



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

**MSME TECHNOLOGY CENTRE**



**Skill India**  
कौशल भारत - कुशल भारत

**Please refer Guidelines for STT/LTT/Apprenticeship/OEM Qualification File**

## **QUALIFICATION FILE**

### **Jr. Technician – Tool & Die**

- Short Term Training (STT)  Long Term Training (LTT)  Apprenticeship  
 Up skilling  Dual/Flexi Qualification  For ToT  For ToA  
 General  Multi-skill (MS)  Cross Sectoral (CS)  Future Skills  OEM

**NCrF/NSQF Level: 3.5**

**Submitted By:**

**MSME TECHNOLOGY CENTRE**  
**O/o DC MSME, Ministry of Micro, Small and Medium Enterprises**  
**Govt. of India**  
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## Section 1: Basic Details

<b>1.</b>	<b>Qualification Name</b>	Jr. Technician – Tool & Die	
<b>2.</b>	<b>Sector/s</b>	CAPITAL GOODS & MANUFACTURING	
<b>3.</b>	<b>Type of Qualification:</b> <input checked="" type="checkbox"/> <b>New</b> <input type="checkbox"/> <b>Revised</b> <input type="checkbox"/> <b>Has Electives/Options</b> <input type="checkbox"/> <b>OEM</b>	<b>NQR Code &amp; version of existing/previous qualification:</b> <i>(change to previous, once approved)</i> <b>QG-3.5-CG-02412-2024-V1-MSME</b>	<b>Qualification Name of existing/previous version:</b> -
<b>4.</b>	<b>a. OEM Name</b> <b>b. Qualification Name</b> <i>(Wherever applicable)</i>	-	
<b>5.</b>	<b>National Qualification Register (NQR) Code&amp;Version</b> <i>(Will be issued after NSQC approval)</i>		<b>6. NCrF/NSQF Level: 3.5</b>
<b>7.</b>	<b>Award (Certificate/Diploma/Advance Diploma/Any Other)</b> <i>(Wherever applicable specify multiple entry/exits also &amp; provide details in annexure)</i>	<b>Certificate</b>	
<b>8.</b>	<b>Brief Description of the Qualification</b>	The qualification containing different modules which is required for the job role Tool & Die Maker, this qualifications ultimately helps learner in Understanding Engineering drawing , Operating Convectional machine, measuring jobs:.  <ul style="list-style-type: none"> <li>The subjects covered in this programme are - Workshop technology, Metrology, Material Technology, Workshop Practical, COMPUTER APPLICATION, Metrology, Basic Electrical and electronics, applied science, Employability Skills.</li> </ul>	
<b>9.</b>	<b>Eligibility Criteria for Entry for Student/Trainee/Learner/Employee</b>	<b>a. Entry Qualification &amp;Relevant Experience:</b> 10th  <b>b. Age:</b> 15 Years	
<b>10.</b>	<b>Credits Assigned to this Qualification, Subject to Assessment</b> <i>(as per National Credit Framework (NCrF))</i>	40	<b>11.Common Cost Norm Category (I/II/III)</b> <i>(wherever applicable):</i> <b>I</b>

