सूक्ष्म, लघु एवं मध्यम उद्यम मंत्रालय
DEVELOPMENT COMMISSIONER
MINISTRY OF MICRO, SMALL & MEDIUM ENTERPRISES
MSME TECHNOLOGY CENTRE

QUALIFICATION FILE

TECHNICIAN -CNC MACHINING

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

☐Up skilling☐ Dual/Flexi Qualification ☐ForToT☐ For ToA

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

NCrF/NSQF Level: 4.0

Submitted By:

MSME TECHNOLOGY CENTRE

O/o DC MSME, Ministry of Micro, Small and Medium Enterprises

Govt. of India

A-Wing, 7th Floor, NirmanBhawan, Maulana Azad Road

New Delhi-110108

Contact No. +91-674-2654700

Email-msmetcab@gmail.com

Table of Contents

Section 1: Basic Details

1.	**Qualification Name**	**TECHNICIAN -CNC MACHINING**	
2.	**Sector/s**	**Capital Goods & Manufacturing**	
3.	**Type of Qualification: ☒New ☐ Revised ☐ Has Electives/Options ☐OEM**	**NQR Code & version of existing/previous qualification:** *(change to previous, once approved)* **QG-04-CG-02411-2024-V1-MSME**	**Qualification Name of existing/previous version: Advance Cirtificate Course in CNC Machining (ACCCM)**
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-02411-2024-V1-MSME	**6. NCrF/NSQF Level: 4.0**
7.	**Award (CertificateDiploma/Advance Diploma/Any Other***(Wherever applicable specify multiple entry/exits also & provide details in annexure)*	**Certificate**	
8.	**Brief Description of the Qualification**	After attaining this qualification, learner will be able to: • Perform Machine setup , Job setup and operate the machine. • Perform tool Setting as per job requirement • Set machining parameters as per the requirement of job. • Get an employment in Engineering/ Manufacturing industries as per the requirement of MSME	
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	10th grade pass with two years of any combination of NTC/NAC/CITS /ITI in relevant trades or equivalent.	Nil
2	Previous relevant Qualification of NSQF Level 3.5	1.5 year relevant experience
3	Previous relevant Qualification of NSQF Level 3	3 year relevant experience
4	12th or Equivalent	Nil

b. Age: Minimum 17 years

10.	**Credits Assigned to this Qualification, Subject to Assessment***(as per National Credit Framework (NCrF))*	**20**	**11. Common Cost Norm Category (I/II/III)** *(wherever applicable)***:I**
12.	**Any Licensing requirements for Undertaking Training on This Qualification***(wherever applicable)*	NA	

13. **Training Duration by Modes of Training Delivery** *(Specify **Total Duration** as per selected training delivery modes and as per requirement of the qualification)*

☐Offline ☐Online ☒Blended

Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)
Classroom (offline)	**69**	**210**	**240**	**-**	**519**
Online	**81**	-	-	**-**	**81**
Total	**150**	210	240		**600**

(Refer Blended Learning Annexure for details)

14.	**Aligned to NCO/ISCO Code/s***(if no code is available mention the same)*	***7223 (*Metal Working Machine Tool Setters and Operators)**	
15.	**Progression path after attaining the qualification** *(Please show Professional and Academic progression)*	***Professional / Career Progress: Technician (CNC Machining) → Sr. Rechnician***	
16.	**Other Indian languages in which the Qualification & Model Curriculum are being submitted**	**Hindi**	
17.	**Is similar Qualification(s) available on NQR-if yes, justification for this qualification**	**☐Yes ☒No URLs of similar Qualifications**	
18.	**Is the Job Role Amenable to Persons with Disability**	**☐ Yes ☒ No** **If "Yes", specify applicable type of Disability:**	
19.	**How Participation of Women will be Encouraged**	**Seats are reserved as per government Norms.**	
20.	**Are Greening/ Environment Sustainability Aspects Covered** *(Specify the NOS/Module which covers it)*	**☒Yes ☐No** **The said aspect is covered in the module name Employability skills &Entrepreneurship .**	
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: Sh. Vijay MahipatraoBankar** **Contact No. +0755 3501078** **Email-msmetcab@gmail.com**	
23.	**Final Approval Date by NSQC: 30/04/2024**	**24. Validity Duration: 03 years**	**25. Next Review Date: 30/04/2027**

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	Fundamentals of CNC Technology	MSME/ACCCM/01 & Version 1.0	**Core**	**4**	**2**	**60**	-	-	-	**60**	**100**	-	-	-	**100**	
2	Create CNC Programms and carry out CNC Machining operations	MSME/ACCCM/02 & Version 1.0	**Core**	**4**	**13**	**30**	**120**	**240**	-	**390**	**100**	**100**	-	-	**200**	
3	Create Part drwaing using CAD Software	MSME/ACCCM/03 & Version 1.0	**Core**	**4**	**2**	**30**	**30**	-	-	**60**	-	**100**	-	-	**100**	
4	Generate part Programms using CAM Tools	MSME/ACCCM/04 & Version 1.0	**Core**	**4**	**2**	-	**60**	-	-	**60**	-	**100**	-	-	**100**	
5	Employability Skills	MSME/ES/04	**None Core**	**4**	**1**	**30**	-	-	-	**30**	**100**	-	-	-	**100**	
Duration (in Hours) / Total Credit / Marks					**20**	**150**	**210**	**240**	-	**600**	**300**	**300**	-	-	**600**	

