QUALIFICATION FILE

Metal Inert Gas/ Metal Active Gas/ Gas

Metal Arc Welder (MIG/MAG/GMAW)

(Optional: Flux cored Arc Welder (Semi-Automatic))

☐ 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:

Capital Goods and Strategic Skill Council
39, 1st Floor, Samyak Tower, Pusa Road, New Delhi-110005

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Section 1: Basic Details

1.	**Qualification Name**	**Metal Inert Gas/ Metal Active Gas/ Gas Metal Arc Welder (MIG/MAG/GMAW)**	
2.	**Sector/s**	**Capital Goods and Manufacturing**	
3.	**Type of Qualification: ☐ New ☒ Revised ☐ Has Electives/Options ☐OEM**	**NQR Code & version of existing/previous qualification:** *(change to previous, once approved) 2022/CCM/CGSC/06605 v3.0*	**Qualification Name of existing/previous version:** Metal Inert Gas Welder/Metal Active Gas/Gas Metal Arc Welder (MIG/MAG/GMAW)
4.	**a. OEM Name** **b. Qualification Name** (*Wherever applicable)*		
5.	**National Qualification Register (NQR) Code &Version** (*Will be issued after NSQC approval)*	QG-04-CG-03935-2025-V2-CGSSC 4.0	**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**	The incumbent in the job is responsible for performing metal inert gas/metal active gas welding (MIG/MAG) for welding joints as per welding procedure specification (WPS).	
9.	**Eligibility Criteria for Entry for Student/Trainee/Learner/Employee**	**a. Entry Qualification & Relevant Experience:**	

S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)
1	12th grade pass or equivalent	No Experience required.
2	Completed 2nd year of 3-year diploma (after 10th) or equivalent	No Experience required.
3	10th grade pass with two years of any combination of NTC/NAC/CITS or equivalent.	No Experience required.

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4	10th Grade Pass	3 year relevant experience
5	Previous relevant Qualification of NSQF Level 3.5	1.5 year relevant experience
6	Previous relevant Qualification of NSQF Level 3.0	3 year relevant experience

b. Age: <As per Govt. Norms>

10.	**Credits Assigned to this Qualification, Subject to Assessment** *(as per National Credit Framework (NCrF))*	15	**11. Common Cost Norm Category (I/II/III)** *(wherever applicable)*: **I**
12.	**Any Licensing requirements for Undertaking Training on This Qualification** *(wherever applicable)*		
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)	Viva (Hours)	Total (Hours)
Classroom (offline)	142	218	90	-	450
Online					

(Refer Blended Learning Annexure for details)

14.	**Aligned to NCO/ISCO Code/s** *(if no code is available mention the same)*	NCO-2015/7212.0303
15.	**Progression path after attaining the qualification** *(Please show Professional and Academic progression)*	• Senior Tungsten Inert Gas Welder – 5 • Welding Automation Engineer - 6
16.	**Other Indian languages in which the Qualification & Model Curriculum are being submitted**	**Hindi**

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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**	**Yes via Industry or College Engagement**	
20.	**Are Greening/ Environment Sustainability Aspects Covered** *(Specify the NOS/Module which covers it)*	**☐ Yes ☒ No To be incorporated later**	
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: Ridhima** **Email : technicaladvisors@cgssc.org Contact No.: +91-8882907092** **Website: www.cgssc.org**	
23.	**Final Approval Date by NSQC: 30th April 2025**	**24. Validity Duration: 3 Years**	**25. Next Review Date: 30th April 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* ***Vi-***Viva

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.	Bridge Module & Follow the health and safety practices at work	CSC/N1335 NOS Version- 2.0	Non-Core	3	2	25	35		-	60	30	70	-	-	100	10

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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)*
2.	Manually weld metals by using MIG/MAG welding	CSC/N0209: Version No. – 2.0	Core	4	3	30	30	30 -	-	90	30	50	-	20	100	20
3.	Manually cut metal and metal alloys using oxy-fuel gases	CSC/N0201: Version No. – 2.0	Core	2	4	20	70	30		120	30	50	-	20	100	20
4.	Manually cut metal materials using plasma arc	CSC/N0207, v2.0	Core	3	2	30	30	-		60	30	50	-	20	100	25
5.	Employability Skills (30 hours)	DGT/VSQ/N0101- Version No. – 1.0	Non-Core	4	1	12	18	-	-	30	20	30	0	0	50	25
6.																
Duration (in Hours) / Total Marks					**15**	**117**	**183**	**60**		**360**	**140**	**250**	**0**	**60**	**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																

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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					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) *(if applicable)*
1.	Perform semi- automatic flux cored arc welding process to prepare joints	CSC/N0205 , V2.0	Core	4	3	35	55	30	-	120	30	50	-	20	100	30
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: 70 % *(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 in Mechanical with 2 years of relevant industry experience specialization in welding and 1 year of training experience specialization in Welding. B. Tech in Mechanical with 1 year of relevant industry experience specialization in Welding and 1 year of training experience specialization in Welding.