12.	<b>Any Licensing requirements for Undertaking Training on This Qualification</b> <i>(wherever applicable)</i>	NA																								
13.	<b>Training Duration by Modes of Training Delivery</b> <i>(Specify <b>Total Duration</b> as per selected training delivery modes and as per requirement of the qualification)</i>	<input type="checkbox"/> Offline <input type="checkbox"/> Online <input checked="" type="checkbox"/> Blended <table border="1" data-bbox="945 213 2130 424"> <thead> <tr> <th>Training Delivery Modes</th> <th>Theory (Hours)</th> <th>Practical (Hours)</th> <th>OJT Mandatory (Hours)</th> <th>OJT Recommended (Hours)</th> <th>Total (Hours)</th> </tr> </thead> <tbody> <tr> <td>Classroom (offline)</td> <td>420</td> <td>660</td> <td>-</td> <td>-</td> <td>1080</td> </tr> <tr> <td>Online</td> <td>120</td> <td>-</td> <td>-</td> <td>-</td> <td>120</td> </tr> <tr> <td><b>Total</b></td> <td>540</td> <td>660</td> <td></td> <td></td> <td>1200</td> </tr> </tbody> </table> <p><i>(Refer Blended Learning Annexure for details)</i></p>	Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)	Classroom (offline)	420	660	-	-	1080	Online	120	-	-	-	120	<b>Total</b>	540	660			1200
Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)																					
Classroom (offline)	420	660	-	-	1080																					
Online	120	-	-	-	120																					
<b>Total</b>	540	660			1200																					
14.	<b>Aligned to NCO/ISCO Code/s</b> <i>(if no code is available mention the same)</i>	3115.13 (Tool Room Supervisor)																								
15.	<b>Progression path after attaining the qualification</b> <i>(Please show Professional and Academic progression)</i>	<p><b>Professional Progress:</b> After Completion one can work as Mechanical Fitter. After Completion of 3 years of Full Time Programme and after 3 years of Industry Experience the Job Holder can work as Tool and Die Engineer, Process Engineer, Product Design Engineer, Tool Designer, Digital Manufacturing engineer, Quality engineer and Additive Manufacturing Engineer.</p> <p><b>Academic Progress:</b> Sr. Technician- Tool Engineering →Supervisor - Tool Engineering → Post Diploma In Tool &amp; Die Manufacturing (NSQF Level 5) →Post Diploma in Tool Design &amp; CAD/CAM ( NSQF Level 5)</p>																								
16.	<b>Other Indian languages in which the Qualification &amp; Model Curriculum are being submitted</b>	Hindi																								
17.	<b>Is similar Qualification(s) available on NQR-if yes, justification for this qualification</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <b>URLs of similar Qualifications:</b> The proposed qualification differs in learning outcomes in line with the MSME to meet the requirement of MSME / Manufacturing Industries.																								
18.	<b>Is the Job Role Amenable to Persons with Disability</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <b>If "Yes", specify applicable type of Disability:</b>																								
19.	<b>How Participation of Women will be Encouraged</b>	Yes - Admission open to women candidates (30% seats reserved)																								

<b>20.</b>	<b>Are Greening/ Environment Sustainability Aspects Covered</b> <i>(Specify the NOS/Module which covers it)</i>	<input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>No</b> The said aspect is covered in the module name Employability Skills.
<b>21.</b>	<b>Is Qualification Suitable to be Offered in Schools/Colleges</b>	<b>Schools</b> <input type="checkbox"/> <b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> <b>Colleges</b> <input type="checkbox"/> <b>Yes</b> <input checked="" type="checkbox"/> <b>No</b>
<b>22.</b>	<b>Name and Contact Details of Submitting / Awarding Body SPOC</b> <i>(In case of CS or MS, provide details of both Lead AB &amp; Supporting ABs)</i>	<b>Name: Sh. Vijay Mahipatrao Bankar</b> <b>Contact No. +0755 3501078</b> <b>Email-msmetcab@gmail.com</b>
<b>23.</b>	<b>Final Approval Date by NSQC: 30.04.2024</b>	<b>24. Validity Duration: 3years</b> <b>25. Next Review Date: 30.04.2027</b>