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)*

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)*

Assessment - Minimum Qualifying Percentage:

Please specifyany one of the following:

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

Minimum Marks to pass Theory Exam: 40%
Minimum Marks to pass Practical Exam: 60%

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

Minimum Marks to pass Theory Exam: 40%
Minimum Marks to pass Practical Exam: 60%

Section 3: Training Related

1.	**Trainer's Qualification and experience in the relevant sector (in years)***(as per NCVET guidelines)*	Diploma/ Degree in Mechanical Engineering or Equivalent with Practical skills and knowledge required in the relevant job roleat least one level higheri.e level 4.5 and above in related fieldand minimum 2 years of experience in Tool Room/ Technology Centre of MSME or any reputed industry will become a trainer, or in accordance with the TOT guideline of NCVET
2.	**Master Trainer's Qualification and experience in the relevant sector (in years)** *(as per NCVET guidelines)*	Degree in Engineering (Mechanical/ Production/Manufacturing Technology) or equivalent with 3 to 5 years of experience in Production/ Training/ Design Department from Tool Room/ Technology Centre of MSME or any reputed industry will become as a Master Trainer, Or in accordance with the TOT guideline of NCVET
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**	Yes

Section 4: Assessment Related

1.	**Assessor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines)*	Diploma / Degree in Engineering (Mechanical/ Production/ Manufacturing Technology) or equivalent with 3 years of experience in Production/ Training/ Design Department from Tool Room/ Technology Centre of MSME or any reputed industry.Only(TOA) certified assessors will be able to conduct the assessments.
2.	**Proctor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines)*	Degree in Engineering (Mechanical/ Production/ Manufacturing Technology) or equivalent With 5 years of experience in Production/ Training/ Design Department from Tool Room/ Technology Centre of MSME or any reputed industry.
3.	**Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines)*	Post Graduate in the relevant discipline with minimum 5 years of experience in Production/ Training/ Design Department from Tool Room/ Technology Centre of MSME or any reputed industry.
4.	**Assessment Mode***(Specify the assessment mode)*	**Blended Type (Online + Offline)**
5.	**Tools and Equipment Required for Assessment**	☒ Same as for training ☒ Yes ☐ No *(details to be provided in Annexure-if it is different for Assessment)*

Section 5: Evidence oftheneedfor the Qualification

Provide Annexure/Supporting documents name.

1.	**Latest Skill Gap Study (not older than 2 years)(Yes/No): Yes,** India Skills Report 2023, " Roadmap to India's Skills and talent Economy 2030"
	Latest Market Research Reports or any other source (not older than 2years) (Yes/No):, Yes, "Engineering and capital goods industry" (Feb-2023) by India Brand Equity Foundation –IBEF (Trust established by the Department of Commerce, Ministry of Commerce and Industry, Government of India
3.	**Government /Industry initiatives/ requirement (Yes/No):**Yes
4.	**Number of Industry validation provided:** 41
5.	**Estimated nos. of persons to be trained and employed:1000 approx**
6.	**Evidence of Concurrence/Consultation with Line Ministry/State Departments:** *NA* If "No", why:

Section 6: Annexure & Supporting Documents Check List

Specify Annexure Name / Supporting document file name

1.	**Annexure:** NCrF/NSQF level justification based on NCrF level/NSQF descriptors *(Mandatory)*	*Annexure-I*
2.	**Annexure:** List of tools and equipment relevant for qualification *(Mandatory, except in case of online course)*	*Annexure-II*
3.	**Annexure:**IndustryValidation Summary	*Annexure-III*
4.	**Annexure:** Training & Employment Related	*Annexure IV*
5.	**Annexure:** Blended Learning *(Mandatory, in case selected Mode of delivery is "Blended Learning")*	*Annexure V*
6.	**Annexure:** Detailed Assessment Criteria *(Mandatory)*	*Annexure-VI*
7.	**Annexure:** Assessment Strategy *(Mandatory)*	*Annexure-VII*
8.	**Annexure:** Multiple Entry-Exit Details *(Mandatory, in case qualification has multiple Entry-Exit)*	*NA*
9.	**Annexure:** Acronym and Glossary *(Optional)*	*Annexure VIII*
10.	**Supporting Document:** Model Curriculum *(Mandatory – Public view)*	*Annexure IX*
11.	**Supporting Document:** Career Progression *(Mandatory - Public view)*	*This aspect is mention in point no 15.*
12.	**Supporting Document:** Occupational Map *(Mandatory)*	*Annexure-X*
13.	**Supporting Documents:** Assessment SOP(Mandatory)	*Annexure XI*
14.	**Any other document you wish to submit:**	*NA*

