)	Diploma (Mechanical) with 6 year of industry and 1 year of training experience in Welding (preferably CTI/ATI cleared) Or B.Tech (Mechanical) with 4 years of industry and 1 year of training experience in Welding
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: 1 (OEM Qualification)
5.	Estimated nos. of persons to be trained and employed: 5000
6.	Evidence of Concurrence/Consultation with Line Ministry/State Departments: In progress

	If “No”, why:
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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	Conduct SMAW, GMAW and GTAW welding by utilizing AR technology by following Standard Operating Principles.	Install the welding work pieces on the apparatus. Check the operations of the machine and conduct the actual welding process with the support of AR technology.	4
Professional and Technical Skills/ Expertise/ Professional Knowledge	Should have factual knowledge of: - SMAW, GMAW and GTAW welding processes. - Use of AR technology during welding processes - Different types of tools, machines and equipment used during SMAW, GMAW and GTAW welding process. - Measuring instruments like Vernier calipers, micrometer. - Different types of joints used in welding. - How to read and interpret sketches and engineering drawings. - Post-welding activities - Testing and inspection of weld quality and defects	Factual knowledge of robotic SMAW, GMAW and GTAW operations and operations of different welding tools.	4
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	- Recall and demonstrate skill in routine and repetitive applications including: - Plan and organize the activities/ work allocated by supervisor and operator. - Organize all equipment and kits so that sorting is easy on a day to day basis. - Complete the job defined by the supervisor within the timelines and quality norms	Recall and demonstrate practical skill, routine and repetitive in wide range of application, using appropriate rule and tool, using quality concepts.	4
Broad Learning Outcomes/Core Skill	- Write basic level notes and observations with minimum required clarity. - Read documents and notes. - Question operator/ supervisor in order to understand the nature of the problem. - With required clarity, note measurements, equipment panel readings for various process parameters	Language to communicate written or oral, with required clarity, skill to basic arithmetic and algebraic principles, basic understanding of social political and natural environment.	4
Responsibility	- Install the welding work pieces on the apparatus. - Check the operations of the machine and conduct the actual welding process	The individual on the job is responsible for only own work	4

	Check the measurement instruments for monitoring the welding process.		
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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	AR welding simulator Machine	As per requirement	1
2	Ear Plugs	As per requirement	30
3	Safety Shoes	As per requirement	30
4	First Aid Kit	As per requirement	1
5	Robotic arm (Optional)	As per requirement	1
6	Chair	As per requirement	30
7	Table	As per requirement	1
8	Projector	As per requirement	1

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	Seabery Soluciones S.L.	Ashwani Jhunjhunwala	South Asia Head				

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
2025-26	5000	3500	2000	1400	500	350
2026-27	10000	7000	4000	2800	1000	700
2027-28	15000	10500	6000	4200	1500	1050

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: **Welding Simulator, Simulation Software**