## 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

SEMESTER-I

S. No	NOS/Module Name	NOS/Module Code & Version <i>(if applicable)</i>	Core/ Non-Core	NCrF/ NSQF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJ T- Man.	OJT- Rec.	Total	Th	Pr.	Pro j.	Vi va	Tot al	Weightag e (%) <i>(if applicable)</i>
1.	ENGINEERING DRAWING-I	<b>MSME/DTE/01</b>	CORE	3.5	2	-	60	-	-	60	-	100	-	-	100	
2.	WORKSHOP TECHNOLOGY - I	<b>MSME/DTE/02</b>	CORE	3.5	2	60	-	-	-	60	100	-	-	-	100	
3.	WORSHOP PRACTICE-I	<b>MSME/DTE/03</b>	CORE	3.5	6	-	180	-	-	180	-	100	-	-	100	
4.	COMPUTER APPLICATION	<b>MSME/DTE/04</b>	NON-CORE	3.5	1	30	-	-	-	30	100	-	-	-	100	
5.	MATHEMATICS-I	<b>MSME/DTE/05</b>	NON-CORE	3.5	2	60	-	-	-	60	100	-	-	-	100	
6.	APPLIED SCIENCE-I	<b>MSME/DTE/06</b>	NON-CORE	3.5	2	60	-	-	-	60	100	-	-	-	100	
7.	ELECTIVE *	<b>MSME/DTE/07</b>	CORE-ELECTIVE	3.5	3	-	90	-	-	90	-	100	-	-	100	
8.	EMPLOYBILITY SKILL	<b>MSME/ES/04</b>	NON-CORE	3.5	2	60	-	-	-	60	100	-	-	-	100	
<b>Duration (in Hours) / Total Marks</b>					<b>20</b>	<b>270</b>	<b>330</b>	-	-	<b>600</b>	<b>500</b>	<b>300</b>	-	-	<b>800</b>	

Elective NOS/s:

S. No	NOS/Module Name	NOS/Module Code & Version <i>(if applicable)</i>	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 (%) <i>(if applicable)</i>
1.	PROJECT WORK-TOOL & DIE MAKING	MSME/DTE/07	CORE-ELECTIVE	3.5	3	-	90	-	-	90	-	100	-	-	100	
<b>Duration (in Hours) / Total Marks</b>						-	-	-	-	90	-	100	-	-	100	

Optional NOS/s:

S. No	NOS/Module Name	NOS/ Module Code & Version <i>(if applicable)</i>	Core/ Non-Core	NCrF/NS QF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) <i>(if applicable)</i>

SEMESTER-II

S. No	NOS/Module Name	NOS/Module Code & Version (if applicable)	Core/ Non-Core	NCrF/ NSQF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					Weightage (%) (if applicable)
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	
9.	ENGINEERING DRAWING - II	<b>MSME/DTE/09</b>	CORE	3.5	2	20	40	-	-	60	-	100	-	-	100	
10.	WORKSHOP TECHNOLOGY-II	<b>MSME/DTE/10</b>	CORE	3.5	2	60	-	-	-	60	100	-	-	-	100	
11.	WORKSHOP PRACTICE-II	<b>MSME/DTE/11</b>	CORE	3.5	6	-	180	-	-	180	-	100	-	-	100	
12.	APPLIED MECHANICS	<b>MSME/DTE/12</b>	NON-CORE	3.5	1	30	-	-	-	30	100	-	-	-	100	
13.	MATHEMATICS-II	<b>MSME/DTE/13</b>	NON-CORE	3.5	2	60	-	-	-	60	100	-	-	-	100	
14.	MECHANICAL MEASUREMENT AND METROLOGY	<b>MSME/DTE/14</b>	NON-CORE	3.5	2	60	-	-	-	60	100	-	-	-	100	
15.	ELECTIVE *	<b>MSME/DTE/15</b>	CORE-ELECTIVE	3.5	3	-	90	-	-	90	-	100	-	-	100	
16.	EMPLOYBILITY SKILL	<b>MSME/ES/04</b>	NON-CORE	3.5	2	60	-	-	-	60	100	-	-	-	100	
<b>Duration (in Hours) / Total Marks</b>					<b>20</b>	<b>290</b>	<b>310</b>	-	-	<b>600</b>	<b>500</b>	<b>300</b>	-	-	<b>800</b>	