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	• Concept of manufacturing process specifically programming and machining of mechanical components such as Press tools, Dies, Moulds, Jigs, Fixtures, Automobile & Aerospace components etc.	• The Job holder must know the correct procedures to addressproblems commonly encountered during generating and transferring the program for the specified controllers and able to detect and solve the problem in a timely manner • Interpret in-built machine alarms/sounds and respond to the same as per selection of proper cutting speed, feed and depth of cut which depends on the type of material, process and cutting tool to generate the program for manufacturing the job. • Identify the material which will be used for manufacturing product	4
Professional and Technical Skills/ Expertise/ Professional Knowledge	• Acquire skills of CNC Machine Operation and seting up as per engineering standards & prepare the part as well as assembly drawing of the mechanical components with the help of CAD software's within the drawing standards.	• The job role after attaining this qualification will prepare the CAD Models and setting up the machine for manufacturing the varieties of desired jobs/components within tolerance provided as per the drawing in CNC Turning, and CNC Milling in a well familiar environment. The role also involves study and understands the drawing and selects optimum manufacturing technique by himself and modify/edit the programme as per requirement • Edit the program whenever required and execute the same for manufacturing. • .Identify and select the proper machines, cutting tools and measuring instruments to carry out the job. • Read the drawing and conceive the idea to generate program and recognize the fault on the machine during operation.	4
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	Wide range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study	• Learner can develop communication competence, report writing skills & preparation of Resumes or Curriculum Vitae, Learner can be able to interact effectively with co-workers and can apply the Engineering Ethics and Human Values at workplace. • Leaner can understand the basic process of becoming an entrepreneur &start up and can get benefits from various government schemes applicable.	4

Broad Learning Outcomes/Core Skill	• Acquire skills to calculate the machining parameters like cutting speed, feed and depth ofcut etc. • Edit /Modify the program as per the requirement of work in order to maintain the target output • Aware about the social as well as environmentalsituations during working.	• Lerner will have wide range of numerical and computational abilities for different machining process • Lerner will have the broad knowledge of communications, health & safety norms. • Learner Should be able to listen and understand the complex information in a clear and concise manner • Learner will also have the ability to read & interpret engineering drawing and documentation requirement as per organizational norms • Learners will have the knowledge of evaluating the components with the standards drawing for the given job. • Learners are capable of taking decision for the quality output and productivity enhancement	4
Responsibility	Learner ishighly skilled in CNC / CAM Programming and responsible for achieving tangible outcomes, managing change, building teams, and mentoring the Co-workers and subordinates. .	• Learners are expected to perform the work as technical Supervisor and Manages processes and procedures within broad parameters for defined activities. • Supervises the routine work of co-worker and subordinates, takes the required responsibility for the evaluation and improvement of work and Constantly motivates, guides, mentors to their subordinates /Team members • Taking responsibility of proper execution of the program generated and its actions for the operation, quality and accuracy of the work.	4

Annexure II: Tools and Equipment (Lab Set-Up)

List of Tools and Equipmentfor Batch Size:20

S. No.	Tools / Equipment Name	Specification	Quantity for specified Batch size
1	Conventional Turning / Lathe Machine	Industry Standard	2
2	CNC Turning Machine with attachments		4
3	Conventional Milling		2
4	CNC Milling Machine with attachments		4
3	Tool & Cutter Grinders		1
4	Conventional Drilling machine		1
5	Grinding Machine		1
6	Pedestal grinding machine		1
7	CNC Simulator		20 seats
8	Desk top / Computer system With LAN		20 seats
9	CAD -Auto CAD Software		20 seats
10	CAM Software		20 seats
11	**Measuring Instruments:** Vernier Caliper, Micrometer: External & Internal, Height Gauge, Dial Indicators (Lever type & Plunger type), Profile Projector, Different types of Gauges (Slip, Bore, Ring, Plug, Radius, Feeler, Thread pitch etc.), Engineering steel rules, Outside & Inside spring callipers, Try square, Precision block levels, Surface roughness tester.		1 Set

12	**Cutting tools:** **Turning:** Single Point brazed turning tool, Boring bars, Twist Drills: Parallel & taper shank types (MT-1 / MT-2/ MT-3/MT-4), Knurling and threading tools. **Milling:** End mill, Face mill, Ball nose cutter, Slab mill.		1 Set
13	**Cutting Inserts:** CNMG, VNMG, DNMG, WNMG, CCMT and TCMT		1 Set
14	**Tool Holders:** Turning tool holders for OD/ID turning, Profile turning, Grooving/Parting, Drilling, Boring, Threading, Sleeves, Set of Spring collets (ER-16, ER-25,ER-32, ER-40) and Collet adopters. BT-40 for milling		1 set
15	**Hand Tools:** Centre punches, Hammers, Combination Plier, set of number punches, set of double ended spanners, set of box spanners with ratchet handle, Adjustable spanner, set of screw drivers, Nylon / Soft hammer, set of hexagonal Allen keys, cutting files: flat, round, half round, square and triangular		1 set
16	**Others Miscellaneous items for workshop / Lab :**Industry hand gloves, Apron, Safety goggles, Bench vice, Magnetic stand for dial indicators, Spring dividers, Angle Plates, Scribing blocks, Vice mounted tables, Scrap box, Tool storage trolley, Set of soft jaws, Power Saw, Surface plate, Oil stone , Hand pallet truck and First aid kit.		1 set
17	**General Equipment for Classroom**: White Board, Smart Board, Duster, Marker, Multimedia /LCDProjector, Audio Video Aids,Pen drive and Practice exercise etc,.		1 set