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2.	**Master Trainer's Qualification and experience in the relevant sector (in years)** *(as per NCVET guidelines)*	B. Tech in Mechanical/ Electronics/ Mechatronics with 6 years of relevant experience. M. Tech in Mechanical/ Electronics/ Mechatronics with 4 years of relevant experience.
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**	NA

Section 4: Assessment Related

	Assessor's Qualification and experience in relevant sector (in years) *(as per NCVET guidelines)*	Diploma in Mechanical with 3 years of relevant industry experience specialization in Welding and 1 year of Assessment experience specialization in Welding. B. Tech in Mechanical with 2 years of relevant industry experience specialization in Welding and 1 year of Assessment experience specialization in Welding

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	Proctor's Qualification and experience in relevant sector (in years) *(as per NCVET guidelines)*	B. Tech in Mechanical/ Electronics/ Mechatronics with 6 years of relevant experience. M. Tech in Mechanical/ Electronics/ Mechatronics with 4 years of relevant experience.
	Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years) *(as per NCVET guidelines)*	B. Tech in Mechanical/ Electronics/ Mechatronics with 8 years of relevant experience. M. Tech in Mechanical/ Electronics/ Mechatronics with 4 years of relevant experience.
	Assessment Mode *(Specify the assessment mode)*	**Formative, Summative & Skill Assessment**
	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):** No
2.	**Latest Market Research Reports or any other source (not older than 2 years) (Yes/No):** No (Industry driven)
3.	**Government /Industry initiatives/ requirement (Yes/No):** Yes
4.	**Number of Industry validation provided:** NA
5.	**Estimated nos. of persons to be trained and employed:** 2340
6.	**Evidence of Concurrence/Consultation with Line Ministry/State Departments: Yes** 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)*	*Q File*
2.	**Annexure:** List of tools and equipment relevant for qualification *(Mandatory, except in case of online course)*	*Q File*

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3.	**Annexure:** Detailed Assessment Criteria *(Mandatory)*	*Q File*
4.	**Annexure:** Assessment Strategy *(Mandatory)*	*Q File*
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)*	*Available*
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)*	*Available in QP*
12.	**Any other document you wish to submit:**	*NA*

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	**Wide-ranging specialized theoretical learning requirements** • Process of preparing the MIG/MAG welding equipment • Process of conducting MIG/MAG welding • Process of carrying out fault management • Process of inspecting the workpiece for quality check • Process of segregation and storage of output	The job involves a range of theoretical understanding and practical skills as can be seen from the job requirements given in the adjacent cell. The skills include setting, adjusting and operating MIG/MAG welding apparatus and carrying out MIG/MAG welding activities on given work piece	4
Professional and Technical Skills/ Expertise/ Professional Knowledge	• Understand the concepts of MIG/MAG welding.	As indicated by the knowledge and understanding requirements	4

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	• Knowledge of relevant tools and equipment for conducting MIG/MAG welding process. • Knowledge of MIG/MAG welding process. • Able to understand how to minimise risks from the hazards associated with carrying out MIG/MAG welding	mentioned in the adjacent cell, the job holder needs to have a wide range of information for welding the metal by MIG/MAG welding process.	
Employment Readiness & Entrepreneurship **Skills & Mind-set/Professional Skill**	• Plan the gas cutting activities and prepare the appropriate schedules • Perform the operational/function checks • Carry out relevant documentation manually and/ or electronically • Determine the MIG/MAG welding parameters • Operate MIG/MAG welding apparatus for welding activities	As indicated by the performance criteria in the adjacent cell, the job holder needs to have wide-ranging practical skills for welding the metal by MIG/MAG welding process.	4
Broad Learning Outcomes/Core Skill	**Logical and mathematical skills** • Follow the technical specification and appropriate procedures. • Perform work-related calculations **Collecting and organising information** • Use the standard templates and tools for documenting work • Collect the relevant information concerning the MIG/MAG welding process and carry out the appropriate documentation.	The job holder requires logical and relevant skills for conducting MIG/MAG welding activities. As indicated by the performance criteria in the adjacent cell, the job involves conducting the MIG/MAG welding process on various metals as per drawing and job order requirement.	4
Responsibility	• Responsible for determining the work requirements • Responsible for planning the MIG/MAG welding activities	The incumbent in the job is responsible for performing metal inert gas/metal active gas welding (MIG/MAG) for welding	4