Elective NOS/s:

S. No	NOS/Module Name	NOS/Module Code & Version (if applicable)	Core/ Non-Core	NCrF/NSQF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) (if applicable)
1.	* PROJECT WORK-TOOL & DIE MAKING-II A	MSME/DTE/15	CORE-ELECTIVE	3.5	3	-	90	-	-	90	-	100	-	-	100	
<b>Duration (in Hours) / Total Marks</b>					3	-	-	-	-	90	-	100	-	-	100	

Optional NOS/s:

S. No	NOS/Module Name	NOS/ Module Code & Version (if applicable)	Core/ Non-Core	NCrF/NS QF 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:

**Specify any 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.	<b>Trainer’s Qualification and experience in the relevant sector (in years)</b> (as per NCVET guidelines)	Diploma/ Degree in Mechanical Engineering or Equivalent with Practical skills and knowledge required in the relevant job role at least one level higher i.e level 5 and above in related field and minimum 4 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.	<b>Master Trainer’s Qualification and experience in the relevant sector (in years)</b> (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.	<b>Tools and Equipment Required for Training</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If "Yes", details to be provided in Annexure)
4.	<b>In Case of Revised Qualification, Details of Any Upskilling Required for Trainer</b>	Yes

### Section 4: Assessment Related

	<b>Assessor’s Qualification and experience in relevant sector (in years) (as per NCVET guidelines)</b>	Diploma / Degree in Engineering (Mechanical/ Production/ Manufacturing Technology) or equivalent with 4 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.
	<b>Proctor’s Qualification and experience in relevant sector (in years) (as per NCVET guidelines)</b>	Degree in Engineering (Mechanical/ Production/ Manufacturing Technology) or equivalent With 7 years of experience in Production/ Training/ Design Department from Tool Room/ Technology Centre of MSME or any reputed industry.
	<b>Lead Assessor’s/Proctor’s Qualification and experience in relevant sector (in years) (as per NCVET guidelines)</b>	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.
	<b>Assessment Mode(Specify the assessment mode)</b>	<b>Blended Type (Online + Offline)</b>
	<b>Tools and Equipment Required for Assessment</b>	<input checked="" type="checkbox"/> Same as for training <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (details to be provided in Annexure-if it is different for Assessment)

### Section 5: Evidence of the need for the Qualification

Provide Annexure/Supporting documents name.

1.	<b>Latest Skill Gap Study (not older than 2years)(Yes/No): Yes,</b> India Skills Report 2023, “ Roadmap to India’s Skills and talent Economy 2030”
2.	<b>Latest Market Research Reports or any other source (not older than 2years) (Yes/No):</b> <b>Yes,</b> “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.	<b>Government /Industry initiatives/ requirement (Yes/No):</b> Yes
4.	<b>Number of Industry validation provided:</b> 30
5.	<b>Estimated nos. of persons to be trained and employed: Approx. 120 per Year</b>
6.	<b>Evidence of Concurrence/Consultation with Line Ministry/State Departments:</b> NA If "No", why:

## Section 6: Annexure & Supporting Documents Check List

*Specify Annexure Name / Supporting document file name*

1.	<b>Annexure:</b> NCrf/NSQF level justification based on NCrf level/NSQF descriptors ( <i>Mandatory</i> )	<i>Annexure-I</i>
2.	<b>Annexure:</b> List of tools and equipment relevant for qualification ( <i>Mandatory, except in case of online course</i> )	<i>Annexure-II</i>
3.	<b>Annexure:</b> Industry Validations Summary	<i>Annexure-III</i>
4.	<b>Annexure:</b> Training & Employment Details	<i>Annexure-IV</i>
5.	<b>Annexure:</b> Blended Learning ( <i>Mandatory, in case selected Mode of delivery is "Blended Learning"</i> )	<i>Annexure-V</i>
6.	<b>Annexure:</b> Detailed Assessment Criteria ( <i>Mandatory</i> )	<i>Annexure-VI</i>
7.	<b>Annexure:</b> Assessment Strategy ( <i>Mandatory</i> )	<i>Annexure-VII</i>
8.	<b>Annexure:</b> Acronym and Glossary ( <i>Optional</i> )	<i>Annexure- VIII</i>