Annexure III: 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	AHAN CREATION	MUFFADDAL HUSSWN	PARTNER		7987266633 0	AHANCREATION5652@GMAIL.COM	
2	AKASH RAILWAY EQUIPMENT & SERVICES	AKASH SINGH	OWNER		8871380246	ARES.BHOPAL@GMAIL.COM	
3	DIGEARTH EQUIPMENT(INDIA) PVT. LTD.	KAVISH DABEDE	DIRECTOR	SAWER ROAD,INDUSTRIAL AREA,452015	9826385266	DIGEEARTH.EQUIPMENTS@GMAIL.COM	
4	T3D LABS PVT. LTD.	KALESHA SHAIK	OPERATION MANAGER	480/P, ADDIT BUILDING, AP MEDTECH ZONE, 530031		KALESHA@THINK3D.IN	
5	ASACO PRIVATE LIMITED	N. ELMURTI	MANAGER OPERATIONS	SAMUHAAEROSPACE PARKADIBATLAIBRAHIMPATNAMR ANGAREDDYDISTRICT TAMELGANA STATE,INDIA- 501510.	7799 787 747	ASACOLTD@ASACO.IN	
6	MIKRONIX GAUGES		MD	B-25 MIDC , CHIKALTHANA, CH. SAMBHAJINAGAR	9822004674	MGPLAY@GMAIL.COM	
7	ALLWIN UNITED ASSOCIATION PVT.LTD	MI PANKAJ	DIRECTOR	ALLWIN UNITED ASSOCIATION PVT.LIMITED	7588537412	CONTACT@TECHNOCADDAPL.COM	
8	M/S ANNA BLOCK BORING CENTER	MASIT KHAN	PROPRIETOR	MIS ANNA BLOCK BORING CENTER	9767375083	-	
9	LAXMI ENTERPRISES	RANJANA BHAYYA SAHEB PAWAR	MI.MANAGER	SAINAGAR GHANEGAON MIDC WALUJ, AURANGABAD	7387431128	-	
10	M/S HR INDUSTRIES	VASPUT JAUGELE	PROPRIETOR	SAJAPUR, AURANGABAD	9637384737	-	
11	GAYATRJ AUTO COMPONENTS, AURANGABAD	MR. RANJEET METE	MANAGER	AURANGABAD	7385613842	INFO@GAYATRIAUTO.IN	

12	SHARP TOOLS	MAHESH DORLE	SR.MANAGER		9689574563	-	
13	CHANCHAL ENGINEERING WORKS AURANGABAD	DRYHAEBHWAR	PROPRIETOR	AURANGABAD	9765499939	CHANCHALENGINEERINGWORKS@GMAIL.COM	
14	AKSHARA ENGINEERING WORKS	SHIVAJI GAIKWAD		WALUJ MIDC AURANGABAD	9096420857	-	
15	ARUSHI ENGINEERING AND BREEZING	VIJAYA PARADE	MANAGER	WALUJ MIDC AURANGABAD	9049596736	-	
16	SR INDUSTRIES AURANGABAD	RAJENDRA SAUDAGAR MARE	SR. MANAGER	AURANGABAD	8698145607	-	
17	DEVA ENGINEERING AURANGABAD	ASHOK MOTINAM VEOR	SR. MANAGER	AURANGABAD	8459567793	-	
18	MAULI PATTERN AURANGABAD	MR.PANCHAL	PROFESSOR	AURANGABAD	9673067755	-	
19	NAVARATNA INDUSTRIES			WALUJ MIDC AURANGABAD		-	
20	PRANAW ENTERPRISES AURANGABAD	PANDRINATH DEVKAR	PROPRIETOR	AURANGABAD	9371671146	PRANAVENT@GMAIL.COM	
21	R.P INDUSTRIES	PRASHANT PATIL	CEO	MIDC CHIKATHANA AURANGABAD	8007222251	PRASHANTPATIL@GMAIL.COM	
22	TECHNO MOULD SOLUTION	MR.PANDA	PROPRIETOR	AURANGABAD	7774077907	TECHNOMOULD.SOLUTIONS@GMAIL.COM	
23	SANJAY THCHNO PRODUCTS	HEMANT CHAUDHURY	VP-MANUFACTURING	AURANGABAD	9158898090	HEMANT.CHAUDHARI@SANJAYTECHNOPRODUCTS.IN	
24	SPECIAL PRECISION	ASHIWINI TADHAV	PROPRIETOR	AURANGABAD		SPECIALASHIWIN@GMAIL.COM	
25	PARASON MACHINERY (INDIA) PVT LTD	GHAHU	GM	AURANGABAD	9325202860	AMOIL.MOGAL@PASASEN.COM	
26	PADMA INDUSTRIES	VITTHALKADOM	CEO	MIDC AURANGABAD	9421688212	VITTHALKADOM2525@GMAIL.COM	