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	• Responsible for carrying out MIG/MAG welding process. • Responsible for inspecting and testing the welded workpieces. • Responsible for preparing and updating the relevant documents.	joints as per welding procedure specification (WPS). The incumbent is also responsible for performing Oxy gas cutting and plasma cutting to cut metal into required specification as per welding procedure specification (WPS).	

Annexure: Tools and Equipment (Lab Set-Up)

List of Tools and Equipment

Batch Size: 20-25 Nos

S. No.	Tool / Equipment Name	Specification	Quantity for specified Batch size
1	Chairs/Tables	Standard	25
2	Computer with internet	Standard	25
3	LCD projector with screen	Standard	1
4	Trainer chair and Table	Standard	1
5	Demonstration table pin up boards	Standard	1
6	White board with marker	Standard	1
7	MMAW welding set	Standard	1 Set
8	Grinding Machine	Standard	1
9	Fabrication Tools	Hammer, Chisel set, Centre punch 9mm x 127mm, Dividers 20 cm, Wire brush 15 cm x 3.7 mm, Spark lighter, Number punch 6 mm and letter punch 6 mm, Scriber 15 cm, Tongs holding Steel rule, Screw driver set, Hacksaw frame adjustable 30 cm, Magnifying glass 15 cm, Weld	1 Set

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		measuring gauge fillet and butt, file set, Steel tape 182 cm flexible in case, Try square	
10	Measuring Instruments	Power tool cables ,Chisel, drilling tools , jigs & fixtures , ropes , manual lifts , blocks & tables , straps , bolts , clamps, Cutting tools, hacksaws; hammers; punches; screwdrivers; sockets; wrenches; spanners; scrapers , measuring tools(rules/tapes, dividers/trammels, scribers, punches, scribing blocks, squares, protractor, depth/internal/external micrometres, callipers (Vernier, inside and outside, depth), gauges (height Vernier, feeler, bore/hole, slip, radius/profile, thread, plug), stick micrometres, dial stand and comparator, vee block with u-clamp)	1 Set
11	Cutrting Machine	Standard	1
12	Fire Extinguisher	Standard	1
13	Safety Gloves (Rubber)	Standard	25
14	Ear Plugs	Standard	25
15	Safety Shoes & Helmet	Standard	25
16	Goggles	Standard	25
17	First-Aid Kit	Standard	2

Classroom Aids
The aids required to conduct sessions in the classroom are:

1. Computer / Laptop
2. Whiteboard and marker
3. Projector

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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	Wangfeng Aluminium Wheel (India) Pvt. Ltd.	Sanjeev Chaudhary	HR Head	Plot No. 15 to 18, Sec-8, Industrial Model TWP,Bawal, Haryana - 123501	8750231400		
2	Palak Plastic Pvt.Ltd.	Hem Chander Yadav	Director	Plot No. 25, Sec-3, Phase 1, IMT, Bawal, Rewari, Haryana - 123501	0124-4019506	palakplastic@gmail.com	
3	Hay Industry	Harshit Yadav	HR Head	504/4, Gali No. 4, Near Rajendra Hospital, Om Nagar, Gurugram,Haryana-122001	9212154114	industryhay@gmail.com	
4	AG Enterprises	Durgesh Gupta	Manager -HR	Room No. 1,2nd Floor,Plot No. 345, Sector-08,IMT, Manesar, Gurugram Haryana -122051	8750279555	bd@agenterpriseshr.com	
5	Hans Enterprises	OP Yadav	Sr. OP Manager	Cyberwalk, Plot No.CP 9,Tower E,GF,Cabin No4, Sec-5,IMT,Manesar, Gurugram Haryana	8750801333	Enterpriseshans@gmail.com	
6	Palak Plastic Pvt.Ltd.	Sunil Kumar	Director	Plot No.345, Sec-8, IMT, Manesar, Gurugram Haryana-122051	9810075433	sunilyadav7143@gmail.com	
7	Revent	Krishnakant Shukla	DGM-Training	Forging Division, unit 2nd, Begumpur, Khataula,	9262708933	Krishnakant.shukla@reventengineering.com	