9.	<b>Annexure:</b> Multiple Entry-Exit Details ( <i>Mandatory, in case qualification has multiple Entry-Exit</i> )	NA
10.	<b>Supporting Document:</b> Model Curriculum ( <i>Mandatory – Public view</i> )	Annexure- IX
11.	<b>Supporting Document:</b> Career Progression ( <i>Mandatory - Public view</i> )	<i>This aspect mentioned in point no. 15</i>
12.	<b>Supporting Document:</b> Occupational Map ( <i>Mandatory</i> )	Annexure-X
13.	<b>Supporting Document:</b> Assessment SOP ( <i>Mandatory</i> )	Annexure- XI
14.	Any other document you wish to submit:	NA

## Annexure I: 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
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<p><b>Professional Theoretical Knowledge/Process</b></p>	<ul style="list-style-type: none"> <li>• Practice Basic Engineering Mathematics.</li> <li>• Describe the importance of Health and Safety.</li> <li>• Explain the operations of various conventional machines.</li> <li>• Explain the importance of Metrology in industry.</li> <li>Identify the measuring instruments and application.</li> <li>• Explain the need of Engineering drawing and creation of drawing using CAD software.</li> <li>• Describe the properties of Engineering materials and use.</li> <li>• Explain classification, selection, and use of hand tools.</li> <li>• Describe manual metal working processes</li> </ul>	<p>Application of basic mathematical concepts for calculations of speed, feed, depth of cut machining, taper turning and in engineering drawing.</p> <ul style="list-style-type: none"> <li>• Demonstrate Safety and Health aspects and Ensures Compliance with Health and Safety Regulations.</li> <li>• Demonstrate different manufacturing processes, selection of machines and tools.</li> <li>• Demonstrate principles of measurement, operation of measuring instruments, selection and use. Limits and Fits and tolerances.</li> <li>• Application of drawing standards, types of projections, drafting, dimensioning, drawing interpretation.</li> <li>• Application of ferrous, non-ferrous metals, alloys, polymers, composites and ceramics.</li> <li>• Demonstrate manual working methods and equipment. Identify processes to be performed from the drawings. performed from</li> </ul>	<p style="text-align: center;">4.5</p>
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<p><b>Professional and Technical Skills/ Expertise/ Professional Knowledge</b></p>	<ul style="list-style-type: none"> <li>• Execute Different manual metal working Processes.</li> <li>• Execute conventional machining.</li> <li>• Perform Measuring/Inspection Equipment used in tooling.</li> <li>• Demonstrate Professional Knowledge on Manufacturing Procedure of simple Press Tools.</li> <li>• Demonstrate professional knowledge on interpretation of engineering drawings and preparation of production drawings.</li> <li>• Exhibit and maintain a safe working environment and good housekeeping practices.</li> </ul>	<p>Perform different manual metal working methods on the assigned job to achieve defined specification, dimensions and fits. Do precision fitting operations.</p> <ul style="list-style-type: none"> <li>• Perform on Conventional machines, following standard procedures. Select appropriate machines and tools.</li> <li>• Perform types of measurements using appropriate measuring devices. Use measuring instruments, gauges, sine bar, and profile projectors for precision measurements.</li> <li>• Perform Engineering Drawing application 2d and 3d using Engineering Drawing software.</li> <li>• Manufacture, Inspect and assembly of simple Press Tool</li> </ul>	<p>4.5</p>
<p><b>Employment Readiness &amp; Entrepreneurship Skills &amp; Mind-set/Professional Skill</b></p>	<p>Communicate Effectively with Peers and Supervisors in the work area.</p> <ul style="list-style-type: none"> <li>• Describe Knowledge of Organization, ethical &amp; moral values, and Practice Time Management.</li> <li>• Work Effectively in a Team.</li> <li>• Proficiency in Manual metal working Processes.</li> <li>• Using CAD Software.</li> <li>• Proficiency in using Conventional Machine.</li> <li>• Proficiency in Use of</li> </ul>	<p>Good Communication with Peers, superiors both verbal and written, Good on Presentation Skills, QC, 5S.</p> <ul style="list-style-type: none"> <li>• Follow the instructions to work effectively.</li> <li>• Create engineering drawings using CAD software.</li> <li>• Perform Manual metal working Operations to achieve required precision.</li> <li>• Prepare process plan and Machine the Components using Conventional machines and check q</li> </ul>	<p>4.5</p>