Languages in which Content is available: English

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

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
ASC/N9803 – Organize work and resources (Manufacturing)	<i>Maintain safe and secure working environment</i>	11	5	-	7
	PC1. identify hazardous activities and the possible causes of risks or accidents in the workplace	2	1	-	2
	PC2. safe working practices while dealing with hazards to ensure safety of self and others	2	-	-	1
	PC3. carry out routine check of the machine for identifying potential hazards	2	1	-	1
	PC4. use appropriate protective clothing/equipment for specific tasks and work	2	1	-	1
	PC5. follow safety hazards and preventive techniques during fire drill	2	1	-	1
	PC6. report any identified breaches in health, safety and security policies and procedures to the designated person	1	1	-	1
	<i>Health and hygiene</i>	7	5	-	2
	PC7. ensure workstation and equipment are regularly clean and sanitized	2	2	-	1
	PC8. clean hands with soap, alcohol-based sanitizer regularly	1	1	-	1
	PC9. avoid contact with ill people and self-isolate in a similar situation	1	-	-	-
	PC10. wear and dispose PPEs regularly and appropriately	1	-	-	-
	PC11. report advanced hygiene and sanitation issues to appropriate authority	1	1	-	-
	PC12. follow stress and anxiety management techniques	1	1	-	-
	<i>Perform work as per quality standards</i>	5	3	-	2
	PC13. ensure that work is accomplished as per the requirements within the specified timeline	2	2	-	1
	PC14. ensure team goals are given preference over individual goals	3	1	-	1
	<i>Effective waste management practices</i>	15	10	-	4
	PC15. follow the fundamentals of 5S for waste management	3	2	-	1
	PC16. segregate waste into different categories	2	1	-	-
	PC17. follow processes specified for disposal of hazardous waste	2	2	-	1
	PC18. identify recyclable, non-recyclable and hazardous waste	4	2	-	1
	PC19. dispose non-recyclable, recyclable and reusable waste appropriately at identified location	4	3	-	1
	<i>Material/energy conservation practices</i>	12	7	-	5
	PC20. identify ways to optimize usage of material in various tasks/activities/processes	2	1	-	1
	PC21. check for spills/leakages in various tasks/ activities/ processes	2	1	-	1
	PC22. plug spills/leakages and escalate to appropriate authority if unable to rectify	2	1	-	-
	PC23. check if the equipment/machine is functioning normally before commencing work and rectify wherever required	2	2	-	1

	PC24. report malfunctioning (fumes/ sparks/ emission/ vibration/noise) and lapse in maintenance of equipment	2	1	-	1
	PC25. ensure electrical equipment and appliances are properly connected and turned off when not in use	2	1	-	1
	Total Marks	50	30	-	20
ASC/N3129: Perform SMAW welding using AR technology	<i>Prepare for SMAW operations</i>	10	16		6
	PC1. identify the work to be done and product specifications by interpreting the engineering drawing, Welding Procedure Specification (WPS) and job orders	1	1	-	-
	PC2. identify welding requirements including relevant standards and codes from drawings, specifications and other customer and enterprise documentation	1	1	-	-
	PC3. identify and arrange the AR system and simulator, tools, welding machines, measuring instruments, accessories, consumables and input materials (MS and SS plates) as per the requirements mentioned in WPS or drawing	1	1	-	1
	PC4. check that material to be welded is as per the required specifications, quality and job requirement	1	2	-	-
	PC5. diagnose and resolve any technical issues related to AR tools and systems, including software, hardware, and connectivity issues	1	1	-	1
	PC6. ensure that the AR software and applications used for welding are up-to-date, including any necessary calibration or firmware updates	-	2	-	1
	PC7. calibrate AR devices to maintain accuracy in the overlayed instructions and welding parameters	1	1	-	1
	PC8. plan the welding activities before starting the actual process as per WPS	1	2	-	-
	PC9. set welding parameters like current, voltage, electrode size, material thickness, and joint type in the AR simulator to match the real-world scenario	1	1	-	1
	PC10. set up virtual welding scenarios related to vehicle parts welding such as indoor or outdoor welding, different positions (flat, horizontal, vertical), and the materials to be welded	1	2	-	1
	PC11. follow appropriate safety practices as specified by organization during the work	1	2	-	-
	<i>Perform SMAW using AR technology</i>	12	21		10
	PC12. prepare the workpiece and materials for welding by cleaning, grinding, and positioning them according to project specification and the chosen welding scenario	1	1	-	1
	PC13. install the work pieces and fixture on the apparatus and align them with the electrodes as per the job requirements	1	1	-	1
	PC14. adjust the settings of the welding machine (e.g., amperage, voltage) to match the simulation	1	1	-	1
	PC15. ensure that electrodes distance, contact area, pressure, application etc. are maintained as specified in Work Instructions (WI)	1	2	-	-