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				Post Office-Khandsa,,Gurugram , Haryana-122004			
8	Sudhir Foundation	Ravi Prakash	DGM-Training	Plot No.93, Sector-8,IMT,Manesar,Gurugram , Haryana-122051	7988101508	965sudhirfoundation@gmail.com	
9	JBM Group	Rajeev Kumar Sharma	VP-Head Skill Development – JBM Group	JBM Auto Limited,Skill Development Centre, Plot No.16, sector-20B,Faridabad, (Haryana)- 121007	8860281177	Rajeev.sharma@jbmgroup.com	
10	Subros	Pawan Yadav	HR Head	Plot No. 395-396, Sec-8, Phase-3, IMT Manesar, Gurugram, -122050	9818148609	p.yadav@subros.com	
11	Texmaco	Rajeev Gupta	Chief Business Officer	Belgharia,24 Parganas(North), Kolkata-700056	7042644994	Rajeev.gupta@texmaco.in	

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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
2025-2026	2963	637	296	64	30	6
2026-2027	3260	700	326	70	33	7
2027-2028	3586	771	359	77	36	8

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
	FY2022-2023	1001	1001	808	566	100	100	81	57	10	10	8	6
	FY2023-2024	522	522	477	334	52	52	48	33	5	5	5	3
	FY2024-2025	2694	968	827	579	269	97	83	58	27	10	8	6

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. PMKVY 4.0 CSM STT
2. Non PMKVY
3. TNSDC
4. Fee Based
5. NABARD
6. MSSDS
7. GSDM
8. SDIS Orissa State Skilling Scheme
9. NULM
10. SDIS DDU GKY

Content availability for previous versions of qualifications: PH

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

Languages in which Content is available: Hindi

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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

Annexure: Detailed Assessment Criteria

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

CSC/N1335: Follow the health and safety practices at the work

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Maintain personal health and safety	**7**	**12**	**-**	**-**
PC1. follow the recommended practices to ensure protection from infections and transmission to others, such as the use of hand sanitiser and face mask	2	3	-	-
PC2. check the work conditions, assess the potential health and safety risks, and take appropriate measures to mitigate them	1	2	-	-
PC3. select and use the appropriate Personal Protective Equipment (PPE) relevant to the task and work conditions	1	2	-	-
PC4. follow the recommended techniques while lifting and moving heavy objects to avoid injury	1	3	-	-

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PC5. follow the manufacturer's instructions and workplace safety guidelines while working on heavy machinery, tools and equipment	2	2	-	-
Assist in hazard management	**4**	**10**	**-**	**-**
PC6. identify existing and potential hazards at work	1	1	-	-
PC7. assess the potential risks and injuries associated with the identified hazards	1	3	-	-
PC8. coordinate with the supervisor or other relevant personnel to prevent or minimise the identified hazards	1	3	-	-
PC9. handle hazardous materials safely and store them in the designated storage	1	3	-	-
Check the first aid box, firefighting and safety equipment	**3**	**7**	**-**	**-**
PC10. check the first aid box to ensure it is updated with the relevant first aid supplies	1	2	-	-
PC11. check and test the firefighting and various safety equipment to ensure they are in usable condition	1	3	-	-
PC12. coordinate with the supervisor for the repair and replacement of firefighting and safety equipment	1	2	-	-
Assist in waste management	**3**	**8**	**-**	**-**
PC13. segregate waste into appropriate categories	1	3	-	-
PC14. recycle the recyclable waste appropriately	1	3	-	-
PC15. dispose of the non-recyclable waste in an environment-friendly manner, complying with the applicable regulations	1	2	-	-
Follow the fire safety guidelines	**3**	**12**	**-**	**-**