27	VANI ENGINEERING CO.PVT LTD	SUBH	GENERAL MANAGER	AURANGABAD	9730729991	SKAPE@GMAIL.COM	
28	GLANCE ENGINEERING -6 PVT.LIMITED CHIKALTHANA	SUBH SK	GENERAL MANAGER	CHIKALTHANA	9730729991	S.KALE@GMAIL.COM	
29	SURAJ TOOLS AND ENGINEERING WORKS	SURAJ	CEO		7447375273	SURAJTOOLS@GMAIL.COM	
30	JAI BHAVANI ENGINEERING WORKS		GENERAL MANAGER		9370251815		
31	RN INDUSTRIES		CEO	MIDC KALAGRAM AURANGABAD	9890718928	R.N.INDUSTRIES01@GMAIL.COM	
32	MADURA DIE CAST PVT LIMITD	MADHURA	CEO	SHENDRA AURANGABAD	9422204622	MADHRADIECAST@GMAIL.COM	
33	SWAGATI ENGINEERING WIS2		CEO	CHIKALTHNA,AURANGABAD	9763714369	SWAGATIENGG@GMAIL.COM	
34	S N ENGINEERINGWORKS	SNEHA	CEO	CH SAMBHAJINAGAR	9822859974	SNEHAG858@GMAIL.COM	
35	IDEAL ENTERPRISE		GENERAL MANAGER	CHIKALTHANA AURANGABAD	9763785199	IDEAL1993@GMAIL.COM	
36	INDEXABLE CUTTING TOOL	TOR	PROPRIETOR	BAJAJNAGAR,AURANGABAD			
37	INDOTURAN INDUSTRIES	USHAL SHINDE	PROPRIETOR	MIDC AURANGABAD WALUJ	9595280808		
38	CREATIVE CASTING INDUSTRIES	MR. SANJAY RANDIRE	PARTNER	K-30, MIDC WALUJ , AURANGABAD	9011001671	CREATIVECAST@REDIFFMAIL.COM	
39	PYRAMID INDUSTRIES	MR. RAJENDRA KALE	PROPRIETOR				
40	RMG INDUSTRIES	RAOUAL	CEO	MIDC AURANGABAD WALUJ	9766699611	EAJUQANDA@RMGINDUSTRIES.COM	
41	RMG INDUSTRIES	RAOUAL	CEO	MIDC AURANGABAD WALUJ	9766699611	EAJUQANDA@RMGINDUSTRIES.COM	

Annexure IV: 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
23-24	1000	800	100	80	-	-
24-25	1500	1200	150	120	-	-
25-26	2000	1600	200	160	-	-

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
1.0	20-21	130	105	105	105	5	4	4	4	-	-	-	-
1.0	21-22	91	71	71	87	4	4	4	4	-	-	-	-
1.0	22-23	238	166	166	66	1	1	1	1	-	-	-	-

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. Fee based Training Program under the Ministry of MSME.
2. ESDP Scheme under the Ministry of MSME.
3. PM DakshtaAurKushaltaSampannHitgrahiYojana under M/o SJE, GOI
4. Capacity building Training program under National SC/ST Hub, M/o MSME, GOI
5. DDUGKY under the MoRD.
6. Schemes under the different state Government.

Content availability for previous versions of qualifications:

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

Languages in which Content are available:

English and Hindi

Annexure V: 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/wp-content/uploads/2023/01/Guidelines-for-Blended-Learning-for-Vocational-Education-Training-Skilling.pdf*

S. No.	Select the Components of the Qualification	List Recommended Tools – for all Selected Components	Offline : Online Ratio
1	☐Theory/ Lectures - Imparting theoretical and conceptual knowledge	Books/ e-books, Presentations, Reference Material , Audio / Video Modules with 2D and 3D animation Self-Learning Videos /Broadcasts /Mobile Learning /Curated Digital content	40:60
2	☐Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners	Self-Learning Videos , Broadcasts, Mobile Learning , Curated Digital content	40:60
3	☐Showing Practical Demonstrations to the learners	CNC Simulators/ CAD Software, Video Content , E-Resource library	100:0
4	☐Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training	CNC Simulators, CNC Lathe& Milling Machines, Grinding Machines, Measuring, instruments, Cutting Tools, Hand Tools / CAD Software	100:0
5	☐Tutorials/ Assignments/ Practice	Online Question Bank, Mobile Quick test app, MCQ based tests, Practical Test on Machines	40:60
6	☐Proctored Monitoring/ Assessment/ Evaluation/ Examinations	Assessment engine for Essays, Up-loadable file examinations, Mock test sessions	50:50
7	☐On the Job Training (OJT)	Live Project on CNC Machines, Measuring Instruments at concern Industry/ Institution	100:0

