

QUALIFICATION FILE

Casting Operator - Metalware

☒ 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

NCrF/NSQF Level: **NSQF Level 4**

Submitted By:

Handicrafts and Carpet Sector Skill Council-HCSSC

Tel number(s): 011-26139834

E-mail address: ceo@hcsc.in

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Section1: Basic Details

1.	Qualification Name	Casting Operator - Metalware	
2.	Sector/s	Handicrafts and Carpet Sector Skill Council	
3.	Type of Qualification ☐ New ☒ Revised ☐ Has Electives/Options	NQR Code & version of the existing /previous qualification: <i>(change to previous, once approved)</i> NQR Code: 2022/HC/HCSSC/06739 Version of qualification: 3.0	Qualification Name of the existing version: <i>(previous, once approved)</i> Casting Operator (Metal Handicrafts)
4.	National Qualification Register (NQR) Code & Version <i>(Will be issued after NSQC approval)</i>	NQR Code: QG-04-HC-03850-2025-V2-HCSSC Version of qualification: 4.0	5. NCrf/NSQF Level: <i>NSQF Level 4</i>
6.	Award (Certificate/Diploma/ Advanced Diploma/Any Other) <i>(Wherever applicable specify multiple entry/exits also & provide details in annexure)</i>	NA	
7.	Brief Description of the Qualification	The individual at work is responsible for preparing the mold, melting metal, pouring the liquid metal into a mold, solidify and cool to attain the desired shape as per the requirement. The person often uses this method for complex shapes choosing from the different methods of casting	

8. 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>Relevant Experience (with Specialization - if applicable)</th></tr> </thead> <tbody> <tr> <td>1</td><td>12th Grade Pass</td><td></td></tr> <tr> <td>2</td><td>8th grade pass</td><td>1.5-year relevant experience</td></tr> <tr> <td>3</td><td>5th grade pass</td><td>3 years relevant experience</td></tr> <tr> <td>4</td><td>Ability to read and write</td><td>5-year relevant experience</td></tr> <tr> <td>5</td><td>Previous relevant Qualification of NSQF Level 3.5</td><td>1.5 year relevant experience</td></tr> </tbody> </table>						S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Relevant Experience (with Specialization - if applicable)	1	12th Grade Pass		2	8th grade pass	1.5-year relevant experience	3	5th grade pass	3 years relevant experience	4	Ability to read and write	5-year relevant experience	5	Previous relevant Qualification of NSQF Level 3.5	1.5 year relevant experience
S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Relevant Experience (with Specialization - if applicable)																						
1	12th Grade Pass																							
2	8th grade pass	1.5-year relevant experience																						
3	5th grade pass	3 years relevant experience																						
4	Ability to read and write	5-year relevant experience																						
5	Previous relevant Qualification of NSQF Level 3.5	1.5 year relevant experience																						
9. Credits Assigned to this Qualification (as per National Credit Framework (NCrF))	16		10. Common Cost Norm Category (I/II/III) (wherever applicable): II																					
11. Any Licensing Requirements for Undertaking Training on This Qualification (wherever applicable)	NA																							
12. Training Duration by Modes of Training Delivery (Specify <i>Total Duration</i> as per selected training delivery modes and as per requirement of the qualification)	☒ Offline Only ☐ Online Only ☐ Blended <table border="1"> <thead> <tr> <th>Training Delivery Modes</th><th>Theor y (Hours)</th><th>Practica l (Hours)</th><th>OJT Mandatory (Hours)</th><th>OJT Recomme nded (Hours)</th><th>Total (Hours)</th></tr> </thead> <tbody> <tr> <td>Classroom (offline)</td><td>180 (Includi ng 40 hrs of ES modul</td><td>300 (Includin g 20 Hrs of ES module)</td><td></td><td></td><td>480</td></tr> </tbody> </table>						Training Delivery Modes	Theor y (Hours)	Practica l (Hours)	OJT Mandatory (Hours)	OJT Recomme nded (Hours)	Total (Hours)	Classroom (offline)	180 (Includi ng 40 hrs of ES modul	300 (Includin g 20 Hrs of ES module)			480						
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			e)				
		Online					
		(Refer Blended Learning Annexure for details)					
13.	Aligned to NCO/ISCO Code/s (if code is not available, then mention the same)	NCO-2015/8121.3301					
14.	Progression Path After Attaining the Qualification (Please show Professional and Academic progression) (wherever applicable)	Vertical Progression Merchandiser (Level 4.5) Horizontal Progression Metal Craft Artisan (including Engraving and Stamping as elective) (Level 4)					
15.	Other Indian Languages in which the Qualification & Model Curriculum are being Submitted	Hindi					
16.	Is similar Qualification(s) available on NQR-if yes, justification for this qualification	☐ Yes ☒ No URLs of similar Qualifications:					
17.	Is the Job Role Amenable to Persons with Disability	☒ Yes ☐ No If “Yes”, specify applicable type of Disability: applicable to all types of disability except vision Impairment, mental health conditions, intellectual disability or (limited to physical disability where hands are used).					
18.	How participation of women will be encouraged?	Participants of women in the handicrafts and carpet sector can be encouraged by providing them skill development programs and creating accessible work opportunities for handicrafts products which is well known by the women of India.					
19.	Are Greening/ Environment Sustainability Aspects Covered (Specify the NOS/Module which covers it), wherever applicable	☒ Yes ☐ No					
20.	Is Qualification Suitable to be Offered in Schools/Colleges	Schools ☒ Yes ☐ No Colleges ☒ Yes ☐ No					
21.	Name and Contact Details of Submitting / Awarding Body SPOC	Name: Mr. Krishan Kumar Email: ceo@hcssc.in					