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PC16. use the appropriate type of fire extinguisher to extinguish different types of fires safely	1	4	-	-
PC17. follow the recommended practices for a safe rescue during a fire emergency	1	4	-	-
PC18. coordinate with the fire department to request assistance to extinguish a serious fire	1	4	-	-
Follow the emergency and first-aid procedures	**7**	**12**	**-**	**-**
PC19. follow the organisational health and safety guidelines during workplace emergencies to ensure own and co-workers' safety	1	2	-	-
PC20. follow the recommended practices to minimise loss to organisational property during an emergency	1	3	-	-
PC21. follow the recommended procedure to free a person from electrocution	1	2	-	-
PC22. administer appropriate first aid to the injured personnel	1	2	-	-
PC23. perform Cardiopulmonary Resuscitation (CPR) on a potential victim of cardiac arrest	1	2	-	-
PC24. coordinate with the emergency services to request medical assistance for seriously injured/ ill personnel requiring professional medical attention or hospitalisation	2	1	-	-
Carry out relevant documentation and review	**3**	**9**	**-**	**-**
PC25. carry out appropriate documentation following a health and safety incident at work, including all the required information	1	3	-	-
PC26. coordinate with the relevant personnel to review health and safety conditions at work regularly or following an incident	1	3	-	-

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PC27. assist in implementing appropriate changes to improve the health and safety conditions at work	1	3	-	-
NOS Total	**30**	**70**	**-**	**-**

CSC/N0209: Manually weld metals by using MIG/MAG welding

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare for welding operations	**15**	**21**	**-**	**7**
PC1. identify the work to be done and product specifications by interpreting the product drawing, Welding Procedure Specification (WPS) and job orders	1	2	-	1
PC2. identify the tools, MIG welding machines, measuring instruments, accessories, consumables and input materials (i.e. ferrous metals/materials: carbon steel, stainless steel etc.) as per the requirements mentioned in WPS or drawing	3	2	-	1
PC3. select and arrange the right material, equipment, fixtures, accessories, welding torch and consumables i.e. electrode, filler wire, shielding gas etc. as per the SOP and job requirements	2	3	-	1

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PC4. check the input material, tools and equipment for any defects and that they are as per the required quality standards	2	3	-	1
PC5. prepare the work area for welding activities	1	1	-	-
PC6. prepare the materials (i.e. sheet (less than 1.5 mm), plate, structural section, pipe/tube, other forms) and joint for welding process	1	1	-	1
PC7. clean wire feeder and torch tip	-	1	-	-
PC8. set the MIG welding machine and its parameters i.e. wire feed rate, amperage, gas flow rate etc. as per the WPS and SOP	1	2	-	1
PC9. connect and adjust regulators and flow meters to cylinders	1	1	-	-
PC10. choose appropriate mode of metal transfer	1	1	-	-
PC11. set pre-purge with shielding gas as required	1	1	-	1
PC12. install the work pieces and fixture on the apparatus and align them with the electrodes as per the job requirements	1	2	-	-
PC13. verify set up by running test weld on the specimen (scrap plate)	-	1	-	-
Perform MIG/MAG welding operations	**8**	**17**	**-**	**8**
PC14. follow safety precautions during welding work as per SOP and organizational guidelines	-	1	-	-

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PC15. start the MIG welding machine for welding operations	1	2	-	-
PC16. perform MIG welding process in all welding positions as per SOP and tack weld the joint at appropriate intervals to produce joints of the specified quality, dimensions and profile	2	4	-	2
PC17. adjust wire stick-out as per requirement	1	1	-	1
PC18. produce joints of the required quality and of specified dimensional accuracy which achieve a weld quality equivalent to Level C of ISO 5817	1	4	-	2
PC19. ensure correct angle of torch, travel speed, direction of weld and feed during the welding operation	1	1	-	1
PC20. 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	1	1	-	1
PC21. measure the final welded piece and compare with the dimensions as prescribed in the WPS and engineering drawing	1	1	-	1
PC22. remove extra material, slag etc. by using brush, chipping hammers, grinders etc., from the welded piece	-	1	-	-

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PC23. shut down the welding equipment and remove the workpiece after completion of welding activities	-	1	-	-
Perform post-welding operations	**7**	**12**	**-**	**5**
PC24. check the work pieces as per the work instructions for product quality	1	2	-	1
PC25. identify various weld defects by conducting visual inspection, destructive and non-destructive tests on the work pieces	2	3	-	2
PC26. separate the defective pieces which can be repaired/ reworked and pieces which are beyond repair	1	1	-	1
PC27. clean and store all the tools, machine and equipment after completion of work	1	2	-	1
PC28. dispose scrap or waste material in accordance with the company policies and environmental regulations	1	1	-	-
PC29. check the machine operations for any malfunctions/defects in the component and immediately inform the supervisor/maintenance team for correction	1	2	-	-
PC30. report to the supervisor about any problems faced or anticipated during the complete process	-	1	-	-
NOS Total	**30**	**50**	**-**	**20**