Annexure VI: Detailed Assessment Criteria

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

NOS/Module Name	Assessment Criteria forPerformanceCriteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS / Module: **MSME/ACCCM/01** **Fundamentals of CNC Technology**	PC.1 Explain the types of CNC Machines, Advantages & Limitations of CNC applications. PC.2 Explain CNC interpolation, open loop & close loop control systems with feedback devices PC.3 Explain co-ordinate systems & points mode. PC.4 Identify Cutting Tools and Tool Holders from the standard (ISO Standard) PC.5 Discuss operations of single point cutting tool PC.6 Selection of standard tools/ cutters/Tool Holders as per requirement PC.7 Explain Tool Holder Types / Styles (LH, RH and Neutral) PC.8 Define Turning Insert Shapes PC.9 Describe Operating Conditions PC.10 Explain Work holding methods PC.11 Identify and Explain Tool holding Devices PC.12 Explain Cutting parameters PC.13 Discuss the need of different oils & lubricants used PC.14 Describe standard mathematical formulae used in calculation required for machine tool operation. PC.15 Calculations of machining parameters like cutting speed, cutting feed, depth of cut etc. PC.16 Explain Coordinate System and Machine Geometry PC.17 Explain Axis – Orientation PC.18 Define Work sketch and Calculation PC.19 Use appropriate sources to obtain the required information e.g. Numerical control on CNC machine, types of CNC control PC.20 Check that all the equipment is correctly connected and in a safe and usable working condition				

	PC.21 Select Appropriate Raw Material as per size of the Parts to be manufactured mentioned in drawing and specification PC.22 Calculate parameters & set a references for the various operations PC.23 Use appropriate techniques to create CNC program that are sufficiently and clearly detailed PC.24 Use codes and other references that follow the required conventions PC.25 Plan the machining activities before starting them. PC.26 Set up the suitable template/folder PC.27 Set up and check that all peripheral devices are connected and correctly operating PC.28 Confirm that the program is as per job specifications and contains all relevant information PC.29 Make sure that programs are checked and approved by the appropriate person PC.30 Save the program in the appropriate file type and location PC.31 Prepare programs, demonstrate, simulate and operate CNC lathe, machines for various machining operations. PC.32 Execute program and inspect simple geometrical forms / standard parts PC.33 Explain the type of maintenance and Maintenance checklist PC.34 Carry out Routine Maintenance activity as per standard / checklist PC.35 Safe handling of tools, equipment & CNC Machines & Personal safety tool as per company product requirement. PC.36 Use protective clothing / equipment for specific tasks on CNC Machine PC.37 OJT Report: Mentioning the process and procedure carried by the trainee for completing the assign task duly endorsed by the authorized personnel and The report must contain: ● Details of Department/ Organization ● Brief Job description & work activity ● Specific problem face if any with the solution. ● Technical Books referred during the OJT ● Conclusion				

NOS / Module: **MSME/ACCCM/02** Create CNC Programs and carry out CNC Machining operations	PC.1 Explain the types of CNC Machines, Advantages & Limitations of CNC applications. PC.2 Explain CNC interpolation, open loop & close loop control systems with feedback devices PC.3 Explain co-ordinate systems & points mode. PC.4 Identify Cutting Tools and Tool Holders from the standard (ISO Standard) PC.5 Discuss operations of single& Multi point cutting tool PC.6 Selection of standard tools/ cutters/Tool Holders as per requirement PC.7 Explain Tool Holder Types PC.8 Define Milling Insert Shapes PC.9 Describe Operating Conditions PC.10 Explain Work holding methods PC.11 Identify and Explain Tool holding Devices PC.12 Explain Cutting parameters PC.13 Discuss the need of different oils & lubricants used PC.14 Describe standard mathematical formulae used in calculation required for machine tool operation. PC.15 Calculations of machining parameters like cutting speed, cutting feed, depth of cut etc. PC.16 Explain Coordinate System and Machine Geometry PC.17 Explain Axis – Orientation PC.18 Define Work sketch and Calculation PC.19 Use appropriate sources to obtain the required information e.g. Numerical control on CNC machine, types of CNC control PC.20 Check that all the equipment is correctly connected and in a safe and usable working condition PC.21 Select Appropriate Raw Material as per size of the Parts to be manufactured mentioned in drawing and specification PC.22 Calculate parameters &set a references for the various operations PC.23 Use appropriate techniques to create CNC program that are sufficiently and clearly detailed PC.24 Use codes and other references that follow the required conventions PC.25 Plan the machining activities before starting them. PC.26 Set up the suitable template/folder PC.27 Set up and check that all peripheral devices are connected and correctly operating PC.28 Confirm that the program is as per job specifications and contains all relevant information PC.29 Make sure that programs are checked and approved by the appropriate person PC.30 Save the program in the appropriate file type and location				