	(In case of CS or MS, provide details of both Lead AB & Supporting ABs)	Contact No.: 011-26139834 Website: www.hcssc.in
22.	Final Approval Date by NSQC: 18/02/2025	23. Validity Duration: 3 years 24. Next Review Date: 18/02/2028

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.	Perform pre casting requirements	HCS/N2801 NOS Version 2.0	Core	4	2	20:00	40:00	NA	00:00	60:00	37	63	-	-	100	
2.	Casting of metal surface	HCS/N2802 NOS Version 2.0	Core	4	3	30:00	60:00	NA	00:00	90:00	33	67	-	-	100	
3.	Carry out the process	HCS/N06	Core	4	3	30:00	60:00	NA	00:00	90:00	30	70	-	-	100	

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-Ma n.	OJT-Rec.	Total	Th.	Pr.	Proj .	Viva	Total	Weightage (%) (if applicable)
	involved in sandcasting techniques	03 NOS Version 1.0					0		0							
4.	Entrepreneurship skills for Metal casting operator	HCS/N85 05 NOS Version 1.0	Core	4	2	20:00	40:00	NA	00:00	60:00	40	60	-	-	100	
5.	Coordinate with colleagues and work as a team	HCS/N99 01 NOS Version 6.0	Non-core	4	1	10:00	20:00	NA	00:00	30:00	35	65	-	-	100	
6.	Maintain health, safety and security at workplace	HCS/N99 13 NOS Version 1.0	Non-Core	4	1	10:00	20:00	NA	00:00	30:00	30	70	-	-	100	
7.	Maintain Personal Hygiene	HCS/N99 03 NOS Version 3.0	Non-core	4	1	10:00	20:00	NA	00:00	30:00	27	73	-	-	100	

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)
8.	Basic Business management	HCS/N9904 NOS Version 3.0	Non-Core	4	1	10:00	20:00	NA	00:00	30:00	35	65	-		100	
9.	Employability & Entrepreneurship Skills	DGT/VSQ/N0102 NOS Version 1.0	Non-core	4	2	40:00	20:00	NA	00:00	60:00	20	30	-	-	50	
Duration (in Hours) / Total Marks					16	180:00	300:00	NA	00:00	480:00	287	563	0	0	850	

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: 50 % (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)	12 th grade pass with 2 years' experience in the relevant sector and 1 year of teaching experience
2.	Master Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)	Graduate with 3 years' experience in the relevant sector and 4 years of teaching experience
3.	Tools and Equipment Required for the 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

1.	Assessor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)	12 TH Grade pass/ Graduate with Basic IT skills in the experience of preparing the mold, melting metal, pouring the liquid metal into the mold etc., to create desired shape as per requirements
2.	Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines) wherever applicable	12 TH Grade pass/ Graduate with Basic IT skills in the experience of preparing the mold, melting metal, pouring the liquid metal into the mold etc., to create desired shape as per requirements
3.	Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines) wherever applicable	12 TH Grade pass/ Graduate with Basic IT skills in the experience of preparing the mold, melting metal, pouring the liquid metal into the mold etc., to create desired shape as per requirements

4.	Assessment Mode (<i>Specify the assessment mode</i>)	Blended
5.	Tools and Equipment Required for Assessment	☒ Same as for training ☒ Yes ☐ No (<i>details to be provided in Annexure-if it is different for Assessment</i>)

Section 5: Evidence of Need for the Qualification

Provide Annexure/Supporting documents name.