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CSC/N0201: Manually cut metal and metal alloys using oxy-fuel gas

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare for cutting operations	**15**	**21**	**-**	**9**
PC1. identify the cutting work to be done by interpreting the engineering drawing, Welding Procedure Specification (WPS) and job orders	1	2	-	1
PC2. identify the tools, cutting torch, machine, measuring instruments, accessories, consumables and input materials (mild carbon steel, high tensile and special steels, other materials) as per the requirements mentioned in WPS or drawing	3	2	-	2
PC3. select and arrange the right material, equipment, fixtures, accessories such as regulators, hoses and valve and consumables such as shielding gas etc. as per the SOP and job requirements	2	3	-	1
PC4. select the correct type of nozzle, consumables, gases and oxy-gas cutting equipment required for the job by following WPS and drawing	1	2	-	1
PC5. check the input material, tools, equipment and accessories for any defects, leakages and that they are as per the required quality standards	2	2	-	1
PC6. prepare the work area for cutting activities	1	2	-	-

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PC7. set the oxy-gas cutting apparatus and its parameters as per the WPS and SOP	1	2	-	1
PC8. ensure that a flashback arrestor is fitted with the apparatus	1	-	-	1
PC9. use correct technique for lighting, adjusting and extinguishing the arc	1	2	-	1
PC10. adjust torch valve for the type of flame such as neutral, carburizing and oxidizing	1	2	-	-
PC11. mark the correct measurements on the workpiece by using appropriate tools and measuring instruments as specified in drawing or WPS	1	2	-	-
Perform oxy-gas cutting operations	**9**	**17**	**-**	**6**
PC12. follow safety precautions during cutting work as per SOP and organizational guidelines	-	1	-	-
PC13. start the gas cutting machine for cutting operations	1	2	-	1
PC14. adjust cylinder valves and regulator for operating pressure to achieve required specifications	1	2	-	1
PC15. perform oxy-gas cutting process as per SOP and produce items/cut shapes to the dimensions and profiles specified in WPS and drawing	2	4	-	1

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PC16. perform various cutting operations correctly and produce thermal cuts in various forms of material (metal of 3mm and above) which meet specified quality criteria i.e. dimensional accuracy is within the tolerances specified on the drawing/specification, or within +/- 2mm; angled/radial cuts are within specification requirements; cuts are clean and smooth and free from flutes; no drags	2	4	-	2
PC17. recognize and correct burn-back and flashback	1	1	-	1
PC18. measure the final workpiece and compare with the dimensions as prescribed in the WPS and engineering drawing	1	2	-	-
PC19. shut down the cutting equipment and remove the workpiece after completion of cutting activities	1	1	-	-
Perform post-cutting operations	**6**	**12**	**-**	**5**
PC20. check the work pieces as per the work instructions for product quality	1	2	-	1
PC21. identify defects in the completed workpiece by using appropriate methods and equipment	2	3	-	1
PC22. separate the defective pieces which can be repaired/ reworked and pieces which are beyond repair	1	1	-	1
PC23. clean and store all the tools, machine and equipment after completion of work	1	2	-	1

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PC24. check the machine operations for any malfunctions/defects in the component and immediately inform the supervisor/maintenance team for correction	1	2	-	1
PC25. dispose scrap or waste material in accordance with the company policies and environmental regulations	-	1	-	-
PC26. report to the supervisor about any problems faced or anticipated during the complete process	-	1	-	-
NOS Total	**30**	**50**	**-**	**20**

CSC/N0207: Manually cut metal material using plasma arc

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare for cutting operations	**15**	**21**	**-**	**9**
PC1. identify the cutting work to be done by interpreting the engineering drawing, Cutting Procedure Specification (CPS) and job orders	1	2	-	1
PC2. identify the tools, plasma cutting equipment, measuring instruments, accessories, consumables and input materials (mild steel; high alloy steel; stainless steel; aluminium and its alloys; other appropriate metal) as per the requirements mentioned in WPS or drawing	4	3	-	2