	PC.31 Prepare programs, demonstrate, simulate and operate CNC Milling, machines for various machining operations. PC.32 Execute program and inspect simple geometrical forms / standard parts PC.33 Explain the type of maintenance and Maintenance checklist PC.34 Carry out Routine Maintenance activity as per standard / checklist PC.35 Safe handling of tools, equipment & CNC Machines & Personal safety tool as per company product requirement. PC.36 Use protective clothing/equipment for specific tasks on CNC Machine PC.37 OJT Report: Mentioning the process and procedure carried by the trainee for completing the assign task duly endorsed by the authorized personnel and The report must contain: • Details of Department/ Organization • Brief Job description&work activity • Specific problem face if any with the solution. • Technical Books referred during the OJT • Conclusion				
NOS / Module: **MSME/ACCCM/03** Create Part drawing using CAD Software	PC.1Describe co-ordinate system used in CAD/CAM & Describe the CAD/CAM software. PC.2 Use auto-cad to draw geometry by co-ordinate system. PC.3 Describe the functions used in using AutoCAD software PC.4 Write the purpose of each function/mouse function, functional keys PC.5 Set the standard paper size in the AutoCAD. PC.6 Prepare the drawings in auto-cad by using limits, line, construction line, ray, trim, extend, erase. PC.7 Use commands to prepare the drawings- circle, rectangle, copy, move, offset, rotate. PC.8 Describe the purpose of array, mirror, scale, stretch, polyline, polygon, and arc. PC.9 Use commands array, mirror, scale, stretch, polyline, polygon, and arc. PC.10 Identify the proper commands and draw the given drawings in auto-cad. PC.11 Describe the purpose of commands spline, ellipse, revision cloud, region, explode, join, break, break at a point. PC.12 Use the commands properly while drafting in Auto-CAD. PC.13 Describe point, point style, divide, measure, fillet, chamfer, blend curve PC.14 Use commands point, point style, divide, measure, fillet, chamfer, blend curve PC.15 Identify the proper commands and draw the given drawings in auto-cad. PC.16 Describe the commands hatch, gradient, details of sectional view. PC.17 Use/operate the commands hatch, gradient, details of sectional view. PC.18 Identify the commands for proper sectioning methods as per the material. PC.19 Describe the commands text, mtext, text style, arc aligned text, mirror text PC.20 Use the commands text, mtext, text style, arc aligned text, mirror text PC.21 Use the commands for putting the text on the drawing.	-	100	-	-

	PC.22 Draw the title block using those commands using auto-cad. & Provide dimension on the geometry by using auto-cad software. PC.23 Describe solid modeling, 3d environment & toolbars, extrude, revolve, Boolean operation, sweep, loft, press pull, 3d move, 3d rotate, 3d array, 3d align, solid editing toolbar, primitives. PC.24 Prepare the solid model by using the commands in auto-cad and do the editing whenever it is necessary to modify. PC.25 Explain the types of plotters & Plot the drawing with the help of auto-cad software.				
NOS / Module : **MSME/ACCCM/04** **Generate part Programs using CAM Tools.**	PC.1 Compare the conventional machines with CNC machines & Describe the codes and its function PC.2 Use codes and Write programmes& Do practice on CNC by using G-codes and M-codes. PC.3 Write a programme for Chamfer, circular movement, label setting PC.4 write a program for contouring operation taking tool compensation by setting the label. PC.5 Describe pocketing , polar movement, peck drilling, mirror cycle, datum shift in CNC programming PC.6 Do the pocketing practice of rectangular and circular type. PC.7 Use polar movement, peck drilling, mirror cycle, datum shift, and peck drilling cycle on the machine. PC.8 Do practice on m-codes and g-codes for turning. & Run the cycle for rough turning, facing, chamfering. PC.9 Write codes for grooving and peck drilling and threading PC.10 Demonstrate grooving and peck drilling and threading (internal & external) PC.11 Do practice by running the machine using sub-programme for boring, centre drilling. PC.12 Describe CAM technology & Explain the benefits of CAM & Identify the toolbar and use functional key. PC.13 Describe line , rectangle , rectangle shape, circle & arc, fillet ,fillet chain, chamfer , chamfer chain , polygon , ellipse & Use the icon for the required command to draw the assigned geometry. PC.14 Describe translate, mirror, rotate, trim, spline, scale, move to origin, offset, offset contour, rectangular array & Do the 2-D modeling by using the icons for different command. PC.15 Describe the purpose, function and procedure for letter, point, spiral, and helix, break two pieces, trim many joint entity, close arc, break many pieces, simplify. & Do modeling using these icons of Master-CAM. PC.16 Describe break at intersection, break circle, break drafting into line, convert to nurbs, modify spline, x hatch , dimension tools , dimension option , note.& Do modeling using these icons of Master-CAM. PC.17 Explain surface modeling, 3D Environment, & Describe the use of 3D tool bar, draft, extrude, fillet, trim. PC.18 Demonstrate introduction to surface modeling, 3D Environment, used of 3D tool bar, draft, extrude, fillet, trim.Create 3-D models using these icons. PC.19 Describe the function of icons such as ruled / lofted, revolved, offset, swept & Generate 3-Dprofile using those icons. PC.20 Describe net surface, fence, extend, flat boundary, fill holes, remove boundary. Demonstrate split, untrim , 2 surface blend , 3 surface blend , 3fillet blend , project.	-	100	-	100