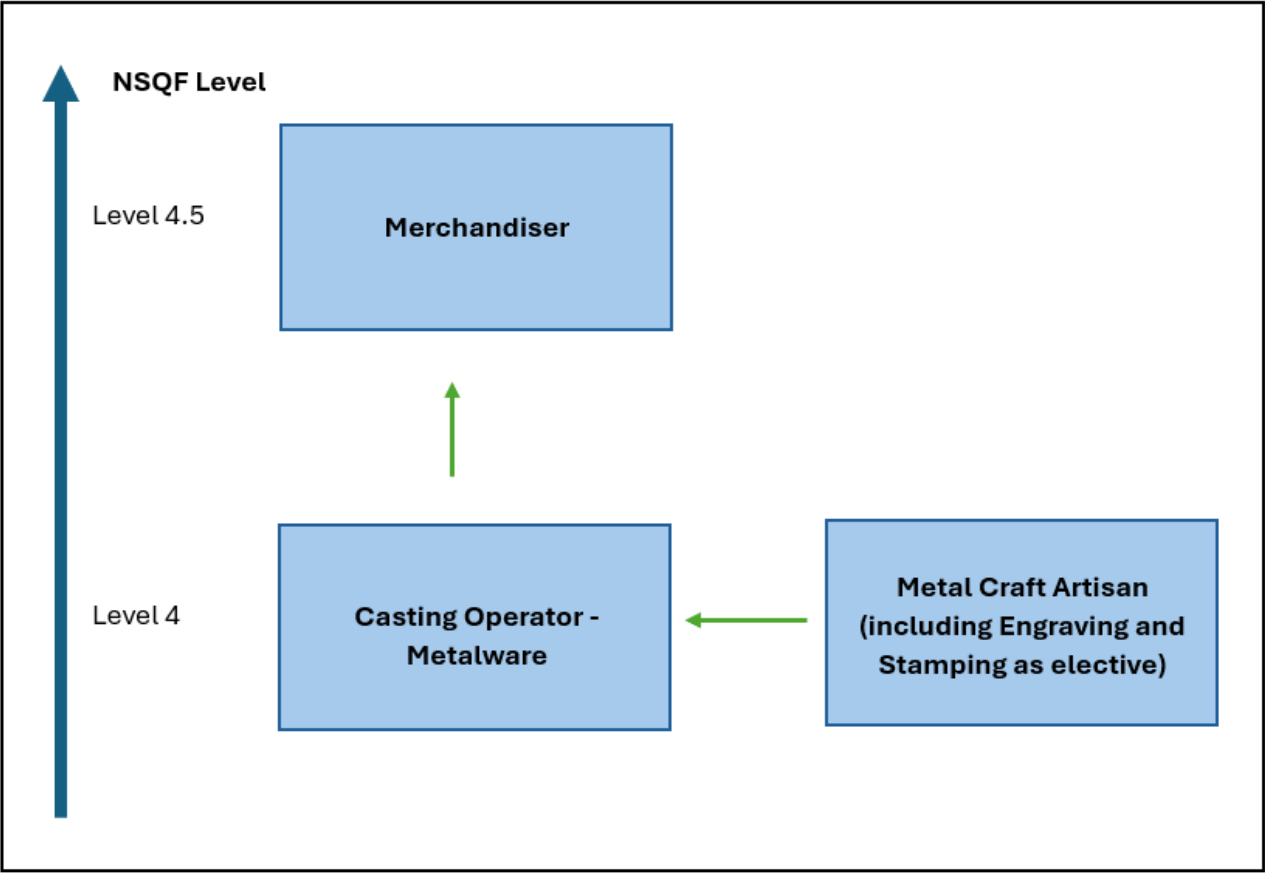
1.	Latest Skill Gap Study (not older than 2 years) (Yes/No): Yes
2.	Latest Market Research Reports or any other source (not older than 2 years) (Yes/No): Yes
3.	Government /Industry initiatives/ requirement (Yes/No): Yes
4.	Number of Industry validation provided: 30
5.	Estimated nos. of persons to be trained and employed: 750 approx.
6.	Evidence of Concurrence/Consultation with Line Ministry/State Departments If “No”, why: Yes

Section 6: Annexure & Supporting Documents Check List

Specify Annexure Name / Supporting document file name

1.	Annexure: NCrf/NSQF level justification based on NCrf level/NSQF descriptors (Mandatory)	Annexure 1
2.	Annexure: List of tools and equipment relevant for qualification (Mandatory, except in case of online course)	Annexure 2

3.	Annexure: Detailed Assessment Criteria (Mandatory)	Annexure 6
4.	Annexure: Assessment Strategy (Not Mandatory)	Annexure 7
5.	Annexure: Blended Learning (Mandatory, in case selected Mode of delivery is Blended Learning)	Blended learning called a “flipped classroom”, “hybrid learning” or “mixed learning,” is an approach that mixes instructor-led classroom training with online content, which could be in the form of on-demand videos that learners review outside of class. The live instruction can be face-to-face or online (via a live virtual classroom or even two-way video), or there might be no live lecture at all. Blended learning represents a learning model that combines both formal (traditional classroom) and non-formal (online) methodologies. (Annexure 5)
6.	Annexure: Multiple Entry-Exit Details (Mandatory, in case qualification has multiple Entry-Exit)	The Multiple entry and exit criteria would help in fragmenting an entire program into smaller units with due acknowledgement being given to each unit of learning. The credit transfer mechanism will also enable a student to enter, exit and re-enter the educational ecosystem both general and vocational at any point of time.
7.	Annexure: Acronym and Glossary (Optional)	(Annexure 8)
8.	Supporting Document: Model Curriculum (Mandatory – Public view)	Model Curriculum attached separately
9.	Supporting Document: Career Progression (Optional - Public view)	Career Progression/ Job Role Progression appended below
10.	Any other document you wish to submit:	



Annexure 1: Evidence of Level

NCrF/NSQF Level Descriptors	Key requirements of the job role/ outcome of the qualification	How the job role/ outcomes relate to the NCrF/NSQF level descriptor	NCrF/NSQF Level
Professional Theoretical Knowledge/Process	The incumbent works in familiar and predictable routine of casting in metal ware manufacturing. The situation of clear choice (descriptor of level 4) is evident through the following examples • select the appropriate tool and machine for casting such as coal, course blade, crucible, furnace, refrigerator bricks • decide on the type of mould to be prepared, if closed mould or open mould • discuss the techniques of sandcasting	This is not of level 5 which requires clear choice of procedures, as here the procedure is standardised by the direction of the supervisor Example: • receive work instruction from the supervisor • understand the job sheet and the casting method	4
Professional and Technical Skills/ Expertise/ Professional Knowledge	The incumbent has factual knowledge of field of knowledge or study which is in this case includes casting operations and metal ware manufacturing moulding Examples: • metal craft details • metal making process and	This is not level 5 as there is a requirement of principles and general concepts at level 5 which is not required here. Also not level 3 as this level as outlined above requires factual knowledge of	4

	types of products • various kinds of raw materials involved in the process • different kinds of casting methods to be used based on the requirement • cast machine use and maintenance • furnace preparation and operation • Techniques of sandcasting	field of study and not mere basic facts, process and Principle knowledge of trade of employment	
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	Most of the work involves recall and demonstration of practical skill, which is routine and repetitive and in a narrow range of application. The incumbent also uses appropriate rule and tool and quality concepts to complete their work. This is evident through: • select the appropriate tool and machine for casting such as coal, course blade, crucible, furnace, refrigerator bricks • ensure to use the appropriate tools for moulding • pour the molten metal into the mould	This is at level 4 as ranges of methods for problem solving are required. Not level 3 as there is independent work and not mere assisting, at the same time there are variables involved	4