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PC3. select and arrange the right material, plasma cutting equipment, fixtures, accessories such as cutting guides, regulators, hoses and valve and consumables such as plasma cutting gas etc. as per the SOP and job requirements	2	3	-	2
PC4. select the correct type of nozzle, consumables, gases and plasma cutting equipment required for the job by following the WPS and drawing	1	2	-	1
PC5. check the input material, tools, equipment and accessories for any defects, leakages and that they are as per the required quality standards	2	2	-	1
PC6. prepare the work area for cutting activities	1	2	-	-
PC7. set the plasma arc cutting apparatus and its parameters as per the WPS and SOP	2	3	-	1
PC8. use the correct procedure for lighting, adjusting and extinguishing the arc	1	2	-	1
PC9. mark the correct measurements on the workpiece by using appropriate tools and measuring instruments as specified in drawing or CPS	1	2	-	-
Perform plasma arc cutting operations	**9**	**17**	**-**	**6**
PC10. follow safety precautions during cutting work as per SOP and organizational guidelines	-	1	-	-
PC11. start the plasma cutting machine for cutting operations	1	2	-	1
PC12. perform plasma arc cutting process as per SOP and produce items/cut shapes to the dimensions and profiles specified in CPS and drawing	2	3	-	1

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PC13. perform various cutting operations correctly and produce thermal cuts in various forms of material which meet specified quality criteria i.e. dimensional accuracy is within the tolerances specified on the drawing/specification, or within +/- 1mm; angled/radial cuts are within specification requirements; cuts are clean and smooth and free from flutes; no drags	2	4	-	2
PC14. ensure correct angles of torch and right speed for cutting during the cutting operations	2	4	-	2
PC15. measure the final workpiece and compare with the dimensions as prescribed in the CPS and engineering drawing	1	2	-	-
PC16. shut down the cutting equipment and remove the workpiece after completion of cutting activities	1	1	-	-
Perform post-cutting operations	**6**	**12**	**-**	**5**
PC17. check the work pieces as per the work instructions for product quality	1	2	-	1
PC18. identify defects in the completed workpiece by using appropriate methods and equipment	2	3	-	1
PC19. separate the defective pieces which can be repaired/ reworked and pieces which are beyond repair	1	1	-	1
PC20. clean and store all the tools, machine and equipment after completion of work	1	2	-	1
PC21. check the machine operations for any malfunctions/defects in the component and immediately inform the supervisor/maintenance team for correction	1	2	-	1
PC22. dispose scrap or waste material in accordance with the company policies and environmental regulations	-	1	-	-

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PC23. report to the supervisor about any problems faced or anticipated during the complete process	-	1	-	-
NOS Total	**30**	**50**	**-**	**20**

CSC/N0205: Perform semi-automatic flux cored arc welding (FCAW) process to prepare joints

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare for welding operations	**15**	**21**	**-**	**7**
PC1. identify the work to be done and product specifications by interpreting the product drawing, Welding Procedure Specification (WPS), Procedure Qualification Record (PQR) and job orders	1	2	-	1
PC2. identify the tools, FCAW welding machines, measuring instruments, accessories, consumables and input materials (i.e. carbon steel, stainless steel, alloy steels, hard facing alloys etc.) as per the requirements mentioned in WPS or drawing	2	2	-	1
PC3. select and arrange the right material, equipment, fixtures, accessories, welding torch and consumables i.e. electrode, shielding gas etc. as per the SOP and job requirements	2	3	-	1

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PC4. check the input material, tools and equipment for any defects and that they are as per the required quality standards	1	2	-	1
PC5. plan the welding activities effectively and efficiently for achieving specifications as per WPS	1	1	-	-
PC6. prepare the materials (sheet (less than 3 mm), plate, structural section, pipe/tube, other forms) and joint for welding as per job requirement (e.g.. as flat, square or bevelled)	1	1	-	1
PC7. check the joint for accuracy before starting welding process	-	1	-	-
PC8. clean wire feeder and torch tip using correct procedures	1	1	-	1
PC9. set the FCAW welding machine and its parameters i.e. wire feed rate, amperage, gas flow rate etc. as per the WPS and SOP	1	2	-	1
PC10. connect cables and ground clamps to power source, torch and its components, welding leads/cables, hoses, shielding gas supply and wire feed mechanisms by following SOP	1	1	-	-
PC11. connect and adjust regulators and flow meters to cylinders correctly	1	1	-	-
PC12. set pre-purge with shielding gas as required	1	1	-	-