	Measuring/Inspection Equipment • Manufacturing Tool Parts Using Manual, Conventional machines.		
<b>Broad Learning Outcomes/Core Skill</b>	<ul style="list-style-type: none"> <li>• Proficiency in manual metal working processes and conventional machining.</li> <li>• Knowledge of CAD software for preparing technical drawing.</li> <li>• Can do calculations required for Manufacturing and Inspection</li> <li>• Prepare Technical Reports and Presentations using MS Office</li> <li>• Describe Safety and standard operating Procedures and Practices in the work area.</li> <li>• Communicate with Peers</li> </ul>	<ul style="list-style-type: none"> <li>• Produce the parts using manual metal working and conventional machining as per the requirement.</li> <li>• Interpret and create Technical Drawings.</li> <li>• Calculate required details for Manufacturing and Inspection.</li> <li>• Make technical reports and Presentation using MS Office.</li> <li>• Follow all safety norms and standard operating Procedures in the work area.</li> <li>• Maintain Good Relationship with Peers and Superiors.</li> </ul>	4.5
<b>Responsibility</b>	<p>Be aware of Personal/Industrial goals.</p> <ul style="list-style-type: none"> <li>• Adapt to changes in the work area.</li> </ul> <p>Describe safety Procedures and SOPs in the relevant work area.</p>	<p>Carry out Manufacture of Components of Press Tool under Minimum Supervision.</p> <ul style="list-style-type: none"> <li>• Perform manual machining operations to achieve required dimensions and fits.</li> <li>• Follow the standard procedures in Fulfilling tasks Assigned to them.</li> </ul>	4.5

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

### List of Tools and Equipment for Batch Size: 50

S. No.	Tool / Equipment Name	Specification	Quantity for specified Batch size
1	Vice Mounted Tables	Industry Standard	60
2	Vernier Caliper		10
3	Tool storage drawer		10
4	Thread plug gauge		5
5	Thread pitch gauge		5
6	Surface Plate		4
7	Soft jaws		3
8	Simulator		50
9	Scrap Box		3
10	Safety shoes		60
11	Safety Glasses		60
12	Ring gauge		3
13	Radius gauge		3
14	Plug gauge		3
15	Number Punch		8
16	Micrometer		10
17	Manual Lifter		1
18	Lever dial for work offset setting		25
19	LCD projector		1
20	Laser printer		1
21	Integrated multimedia skill development software for CNC machining		60
22	Inside caliper		10
23	Industry Helmet		60
24	Industry hand gloves		60
25	Industrial grade CNC Turning Center& cutting tools		4
26	Industrial grade CNC milling& cutting tools		3
27	Height Gauge		10
28	Hammer		30