PC16.	use AR headsets and software to access welding instructions, visualize weld paths, and check for potential defects in real-time during the welding process	1	1	-	1
PC17.	perform SMAW tasks while utilizing the AR guidance for precision and quality control	1	1	-	1
PC18.	use AR overlays to accurately position welds, identify critical areas, and ensure proper joint alignment	-	2	-	1
PC19.	confirm weld to be performed as per the job plan and specifications	1	2	-	-
PC20.	ensure correct angle of torch and filler wire, direction of weld and feed and travel speed during the welding operation	1	1	-	1
PC21.	monitor the welding process parameters (air pressure, electrode force, electrode distance, gas flow etc. are within standards by reading the feedbacks or warning indicators on the AR system (if displayed)	1	2	-	1
PC22.	follow AR system suggestions (if any) for corrections in case of arc is too long or too short, user is moving too fast or slow etc. to maintain an optimal arc length	1	2	-	1
PC23.	produce joints of the specified dimensional accuracy and required weld quality	1	2	-	-
PC24.	measure the final welded piece and compare with the dimensions as prescribed in the WPS and engineering drawing	1	1	-	1
PC25.	remove extra material, distortion etc. by using chipping hammers, grinders etc., from the welded piece	-	2	-	-
<i>Perform post-welding operations</i>		8	13	-	4
PC26.	use AR systems to visually inspect welds, ensuring they meet specified standards and regulations	-	1	-	1
PC27.	inspect welds using AR simulation to identify defects like porosity, undercuts, improper penetration etc.	1	1	-	1
PC28.	conduct destructive and non-destructive tests on the work pieces	1	1	-	1
PC29.	separate the defective pieces which can be repaired/ reworked and pieces which are beyond repair and maintain records of each category	1	2	-	-
PC30.	tag and store the right quality pieces by following organisational policies and procedures	1	2	-	-
PC31.	clean and store all the tools, machine and equipment after completion of work	1	2	-	-
PC32.	remove chips from different machine areas and dispose scrap or waste material in accordance with the company policies and environmental regulations	1	1	-	-
PC33.	maintain detailed records of weld quality and any issues that are identified, including photographs or videos captured via AR devices for quality audits	1	2	-	1
PC34.	report to the supervisor about any problems faced or anticipated during the complete process	1	1	-	-
Total Marks		30	50	-	20
<i>Prepare for GMAW operations</i>		10	14		5

ASC/N3130: Perform GMAW welding using AR technology	PC1.	identify the work to be done and product specifications by interpreting the engineering drawing, Welding Procedure Specification (WPS) and job orders	1	1	-	-
	PC2.	identify and arrange the AR system and simulator, tools, MIG welding machines, measuring instruments, accessories, consumables and input materials as per the requirements mentioned in WPS or drawing	1	1	-	1
	PC3.	check that material to be welded is as per the required specifications, quality and job requirement	1	2	-	-
	PC4.	diagnose and resolve any technical issues related to AR tools and systems, including software, hardware, and connectivity issues	1	1	-	1
	PC5.	calibrate AR devices to maintain accuracy in the overlayed instructions and welding parameters	1	2	-	1
	PC6.	plan the MIG welding activities before starting the actual process as per WPS	1	2	-	-
	PC7.	set welding parameters like current, voltage, electrode size, material thickness, and joint type in the AR simulator to match the real-world scenario	2	1	-	1
	PC8.	set up virtual MIG welding scenarios for vehicle parts welding	1	2	-	1
	PC9.	follow appropriate safety practices as specified by organization during the work	1	2	-	-
	<i>Perform GMAW using AR technology</i>		12	22		10
	PC10.	prepare the workpiece and materials for welding by cleaning, grinding, and positioning them according to project specification and the chosen welding scenario	1	1	-	1
	PC11.	install the work pieces and fixture on the apparatus and align them with the electrodes as per the job requirements	1	1	-	1
	PC12.	adjust the settings of the MIG welding machine (e.g., amperage, voltage) to match the simulation	1	1	-	1
	PC13.	ensure that electrodes distance, contact area, pressure, application etc. are maintained as specified in Work Instructions (WI)	1	2	-	-
	PC14.	use AR headsets and software to access welding instructions, visualize weld paths, and check for potential defects in real-time during the welding process	1	1	-	1
	PC15.	perform GMAW tasks while utilizing the AR guidance for precision and quality control	1	1	-	1
	PC16.	use AR overlays to accurately position welds, identify critical areas, and ensure proper joint alignment	-	2	-	1
	PC17.	confirm weld to be performed as per the job plan and specifications	1	2	-	-
	PC18.	ensure correct angle of torch and filler wire, direction of weld and feed and travel speed during the welding operation	1	2	-	1
	PC19.	monitor the welding process parameters (air pressure, electrode force, electrode distance, gas flow etc. are within standards by reading the feedbacks or warning indicators on the AR system (if displayed)	1	2	-	1