	at the right temperature manually • monitor the furnace constantly to avoid defects at later stage • open the furnace and check for completion		
Broad Learning Outcomes/Core Skill	The incumbent needs language to communicate written or oral, with required clarity, to interact with customers, various departments, supervisors, personnel and teams, confirm requirements and communicate the same for shared understanding. Also prepare a range of routine documentation. Examples: • interact with team members to work efficiently • communicate effectively with supervisor • communicate to the colleagues from within and other departments, clearly and effectively on all aspects to carry out the work among the team • maintain the etiquettes, use	The incumbent needs language to communicate written or oral, with required clarity, to interact with customers, various departments, supervisors, personnel and teams.	4

	polite language, demonstrate responsible and disciplined Behaviour to the colleagues The incumbent also needs skill pertaining to basic arithmetic and algebraic principles, for calculating various quantities and parameters, etc. For example: • how to plan for daily production • how to plan for budget and material requirement • understand the job sheet and the casting method		
Responsibility	Check for the working condition of the casting machine in case if using the machine. • understand the operation of the machine for do's and dont's • set the machine to begin the process • interact with colleagues from different functions and understand the nature of their work • communicate and discuss work flow related difficulties in order to find solutions with	The incumbent works with responsibility for own work and learning, which is evident from the incumbent's deliverables and also there is no responsibility for the learning of others therefore this is not level 5.	4

	mutualagreement		
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Annexure 2: 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	Marker	Used to trace patterns and markings on metal surfaces, guiding the casting operator in the precise placement of molds	4 Eqpt nos
2	Sand	Essential for creating molds in the casting process, providing a moldable and heat-resistant medium for shaping metalware	6 Kg
3	Clay	Used in mold-making to create intricate patterns or molds for casting metal	7 Kg
4	Protective gears	Worn to ensure the safety of the casting operator by providing protection against potential hazards such as heat, molten metal splashes, and other workplace risks	1 Each
5	Resin	Employed to create patterns, prototypes, or models for metal casting, allowing for the production of intricate and detailed designs before the final casting process	9 Kg
6	Cutting table	Utilized for cutting and shaping metal materials to the desired dimensions	5 Eqpt nos

7	Measuring tape	Essential for accurate measurement of metal components, ensuring precision in the casting process and the production of metalware with specific dimensions	1 Each
8	Coal	Used in the casting process as a heat source to melt metal	4 Bag
9	Knife	Employed for cutting and shaping materials, aiding in the preparation of molds and other components required for the casting process	1 Each
10	Hand drill	Used to create holes or perforations in metal components	5 Eqpt nos
11	Pincers	Essential for handling hot metal components during the casting process	12 Types

Classroom Aids

The aids required to conduct sessions in the classroom are:

1. White Board
2. Marker/Pen
3. Duster
4. First-aid
5. PPE Kit

Annexure 3: Industry Validations Summary

S. No	Organization Name	Representative Name	Designation	Contact Address	Contact Phone No	E-mail ID	LinkedIn Profile (if available)
1	MARQUE IMPEX PVT. LTD.	SHARIB IRFAN	Manager	Opposite Noorpur Village, Majra Bastoor, Chandausi Road Moradabad, UP-244001	9760767526	sharib@marqueimpex.com	
2	SHRI GANPATI SALES	ARUN KUMAR VARMA	Proprietor	K-31/28, Ganesh Chanwar Gali, Bhairo Nath, Varansi -221001	9305129549		
3	MSME	AMAN	Artisan	Faredi, Moradabad – 244001 (UP)	9634979222		
4	MSME	ANEES KHAN	Artisan	Idres neta wali gali, Moradabad-244001	7248868543		
5	MSME	ANWAR	Artisan	Karula, Near moti masjid, Moradabad-	8534934078		

				244001 (UP)			
6	MSME	DEVENDRA SINGH	Artisan	Kira Shahabad, Dhoulasar, Rampur-244922 (UP)	7351711734		
7	MSME	DHARVENDR	Artisan	Indra, Rampur-244901 (UP)	7042334305		
8	MSME	DIPAK KUMAR	Artisan	Malak Basira Khas, Moradabad – 244001 (UP)	9756497511		
9	MSME	INTEKHAB ALAM	Artisan	Kabab Wali Gali, Saraj Husaini Begam, Moradabad – 244001 (UP)	9897229730		
10	MSME	JAIPAL	Artisan	Farendi-Moradabad-202411 (UP)	9997419435		
11	MSME	JITENDRA SINGH	Artisan	Faredi Rampur, Maigan, Moradabad-244001 (UP)	9548867121		
12	MSME		Artisan	Rahamanl	7520512792		

		JUNED		nagar gali, Moradabad-			
13	MSME	MOHD.ADNAN	Artisan	Mohd.Adnan, Thatera Street , Moradabad	9411690793		
14	MSME	MOHD. FAISAL	Artisan	Mohd. Faisal, Barwara Majhra, Moradabad	9557052184		
15	MSME	MOHD. IKBAL	Artisan	jatav basti, Aslatpura , Moradabad	9756854901		
16	MSME	MOHD IMRAN	Artisan	Banjaro wali gali , Moradabad	9528433459		
17	MSME	MOHD. SAMI	Artisan	Gali -3, Mana Nagar, Jayanagar Moradabad – 244001 (UP)	8218725281		
18	MSME	MOHD. YOK	Artisan	Mohalla Thathera Mazar Wali Gali, Moradabad – 244001 (UP)	9639088092		
19	MSME	MOHD. ALAM	Artisan	Kundarki,	8057535767		