	PC.21 Explain types of tool path, step to generate a tool path. PC.22 Describe use of machining tool bars. PC.23 Generate tool path using machining toolbar and other commands. PC.24 Do the machining using the options like 2-D countering, pocketing, 2-D drilling, etc. PC.25 Describe the function of the commands, surface rough (pocket , parallel , radial) surface finish (parallel , radial), flow line , contour , shallow , project , pencil. PC.26 Demonstrate the use of those commands and its use. PC.27 Do practice of generating the tool path and programmes for lathe operation. PC.28 OJT Report: Mentioning the process and procedure carried by the trainee on daily basis for completing the assign task duly endorsed by the authorized personnel and The report must contain: • Details of Department/ Organization • Brief Job description • Daily work activity • Specific problem face if any with the solution. • Technical Books referred during the OJT Conclusion				
NOS /Module Code: **MSME/ES/01** Employability skills	PC.1 Explain occupational health and Safety. PC.2 Explain about safety rules. PC.3 State the name and location of people PC.4 responsible for health and safety in theworkplace PC.5 Identify employability skills required for jobs in various industries.&Identify and explore learning and employability portals PC.6 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. PC.7 Follow environmentally sustainable practices.&Recognize the significance of 21st Century Skills for employment PC.8 Practice the 21st Century Skills such as Self-Awareness, Behavior 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 PC.9 Use basic English for everyday conversation in different contexts, in person and over the telephone. PC.10 How to Minimize the team conflicts&Explain Ethics & values PC.11 Read and understand routine information, notes, instructions, mails, letters etc.	100	-	-	-

	written in English PC.12 Write short messages, notes, letters, e-mails etc. in English & Understand the difference between job and career PC.13 Prepare a career development plan with short- and long-term goals, based on aptitude &Discuss the main types of electronic funds transfers PC.14 Follow verbal and non-verbal communication etiquette and active listening techniques in various settings & work collaboratively with others in a team PC.15 Communicate and behave appropriately with all genders and PwD& escalate any issues related to sexual harassment at workplace according to POSH Act. PC.16 Select financial institutions, products and services as per requirement & carry out offline and online financial transactions, safely and securely. PC.17 Identify common components of salary and compute income, expenses, taxes, investments etc& identify relevant rights and laws and use legal aids to fight against legal exploitation PC.18 Operate digital devices and carry out basic internet operations securely and safely & use e- mail and social media platforms and virtual collaboration tools to work effectively PC.19 Use basic features of word processor, spreadsheets, and presentations. PC.20 Identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research & develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place andPromotion. PC.21 Identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity PC.22 Identify different types of customers & identify and respond to customer requests and needs in a professional manner. PC.23 Follow appropriate hygiene and grooming standards PC.24 Create a professional Curriculum vitae (Résumé) & search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively PC.25 Apply to identified job openings using offline /online methods as per requirement & answer questions politely, with clarity and confidence, during recruitment and selectionidentify apprenticeship opportunities and register for it as per guidelines and requirements				
	Total Marks	**200**	**300**	**-**	**100**

Annexure VII: 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 are assigned to the MSME NSQF Assessment Agency via email for the assessment.
- MSME NSQF Assessment Agency sends the assessment confirmation to respective TC.
- MSME NSQF Assessment Agency deploys the certified Assessor for executing the assessment at respective TC via online / offline mode.
- MSME NSQF Assessment Agency & respective TC Internal Assessment cell monitors the assessment process & records.

2. Testing Environment:

- MSME NSQF Assessment Agency confirms the Assessment location, date and time
- For number of candidates more than 30 separate assessors are assigned for the assessment.
- MSME NSQF Assessment Agency & respective assessor confirms that the allotted time to the candidates to complete Theory & Practical Assessment is correct.

3. Assessment Quality Assurance levels/Framework:

- Each TC Submits the Question Bank for the individual subject Theory &Practice separately, submits to MSME NSQF Assessment Agency and it is verified by the MSME NSQF Assessment Agency Committee members.
- Questions are mapped to the specified assessment criteria
- All the assessors & Trainers are well qualified & trained to carry out the specified task.

4. Types of evidence or evidence-gathering protocol:

- Online Link is send by MSME NSQF Assessment Agency to respective TC & Assessor. Reporting of the assessor from assessment location is verified by the MSME NSQF Assessment Agency through the online Meeting Link. Students are also required to join for the online link for verification by the MSME NSQF Assessment Agency.
- Assessment Photographs are shared with the MSME NSQF Assessment Agency & are also with the respective TC.

5. Method of verification or validation:

- Online Link is send by MSME NSQF Assessment Agency to respective TC & Assessor. Reporting of the assessor from assessment location is verified by the MSME NSQF Assessment Agency through the online Meeting Link. Students are also required to join for the online link for verification by the MSME NSQF Assessment Agency.

6. Method for assessment documentation, archiving, and access:

- The Assessment records are shared with MSME NSQF Assessment Agency & also stored at respective TC.
- Assessor fills the assessment report and shares with the MSME NSQF Assessment Agency.

On the Job Training:

- Each module will be assessed separately.
- The candidate must score 60% marks to successfully complete the OJT.
- Learner will be assessed on the basis of OJT report followed by Viva
- Assessment will ensure that the Learner is able to:
    - ✓ Effective engagement with the customers / Subordinates and team
    - ✓ Understand the working of various tools and equipment
    - ✓ Understand the working environment of the industry

Annexure VIII: 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.
Short Term Training (STT)	STT/ Short -term skilling means any vocational training program undertaken for less than a year (Theory + Practical + OJT). https://ncvet.gov.in/sites/default/files/NCVET.pdf