	PC20. follow AR system suggestions (if any) for corrections in case of arc is too long or too short, user is moving too fast or slow etc. to maintain an optimal arc length	1	2	-	1
	PC21. produce joints of the specified dimensional accuracy and required weld quality	1	2	-	-
	PC22. measure the final welded piece and compare with the dimensions as prescribed in the WPS and engineering drawing	1	1	-	1
	PC23. remove extra material, distortion etc. by using chipping hammers, grinders etc., from the welded piece	-	2	-	-
	<i>Perform post-welding operations</i>	8	14		5
	PC24. use AR systems to visually inspect welds, ensuring they meet specified standards and regulations	-	1	-	1
	PC25. inspect welds using AR simulation to identify defects like porosity, undercuts, improper penetration etc.	1	2	-	1
	PC26. conduct destructive and non-destructive tests on the work pieces	1	1	-	1
	PC27. separate the defective pieces which can be repaired/ reworked and pieces which are beyond repair and maintain records of each category	1	2	-	1
	PC28. tag and store the right quality pieces by following organisational policies and procedures	1	2	-	-
	PC29. clean and store all the tools, machine and equipment after completion of work	1	2	-	-
	PC30. remove chips from different machine areas and dispose scrap or waste material in accordance with the company policies and environmental regulations	1	1	-	-
	PC31. maintain detailed records of weld quality and any issues that are identified, including photographs or videos captured via AR devices for quality audits	1	2	-	1
	PC32. report to the supervisor about any problems faced or anticipated during the complete process	1	1	-	-
	Total Marks	30	50	-	20
ASC/N3131: Perform GTAW welding using AR technology	<i>Prepare for GTAW operations</i>	10	14		5
	PC1. identify the work to be done and product specifications by interpreting the engineering drawing, Welding Procedure Specification (WPS) and job orders	1	1	-	-
	PC2. identify and arrange the AR system and simulator, tools, TIG welding machines, measuring instruments, accessories, consumables and input materials as per the requirements mentioned in WPS or drawing	1	1	-	1
	PC3. check that material to be welded is as per the required specifications, quality and job requirement	1	2	-	-
	PC4. diagnose and resolve any technical issues related to AR tools and systems, including software, hardware, and connectivity issues	1	1	-	1