				Moradabad - 202413 (UP)			
20	MSME	MOHSIN RAZA	Artisan	Sofipur, Moradabad- 202411	9557269823		
21	MSME	MUNENDRRA KUMAR	Artisan	Noorpur, Mohanpur , Moradabad	8077857599		
22	MSME	PHURKAN	Artisan	Bhandari, Pakbara , Moradabad	9927372390		
23	MSME	ROHIT	Artisan	Uncha Gaon, Rustampur, Bodhmar, Moradabad – 244001 (UP)	6396495557		
24	MSME	SANAJUL HASAN	Artisan	Pakbara , Moradabad- 244102 (UP)	9927667070		
25	MSME	SANJAY SINGH	Artisan	H. No.-107 Kira, Dholasar isabad, Moradabad- 244001 (UP)	9536457237		
26	MSME	SHAHNAWAZ	Artisan	Bilari, Syaundara, Moradabad –	7055185767		

				202411 (UP)			
27	MSME	SHALIM	Artisan	Rampur Maigan, Moradabad- 244001	7500183017		
28	MSME	SIRAJUDDIN	Artisan	H No.-86 Saidi Sarai, Near Alam Biryani Moradabad – 244001 (UP)	8279858543		
29	MSME	SONU SINGH	Artisan	Sonu Singh , Mohanpur, Moradabad- 202413	7302423190		
30	MSME	VISHAL BABU	Artisan	Bastaur, Moradabad- 244001	9412494795		
31	MSME	ZEESHAN	Artisan	38 Peergaib, G/NO-1, Babu Tailor, Moradabad – 244001 (UP)	7534849811		
32	MSME	BRIJESH SINGH	Artisan	Chitari, Moradabad- 202411 (UP)	8449589596		

33	MSME	KANWAR PAL SINGH	Artisan	Goojar, Sendara, Rampur Patti, Moradabad-202411 (UP)	9760915549		
34	MSME	RAJESH	Artisan	Faredi, Rampur Megan, Moradabad-202411 (UP)	7818830463		
35	MSME	SAIF ALI		H NO.-16/306 Bhura KA, Chuaraha, Jadav Basti, Moradabad-244001(UP)	9837441128		

Annexure 4: Training & Employment Details

Training and Employment Projections:

Year	Total Candidates		Women		People with Disability	
	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities
2023-24	750	Self-employment	Approx. 60%	Self-employment	N/A	N/A
2024-25	1000	Self-employment	Approx. 60%	Self-employment	N/A	N/A
2025-26	1250	Self-employment	Approx. 60%	Self-employment	N/A	N/A

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
3.0	2021-2022	620	594	594	Self-employed	More than 60%	More than 60%	More than 60%	Self-employed	NA	NA	NA	NA
3.0	2022-2023	600	580	580	Self-employed	More than 60%	More than 60%	More than 60%	Self-employed	NA	NA	NA	NA
3.0	2023-2024	3857	3852	3852	Self-employed	More than 60%	More than 60%	More than 60%	Self-employed	NA	NA	NA	NA

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

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

1. PMKVY 4.0
2. ODOP

Content availability for previous versions of qualifications: Yes

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

Languages in which Content is available: English and Hindi

Annexure 5: Blended Learning

Blended Learning Estimated Ratio & Recommended Tools:

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

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

S. No.	Select the Components of the Qualification	List Recommended Tools – for all Selected Components	Offline: Online Ratio
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1	☒ Theory/ Lectures - Imparting theoretical and conceptual knowledge	• Qualification/ Syllabus • Books/ e-books • Presentations	• Without use of appropriate tech tools 80% Offline and only upto 20% online otherwise. • Online Instructor led teaching, can be one-to-one or one to many or many-to-many: up to 80% to 100% online
2	☒ Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners	• Presentations • E-Content/ Curated digital content	• Without use of appropriate tech tools, 80% Offline and only upto 20% online otherwise. 100% virtual while working in virtual teams / virtual collaboration
3	☒ Showing Practical Demonstrations to the learners	• Projector, laptop various tools and equipment	• For all skills, where a physical product is created, at least 50% shall be on practical demonstrations and site visits
4	☒ Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training	• Projector, laptop various tools and equipment	• 100% offline without the use of any technology tools.
5	☒ Tutorials/ Assignments/ Drill/ Practice	• Learning Management system	• 70% offline and upto 30% online where a physical product is created as part of skilling
6	☐ Proctored Monitoring/ Assessment/ Evaluation/ Examinations		
7	☐ On the Job Training (OJT)/ Project Work Internship/ Apprenticeship Training		