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PC13. install the work pieces and fixture on the apparatus and align them with the electrodes as per the job requirements	1	2	-	-
PC14. verify that heat treatment has been done appropriately as per requirement	1	1	-	-
Perform welding operations	**8**	**17**	**-**	**8**
PC15. follow safety precautions during welding work as per SOP and organizational guidelines	-	1	-	-
PC16. ensure that supplies of components and consumables are adequate and correctly prepared before starting welding work	-	1	-	-
PC17. start the FCAW welding machine for welding operations	1	1	-	-
PC18. perform FCAW welding process in all welding positions as per SOP and weld the joint at appropriate intervals to produce joints of the specified quality, dimensions and profile	2	3	-	2
PC19. ensure correct work and travel angles, flow rate, travel speed and electrode extensions as required for the job	1	2	-	2
PC20. adjust wire stick-out as per requirement	1	1	-	1
PC21. produce joints and components of the required quality and of specified dimensional accuracy which achieve a weld quality equivalent to Level C of ISO 5817	1	3	-	1

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PC22. monitor the welding process and 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	1	2	-	1
PC23. measure the final welded component and compare with the dimensions as prescribed in the WPS and engineering drawing	1	1	-	1
PC24. remove extra material, slag etc. by using brush, chipping hammers, grinders etc., from the welded component	-	1	-	-
PC25. shut down the welding equipment and remove the component after completion of welding activities	-	1	-	-
Perform post-welding activities	**7**	**12**	**-**	**5**
PC26. check the work pieces for product quality, all dimensional and geometrical aspects of the weld by following work instructions	1	2	-	1
PC27. identify various weld defects by conducting visual inspection, destructive and non-destructive tests on the work pieces	2	3	-	2
PC28. detect surface imperfections and deal with them appropriately	1	1	-	-
PC29. separate the defective pieces which can be repaired/ reworked and pieces which are beyond repair	1	1	-	1

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PC30. clean and store all the tools, machine and equipment after completion of work	1	2	-	1
PC31. dispose scrap or waste material in accordance with the company policies and environmental regulations	-	1	-	-
PC32. check the machine operations for any malfunctions/defects in the component and immediately inform the supervisor/maintenance team for correction	1	1	-	-
PC33. report to the supervisor about any problems faced or anticipated during the complete process	-	1	-	-
NOS Total	**30**	**50**	**-**	**20**

DGT/VSQ/N0101: Employability Skills (30 Hours)

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Introduction to Employability Skills	**1**	**1**	**-**	**-**
PC1. understand the significance of employability skills in meeting the job requirements	-	-	-	-
Constitutional values – Citizenship	**1**	**1**	**-**	**-**

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PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
Becoming a Professional in the 21st Century	**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.	-	-	-	-
Basic English Skills	**2**	**3**	**-**	**-**
PC4. speak with others using some basic English phrases or sentences	-	-	-	-
Communication Skills	**1**	**1**	**-**	**-**
PC5. follow good manners while communicating with others	-	-	-	-
PC6. work with others in a team	-	-	-	-
Diversity & Inclusion	**1**	**1**	**-**	**-**
PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC8. report any issues related to sexual harassment	-	-	-	-
Financial and Legal Literacy	**3**	**4**	**-**	**-**

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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	-	-	-	-
Essential Digital Skills	**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	-	-	-	-
Entrepreneurship	**3**	**5**	**-**	**-**
PC14. identify and assess opportunities for potential business	-	-	-	-
PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
Customer Service	**2**	**2**	**-**	**-**
PC16. identify different types of customers	-	-	-	-
PC17. identify customer needs and address them appropriately	-	-	-	-
PC18. follow appropriate hygiene and grooming standards	-	-	-	-

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Getting ready for apprenticeship & Jobs	**1**	**3**	**-**	**-**
PC19. create a basic biodata	-	-	-	-
PC20. search for suitable jobs and apply	-	-	-	-
PC21. identify and register apprenticeship opportunities as per requirement	-	-	-	-
NOS Total	**20**	**30**	**-**	**-**

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Assessment Parameters:

Assessment Plan:

1. Components of Assessment:

- Each subject will be assessed in three components: Theory (40% weightage), Practical (40% weightage), and On-job Training (OJT, 20% weightage).

2. Passing Parameters:

- To pass the semester, students must meet both the assessment parameters given below.

Parameter 1 - Weighted Semester Score:

- Students must achieve a minimum of 60% in the weighted average score across all three components (Theory, Practical, and OJT) for each subject.

Parameter 2 - Individual Component Score:

- Students need to score at least 40% in each individual component (Theory, Practical, and OJT) of every subject.

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 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 (which covers the job profile of Metal Inert Gas/ Metal Active Gas/ Gas Metal Arc Welder (MIG/MAG/GMAW) 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:

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• 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: 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

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