PC5.	calibrate AR devices to maintain accuracy in the overlaid instructions and welding parameters	1	2	-	1
PC6.	plan the TIG welding activities before starting the actual process as per WPS	1	2	-	-
PC7.	set welding parameters like current, voltage, electrode size, material thickness, and joint type in the AR simulator to match the real-world scenario	2	1	-	1
PC8.	set up virtual MIG welding scenarios for vehicle parts welding	1	2	-	1
PC9.	follow appropriate safety practices as specified by organization during the work	1	2	-	-
<i>Perform GTAW using AR technology</i>		12	22		10
PC10.	prepare the workpiece and materials for welding by cleaning, grinding, and positioning them according to project specification and the chosen welding scenario	1	1	-	1
PC11.	install the work pieces and fixture on the apparatus and align them with the electrodes as per the job requirements	1	1	-	1
PC12.	adjust the settings of the MIG welding machine (e.g., amperage, voltage) to match the simulation	1	1	-	1
PC13.	ensure that electrodes distance, contact area, pressure, application etc. are maintained as specified in Work Instructions (WI)	1	2	-	-
PC14.	use AR headsets and software to access welding instructions, visualize weld paths, and check for potential defects in real-time during the welding process	1	1	-	1
PC15.	perform GTAW tasks while utilizing the AR guidance for precision and quality control	1	1	-	1
PC16.	use AR overlays to accurately position welds, identify critical areas, and ensure proper joint alignment	-	2	-	1
PC17.	confirm weld to be performed as per the job plan and specifications	1	2	-	-
PC18.	ensure correct angle of torch, direction of weld and feed and travel speed during the welding operation	1	2	-	1
PC19.	monitor the welding process parameters (air pressure, electrode force, electrode distance, gas flow etc. are within standards by reading the feedbacks or warning indicators on the AR system (if displayed))	1	2	-	1
PC20.	follow AR system suggestions (if any) for corrections in case of arc is too long or too short, user is moving too fast or slow etc. to maintain an optimal arc length	1	2	-	1
PC21.	produce joints of the specified dimensional accuracy and required weld quality	1	2	-	-
PC22.	measure the final welded piece and compare with the dimensions as prescribed in the WPS and engineering drawing	1	1	-	1
PC23.	remove extra material, distortion etc. by using chipping hammers, grinders etc., from the welded piece	-	2	-	-
<i>Perform post-welding operations</i>		8	14		5

	PC24. use AR systems to visually inspect welds, ensuring they meet specified standards and regulations	-	1	-	1
	PC25. inspect welds using AR simulation to identify defects like porosity, undercuts, improper penetration etc.	1	2	-	1
	PC26. conduct destructive and non-destructive tests on the work pieces	1	1	-	1
	PC27. separate the defective pieces which can be repaired/ reworked and pieces which are beyond repair and maintain records of each category	1	2	-	1
	PC28. tag and store the right quality pieces by following organisational policies and procedures	1	2	-	-
	PC29. clean and store all the tools, machine and equipment after completion of work	1	2	-	-
	PC30. remove chips from different machine areas and dispose scrap or waste material in accordance with the company policies and environmental regulations	1	1	-	-
	PC31. maintain detailed records of weld quality and any issues that are identified, including photographs or videos captured via AR devices for quality audits	1	2	-	1
	PC32. report to the supervisor about any problems faced or anticipated during the complete process	1	1	-	-
	Total Marks	30	50	-	20
ASC/N3132: Perform robotic welding using AR technology	<i>Prepare for robotic welding operations</i>	6	8		4
	PC1. identify the work to be done and product specifications by interpreting the engineering drawing, Welding Procedure Specification (WPS) and job orders	1	1		1
	PC2. identify and arrange the AR system and simulator, tools, robotic arm, measuring instruments, accessories, consumables and input materials as per the requirements mentioned in WPS or drawing	1	1		1
	PC3. check that material to be welded is as per the required specifications, quality and job requirement		1		
	PC4. diagnose and resolve any technical issues related to AR tools and systems, including software, hardware, and connectivity issues	1	1		
	PC5. plan the welding activities before starting the actual process as per WPS	1	1		
	PC6. set welding parameters like current, voltage, electrode size, material thickness, and joint type in the AR simulator to match the real-world scenario	1	1		
	PC7. set up virtual robotic welding scenarios for vehicle parts welding		1		1
	PC8. follow appropriate safety practices as specified by organization during the work	1	1		1
	<i>Write robotic welding program</i>	12	19		6
	PC9. identify robotic technology, welding robot features and specifications including robot language and welding process and parameter capabilities to be used in welding applications	1	1		1
	PC10. plan robot welding program	1	1		