Annexure 6: Detailed Assessment Criteria

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

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
HCS/N2801: Perform pre casting requirements	Understand work requirement	7	9	-	-
	PC1. Receive work instruction from the supervisor.	2	3	-	-
	PC2. Understand the job sheet and the casting method.	2	3	-	-
	PC3. Plan the target on the number of pieces to be completed.	3	3	-	-
	Assemble the required raw materials	18	36	-	-
	PC4. Select the appropriate tool and machine for casting such as coal, coarse blade, crucible, furnace, refrigerator bricks.	3	6	-	-
	PC5. Arrange for the furnace preparation.	3	6	-	-
	PC6. Collect and arrange the materials to begin the process.	3	6	-	-
	PC7. Report on any shortage or defect of raw materials to the concerned person.	3	6	-	-
	PC8. Ensure to stock the required materials in advance.	3	6	-	-
	PC9. Collect the metal product to be casted.	3	6	-	-
	Set the cast machine	12	18	-	-
	PC10. Check for the working condition of the casting machine. in case, if using the machine.	4	6	-	-
	PC11. Understand the operation of the machine for dos and don'ts.	4	6	-	-
	PC12. Set the machine to begin the process.	4	6	-	-
	Total Marks	37	63	-	-
HCS/N2802: Casting of metal surface	prepare the mold	7	16	-	-
	PC1. decide on the type of mold to be prepared, if closed mold or open mold	1	2	-	-
	PC2. ensure to use the appropriate tools for molding	1	2	-	-
	PC3. clean the surface before beginning to mold	1	2	-	-

	PC4. prepare the pattern in the form of a model using the appropriate materials	1	2	-	-
	PC5. prepare the mold by holding around a pattern within a supporting metal frame	1	3	-	-
	PC6. remove the pattern leaving the mold cavity with cores	1	3	-	-
	PC7. ensure the mold is prepared to the required shape	1	2	-	-
	operate the furnace and melt the metal	6	13	-	-
	PC8. decide on the type of casting to be performed from expendable, permanent mold casting, sand casting, investment casting, etc.	1	2	-	-
	PC9. prepare the molten metal melting a solid metal	1	2	-	-
	PC10. determine the size of the furnace	1	2	-	-
	PC11. heat this solid metal placed in coal to an appropriate temperature in a suitable furnace for required time	1	3	-	-
	PC12. monitor the furnace constantly to avoid defects at later stage	1	2	-	-
	PC13. open the furnace and check for completion	1	2	-	-
	Pour the molten metal	7	15		
	PC14. pour the molten metal into the mold at the right temperature manually	1	3	-	-
	PC15. ensure not to leak while pouring	1	2	-	-
	PC16. ensure minimal accidents while handling molten metal	1	2	-	-
	PC17. allow this to solidify and cool to room temperature	1	2	-	-
	PC18. take the metal out of the mold, trim and bring to the desired shape	1	2	-	-
	PC19. ensure to set the appropriate temperature and duration setting to the machine for operation as per specifications	1	2	-	-
	PC20. ensure weigh the correct amount of lubricants to be used	1	2	-	-

	clean the casted metal	1	2	-	-
	PC21. clean the surface of the cast and improve its appearance	1	2	-	-
	check for defects	4	8	-	-
	PC22. check the metal after casting, if it matches requirement	1	2	-	-
	PC23. make necessary adjustments if any	1	2	-	-
	PC24. rectify and rework if any mistakes are found un-matching the design specifications and requirements	1	2	-	-
	PC25. melt and recast product returned from qc	1	2	-	-
	Undertake preventive maintenance of the cast machine	2	4	-	-
	PC26. ensure general maintenance of the machine	1	2	-	-
	PC27. ensure no shut down of machines due to improper maintenance	1	2	-	-
	achieve productivity and quality standards	6	9	-	-
	PC28. ensure casting process performed is as per requirement	2	3	-	-
	PC29. ensure the target number of piece are casted	2	3	-	-
	PC30. ensure the output delivered is defect free and hazard free	2	3	-	-
	Total Marks	33	67	-	-
HCS/N0603 Carry out the process involved in Sandcasting techniques	Design the Pattern	4	11	-	-
	PC1. create a pattern of the object to be cast	2	6	-	-
	PC2. model or pattern of the desired part is made from wood, metal, or plastic	2	5	-	-
	Mold Preparation	5	12	-	-
	PC3. Place a pattern inside a two-part frame called a "flask"	2	6	-	-
	PC4. mix casting sand with clay and water and tightly packed around the pattern	3	6	-	-
	Pouring the Molten Metal	8	18	-	-

	PC5. heat the metal in a furnace until it becomes melt	3	6	-	-
	PC6. close the mold and pour the molten metal through the gating system into the cavity	2	6	-	-
	PC7. fills the cavity and takes the shape of the part	3	6	-	-
	Cooling and Removing the Casting	6	11	-	-
	PC8. allow the metal cool and solidify inside the sand mold	3	5	-	-
	PC9. clean the casting and remove the excess sand or any unwanted metal (like the sprue and gates) is cut off	3	6	-	-
	Finishing Touches	7	18	-	-
	PC10. polish and sand the casting to remove rough surfaces, imperfections, or sharp edges	3	6	-	-
	PC11. trim the excess metal or flash (the thin layer of metal along the mold lines) by using cutting tools	2	6	-	-
	PC12. apply finishing process such as grinding, polishing, or coating, depending on the desired surface finish	2	6	-	-
	NOS Total	30	70	-	-
HCS/N8505 Entrepreneurship skills for Metal casting operator	Technical Skills	7	10	-	-
	PC1. learn about various types of casting techniques	3	5	-	-
	PC2. identify the different metal and their properties helps in selecting the appropriate material for specific designs and ensuring quality	4	5	-	-
	Business Management Skills	6	10	-	-
	PC3. analyze the market trends, consumer preferences, and competitor offerings helps in identifying potential opportunities and niches	3	5	-	-
	PC4. use supply chain dynamics, including sourcing raw materials and managing logistics, is crucial for smooth operations	3	5	-	-
	Creativity and Innovation	14	20	-	-