PC11. confirm required operations for robot arm and torch, types of weld, any positions or welds requiring non-standard instructions to be performed using appropriate technical reference sources	1	2		1
PC12. review robot file library for correct references to weld size and weld type	1	2		
PC13. identify suitable program code for robotic technology and welding applications	1	1		
PC14. write joint arm and welding moves using teach pendant or software	1	1		
PC15. use software including canned cycles and sub-routines for programming welding operations		1		1
PC16. program weld procedure for the robot using short, interrupted and continuous welds	1	2		
PC17. create command instructions for welding instructions	1	1		1
PC18. perform any additional programming required including instructions, weld data recording and lower-level programming		2		1
PC19. check the sequence of the program as per the process sheet	1	1		
PC20. test and debug the program for weld accuracy, compatibility and efficiency requirements by conducting trial run of the robotic arm on test material	1	1		
PC21. verify trial welds and program performance against required specifications		1		
PC22. edit program to adjust welding operations based on trial outcomes	1	1		
PC23. save final program and complete operation sheets and any required records according to enterprise procedures	1	1		1
<i>Perform robotic welding using AR technology</i>	6	11		6
PC24. install the work pieces and fixture on the apparatus and align them with the robotic arm as per the job requirements	1	1		1
PC25. set up robotic arm for functional operation in accordance with manufacturer's specifications		1		1
PC26. use AR headsets and software to access welding instructions, visualize weld paths, and check for potential defects in real-time during the welding process		2		
PC27. perform welding by operating robotic arm and tack weld the joint at appropriate intervals specifications while utilizing the AR guidance in accordance with job plan, specifications, relevant welding standards and manufacturers'	1	2		
PC28. monitor the welding process parameters (air pressure, electrode force, electrode distance, gas flow etc. are within standards by reading the feedbacks or warning indicators on the AR system (if displayed)	1	1		1
PC29. follow AR system suggestions (if any) for corrections during the welding process	1	1		
PC30. produce joints of the specified dimensional accuracy and required weld quality	1	1		1
PC31. measure the final welded piece and compare with the dimensions as prescribed in the WPS and engineering drawing	1	1		1

	PC32. remove extra material, distortion etc. by using chipping hammers, grinders etc., from the welded piece		1		1
	<i>Perform post-welding operations</i>	6	12		4
	PC33. use AR systems to visually inspect welds, ensuring they meet specified standards and regulations	1	1		
	PC34. inspect welds using AR simulation to identify defects like porosity, undercuts, improper penetration etc.	1	2		1
	PC35. conduct destructive and non-destructive tests on the work pieces		1		1
	PC36. separate the defective pieces which can be repaired/ reworked and pieces which are beyond repair and maintain records of each category		1		1
	PC37. tag and store the right quality pieces by following organisational policies and procedures	1	1		
	PC38. clean and store all the tools, machine and equipment after completion of work	1	1		
	PC39. remove chips from different machine areas and dispose scrap or waste material in accordance with the company policies and environmental regulations	1	2		1
	PC40. maintain detailed records of weld quality and any issues that are identified, including photographs or videos captured via AR devices for quality audits		2		
	PC41. report to the supervisor about any problems faced or anticipated during the complete process	1	1		
	Total Marks	30	50		20
ASC/N3133: Advanced Automotive Welding Mastery	<i>Prepare for welding operations</i>	8	13	0	5
	PC1. identify the work to be done and product specifications by interpreting the engineering drawing, Welding Procedure Specification (WPS) and job orders	2	2		
	PC2. identify and arrange required tools, machines and material as mentioned in WPS or drawing	2	3		1
	PC3. check that material to be welded is as per the required specifications, quality and job requirement	1	2		1
	PC4. plan the welding activities before starting the actual process as per WPS	1	2		1
	PC5. set welding parameters like current, voltage, electrode size, material thickness, and joint type as per the requirement	1	2		1
	PC6. follow appropriate safety practices as specified by organization during the work	1	2		1
	<i>Perform advanced welding techniques</i>	11	17	0	7
	PC7. install the work pieces and fixture on the apparatus and align them with torch and electrode as per the job requirements	2	2		1
	PC8. perform advanced welding techniques such as MIG welding to weld critical components of advanced vehicles in accordance with job plan, specifications, relevant welding standards and manufacturers'	2	4		1
	PC9. ensure correct angle of torch and filler wire, direction of weld and feed and travel speed during the welding operation	1	2		1

	PC10. monitor the welding process parameters (air pressure, electrode force, electrode distance, gas flow etc. are within standards by reading the various gauges and correct them if not within standards	2	2		1
	PC11. produce joints of the specified dimensional accuracy and required weld quality	2	3		1
	PC12. measure the final welded piece and compare with the dimensions as prescribed in the WPS and engineering drawing	1	2		1
	PC13. remove extra material, distortion etc. by using chipping hammers, grinders etc., from the welded piece	1	2		1
	<i>Perform post-welding operations</i>	11	20	0	8
	PC14. check the work pieces as per the work instructions for product quality	1	2		1
	PC15. conduct destructive and non-destructive tests on the work pieces	1	3		1
	PC16. separate the defective pieces which can be repaired/ reworked and pieces which are beyond repair and maintain records of each category	1	2		1
	PC17. tag and store the right quality pieces by following organisational policies and procedures	2	4		1
	PC18. clean and store all the tools, machine and equipment after completion of work	1	2		1
	PC19. check the robotic arm for any malfunctions/defects or any service requirements and immediately inform the supervisor/maintenance team for the same	2	2		1
	PC20. remove chips from different machine areas and dispose scrap or waste material in accordance with the company policies and environmental regulations	2	3		1
	PC21. report to the supervisor about any problems faced or anticipated during the complete process	1	2		1
	Total Marks	30	50	-	20
DGT/VSQ/N0101 - Employability Skills (30 hours)	<i>Introduction to Employability Skills</i>	1	1	-	-
	PC1. understand the significance of employability skills in meeting the job requirements	-	-	-	-
	<i>Constitutional values – Citizenship</i>	1	1	-	-
	PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
	<i>Becoming a Professional in the 21st Century</i>	1	3	-	-
	PC3. explain 21st Century Skills such as Self- Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.	-	-	-	-
	<i>Basic English Skills</i>	2	3	-	-
	PC4. speak with others using some basic English phrases or sentences	-	-	-	-
	<i>Communication Skills</i>	1	1	-	-
	PC5. follow good manners while communicating with others	-	-	-	-

PC6. work with others in a team	-	-	-	-
<i>Diversity & Inclusion</i>	1	1	-	-
PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC8. report any issues related to sexual harassment	-	-	-	-
<i>Financial and Legal Literacy</i>	3	4	-	-
PC9. use various financial products and services safely and securely	-	-	-	-
PC10. calculate income, expenses, savings etc.	-	-	-	-
PC11. approach the concerned authorities for any exploitation as per legal rights and laws	-	-	-	-
<i>Essential Digital Skills</i>	4	6	-	-
PC12. operate digital devices and use its features and applications securely and safely	-	-	-	-
PC13. use internet and social media platforms securely and safely	-	-	-	-
<i>Entrepreneurship</i>	3	5	-	-
PC14. identify and assess opportunities for potential business	-	-	-	-
PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
<i>Customer Service</i>	2	2	-	-
PC16. identify different types of customers	-	-	-	-
PC17. identify customer needs and address them appropriately	-	-	-	-
PC18. follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship & Jobs</i>	1	3	-	-
PC19. create a basic biodata	-	-	-	-
PC20. search for suitable jobs and apply	-	-	-	-
PC21. identify and register apprenticeship opportunities as per requirement	-	-	-	-
Total Marks	20	30	-	-
Grand Total	90	120		40

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.

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