	PC5. ability to innovate and develop new products that meet consumer needs, utilizing unique designs or materials	3	5	-	-
	PC6. create new product designs or improve existing ones to stand out in a competitive market	4	5	-	-
	PC7. use creative thinking to address production challenges, quality issues, and market demands	4	5	-	-
	PC8. Keep up with current design trends and consumer preferences can help entrepreneurs develop products that resonate with target audiences	3	5	-	-
	Operational Skills	7	10	-	-
	PC9. use production workflows and optimizing processes to improve efficiency and reduce waste is essential for scaling operations	4	5	-	-
	PC10. identify the safety regulations and practices in metal casting is vital to ensure a safe working environment for employees	3	5	-	-
	Sustainability Awareness	6	10	-	-
	PC11. identify the sustainable practices and materials can help in developing environmentally friendly products, appealing to eco-conscious consumers	3	5	-	-
	PC12. implement the effective waste management practices in the casting process is essential for reducing environmental impact and improving efficiency	3	5	-	-
	NOS Total	40	60	-	-
HCS/N9901: Coordinate with colleagues and work as a team	Interact with supervisor or superior	7	15	-	-
	PC1. Comply with health, safety gender, and PwD (People with disability) related instructions applicable to the workplace.	2	5	-	-
	PC2. Actively participate in mock drills/ evacuation procedures; group discussions, training sensitization programs for gender, and PwD awareness organized at the workplace.	2	5	-	-
	PC3. Receive job orders and instructions from reporting	2	5	-	-

	supervisor and receive feedback on work standards.				
	PC4. Understand the work output requirements, targets, performance indicators and incentives.	2	5	-	-
	PC5. Deliver quality work on time and report any anticipated reasons for delays and handover completed work to supervisor.	3	5	-	-
	PC6. Report on any grievances, production defects and any potential hazards.	3	5	-	-
	Work as a team by coordinating with colleagues within and outside the department and include inputs on PwD & Gender Sensitisation	6	10	-	-
	PC7. Communicate maintenance and repair schedule proactively to the supervisor.	3	5	-	-
	PC8. Interact and clarify doubts on design, usage of materials & tools, quality & standards compliance, etc.	3	5	-	-
	Report and Document	15	25	-	-
	PC9. Report in time for shortage or need of raw materials.	3	5	-	-
	PC10. Communicate with colleagues from within and other departments, clearly and effectively on all aspects to carry out the work among the team.	3	5	-	-
	PC11. Maintain the etiquette, use polite language, demonstrate responsible and disciplined behavior towards colleagues.	3	5	-	-
	PC12. Put team over individual goals and multitask or share work where necessary supporting the colleagues.	3	5	-	-
	PC13. Document all the details accurately relating to ones role as required.	3	5	-	-
	Total Marks	35	65	-	-
HCS/N9913: Maintain health, safety and security at workplace	Comply with health, safety and security requirements at work	30	70	-	-
	PC1. Comply with health and safety related instructions applicable to the workplace.	2	6	-	-
	PC2. Use and maintain personal protective equipment as per	2	6	-	-

	protocol.				
	PC3. Carry out your own activities in line with approved guidelines and procedures.	2	6	-	-
	PC4. Maintain a healthy lifestyle and guard against dependency on intoxicants.	2	6	-	-
	PC5. Follow environment management system related procedures.	2	4	-	-
	PC6. Store materials and tools in line with manufacturers and organisational requirements.	2	3	-	-
	PC7. Safely handle and move waste and debris.	1	3	-	-
	PC8. Minimize health and safety risks to self and others due to own actions.	2	4	-	-
	PC9. Seek clarifications, from supervisors or other authorized personnel in case of perceived risks.	1	3	-	-
	PC10. Monitor the workplace and work processes for potential risks and threats.	1	3	-	-
	PC11. Carry out periodic walk-through to keep work area free from hazards and obstructions, if assigned.	2	3	-	-
	PC12. Report hazards and potential risks/ threats to supervisors or other authorized personnel.	3	4	-	-
	PC13. Participate in mock drills/ evacuation procedures organized at the workplace.	2	3	-	-
	PC14. Undertake first aid, fire-fighting and emergency response training, if asked to do so.	2	4	-	-
	PC15. Take action based on instructions in the event of fire, emergencies or accidents.	2	6	-	-
	PC16. Follow organisation procedures for evacuation when required.	2	6	-	-
	Total Marks	30	70	-	-
HCS/N9903: Maintain	Adopt healthy work practices	18	48	-	-
	PC1. always cover the mouth and nose with a dust mask while	3	8	-	-

Personal Hygiene	working and keep on changing when it gets blocked with dust				
	PC2. wear safety shoes while visiting the production unit to avoid any damage	3	8	-	-
	PC3. wear personal protective equipment while visiting the different departments during production. or example mask in the washing section, glasses and mask in an assembly line, and gloves in the printing section, etc.	3	8	-	-
	PC4. always wash sanitize your hands after a factory unit before touching any document, laptop, cell phone, etc.	3	8	-	-
	PC5. undergo preventive health checkups at regular intervals.	3	8	-	-
	PC6. take prompt treatment from the doctor in case of illness.	3	8	-	-
	Achieve work productivity while maintaining health	12	22	-	-
	PC7. follow SOPs for dealing with blisters; scratches; accidental fires or any other type of emergencies at work	4	7	-	-
	PC8. ensure no productivity loss or absenteeism from work due to illness	4	7	-	-
	PC9. ensure no long-term ill effect on personal health.	4	8	-	-
	Total Marks	30	70	-	-
HCS/N9904: Basic Business Management	People management	3	6	-	-
	PC1. arrange Interactive meetings of managers of sales and production teams and categorize the issues and feedback of both the teams	1	2	-	-
	PC2. train the employees of his/her unit with the appropriate skills required to make market relevant and quality products	1	2	-	-
	PC3. motivate the employees	1	2	-	-
	Product planning	8	16	-	-
	PC4. compile a report based on old production reports	1	2	-	-
	PC5. address the issues faced in previous productions and try to resolve them	1	2	-	-
	PC6. gather and analyze the cues from the market	1	2	-	-
	PC7. ascertain the customer preference	1	2	-	-

	PC8. develop product range lines based on current market preference	1	2	-	-
	PC9. develop product range lines that are unique and able to price high	1	2	-	-
	PC10. price the products according to market trends	1	2	-	-
	PC11. identify the competent marketing strategy for the product range	1	2	-	-
	Procurement of raw materials	7	14	-	-
	PC12. list of the raw materials and prepare a B.O.M according to the product lines	1	2	-	-
	PC13. ascertain the quantity and right price to procure the materials	1	2	-	-
	PC14. identify the right locations/agents from where the raw materials can be procured	1	2	-	-
	PC15. negotiate to get the best price	1	2	-	-
	PC16. ensure quality materials are procured	1	2	-	-
	PC17. ensure the procured materials are stored in appropriate conditions	1	2	-	-
	PC18. compile a record of price quotations, POs, and bills of procurement for future reference	1	2	-	-
	Market interfacing	7	14	-	-
	PC19. maintain a healthy and professional relationship with vendor	1	2	-	-
	PC20. the competitive market falls in order with the company policies of best price, quality, and delivery parameters	1	2	-	-
	PC21. analyze the prevalent price for product lines	1	2	-	-
	PC22. decide on the most effective means to access the market	1	2	-	-
	PC23. plan for cost-effective transportation to the market	1	2	-	-
	PC24. position the product according to market requirements	1	2	-	-
	PC25. identify and address the expectations of customer	1	2	-	-

	Financial management	4	8	-	-
	PC26. analyze and ascertain the cost of production	1	2	-	-
	PC27. maintain the book of accounts related to the business	1	2	-	-
	PC28. maintain export documents like a letter of credit, custom clearance	1	2	-	-
	PC29. identify cost-effective means of running the business	1	2	-	-
	Record keeping	6	7	-	-
	PC30. identify various aspects of business that require recording	1	2	-	-
	PC31. design formats for recording	1	1	-	-
	PC32. compile various records of all aspects of the business	1	1	-	-
	PC33. maintain these records with periodic updations	1	1	-	-
	PC34. maintain necessary documents as per local government and regulatory requirements	1	1	-	-
	PC35. reframe the procurement strategy according to local scenarios like weather conditions, transport strikes, affected prices, etc.	1	1	-	-
	Total Marks	35	65	-	-
DGT/VSQ/N0102: Employability Skills (60 Hours)	Introduction to Employability Skills	1	1	-	-
	PC1. identify employability skills required for jobs in various industries	-	-	-	-
	PC2. identify and explore learning and employability portals	-	-	-	-
	Constitutional values – Citizenship	1	1	-	-
	PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.	-	-	-	-
	PC4. follow environmentally sustainable practices	-	-	-	-
	Becoming a Professional in the 21st Century	2	4	-	-
	PC5. recognize the significance of 21st Century Skills for employment	-	-	-	-

	PC6. practice the 21st Century Skills such as SelfAwareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life	-	-	-	-
	Basic English Skills	2	3	-	-
	PC7. use basic English for everyday conversation in different contexts, in person and over the telephone	-	-	-	-
	PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English	-	-	-	-
	PC9. write short messages, notes, letters, e-mails etc. in English	-	-	-	-
	Career Development & Goal Setting	1	2	-	-
	PC10. understand the difference between job and career	-	-	-	-
	PC11. prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
	Communication Skills	2	2	-	-
	PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-	-
	PC13. work collaboratively with others in a team	-	-	-	-
	Diversity & Inclusion	1	2	-	-
	PC14. communicate and behave appropriately with all genders and PwD	-	-	-	-
	PC15. escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-	-
	Financial and Legal Literacy	2	3	-	-
	PC16. select financial institutions, products and services as per requirement	-	-	-	-
	PC17. carry out offline and online financial transactions, safely and securely	-	-	-	-
	PC18. identify common components of salary and compute income, expenses, taxes, investments etc	-	-	-	-

PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation	-	-	-	-
Essential Digital Skills	3	4	-	-
PC20. operate digital devices and carry out basic internet operations securely and safely	-	-	-	-
PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively	-	-	-	-
PC22. use basic features of word processor, spreadsheets, and presentations	-	-	-	-
Entrepreneurship	2	3	-	-
PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research	-	-	-	-
PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion	-	-	-	-
PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity	-	-	-	-
Customer Service	1	2	-	-
PC26. identify different types of customers	-	-	-	-
PC27. identify and respond to customer requests and needs in a professional manner.	-	-	-	-
PC28. follow appropriate hygiene and grooming standards	-	-	-	-
Getting ready for apprenticeship & Jobs	2	3	-	-
PC29. create a professional Curriculum vitae (Résumé)	-	-	-	-
PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively	-	-	-	-
PC31. apply to identified job openings using offline /online methods as per requirement	-	-	-	-
PC32. answer questions politely, with clarity and confidence, during recruitment and selection	-	-	-	-

	PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements	-	-	-	-
	Total Marks	20	30	-	-
	Grand Total	287	563		

Annexure 7: Assessment Strategy

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

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

Annexure 8: Acronym and Glossary

Acronym

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

Glossary

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