29	Generator Set		1
30	Gauges		12
31	First aid kit		2
32	Feeler gauge for work offset setting		6
33	Computer systems in LAN		60
34	Combination Plier		25
35	Bore gauge		3
36	Apron		60
37	Centre Punch		25
38	3pin micrometer		5
39	Tool (End mill, Face mill, Drill bits, spring collet, arbor , tool holding device)		20
40	Conventional lathe Machine		24
41	Conventional Milling Machine vertical		14
42	Conventional Milling Machine horizontal		3
43	Conventional surface grinding Machine		3
44	Conventional drilling Machine		3
45	Conventional shaper Machine		1
46	TIG/MIG/Arch welding machine with simulator		1 NOS EACH
47	Injection Molding Machine		1
48	Industrial Press		1
49	Profile Projector		1
50	CNC WIRECUT		1
51	CNC EDM		1
52	Hacksaw		1
53	AUTOCAD SOFTWARE		60
54	SOLIDWORKS SOFTWARE		60
55	MS OFFICE		60

### Annexure III: Industry Validations Summary

S. No	Organization Name	Representative Name	Designation	Contact Address	Contact Phone No	E-mail ID	LinkedIn Profile (if available)
1	Kirloskar Brothers Limited	Purvez Pasta	HR	No 254/1, Viramgam Highway, Sanand Ho, Sanand - 382110 (Near Chharodi Railway Station, Chharodi)	2717273310	<a href="mailto:Parvez.Pasta@kbl.co.in">Parvez.Pasta@kbl.co.in</a>	
2	Parle Elizabeth Tools Private Limited	DevendraDawande	HR	Plot No. PE-37, BOL Sanand GIDC-II, Sanand, Chharodi, Gujarat 382110	7211149243	<a href="mailto:dbdawande@parle-elizabeth.com">dbdawande@parle-elizabeth.com</a>	
3	Windsor Machines Limited	Steven Christian	HR	5402, 5403, Phase IV, GIDC Estate, Vatva, Ahmedabad, Gujarat 382445	7930262100	<a href="mailto:steven.christian@windsormachines.com">steven.christian@windsormachines.com</a>	
4	Shilp Gravures Ltd	AniruddhGharia	HR	778/6, Pramukh Industrial Estate, Sola-Santej Road, Village Rakanpur, Tal, Kalol, Dist. Gandhinagar Gujarat (India.) - 382721	2764 286323	<a href="mailto:careers@shilpgravures.com">careers@shilpgravures.com</a>	
5	Jyoti Plastic Industries	Vipul Patel	CEO	Plot No. 1211/A, Vadsar-Bhoyan Road, Opp.Arvind Mills (Knit & Garment Unit), Kalol, Village MotiBhoyan, Gandhinagar-382721, Gujarat, India	8047837137	<a href="mailto:info@jyotiplasticindia.com">info@jyotiplasticindia.com</a>	
6	Galaxy Chains Pvt. Ltd.	KishanGovani	Proprietor	N.H. 27, Opp. Field Marshal High School, Shapar Ind. Zone, Shapar, Gujarat 360024	090999 32799	<a href="mailto:galaxy@galaxychains.com">galaxy@galaxychains.com</a>	
7	Latteys Industries Ltd	G.Nallathambi	Works manager	Plot No.16, Phase 1&2, GIDC Naroda, Ahmedabad, Gujarat 382330	079 2282 2894	<a href="mailto:latteysqc@gmail.com">latteysqc@gmail.com</a>	
8	Mascot Pump Limited	Pratik Patel	Proprietor	13, Naroda GIDC Rd, Makarpura, GIDC Naroda, Ahmedabad, Gujarat 380025	9824533161	<a href="mailto:info@mascotpumps.com">info@mascotpumps.com</a>	
9	Fine Care Biosystems	Kaushik Patel	HR	Block# 228/1/4, Dantali Industrial Owner Association,, Dantali, Kalol, Gujarat 382721	9924474433	<a href="mailto:info@accumaximum.com">info@accumaximum.com</a>	

10	The Anup Engineering Limited	Ashwin	HR	Behind 66 KV Electric Sub Station, Odhav Rd, Ahmedabad, Gujarat 382415	7922872823	<a href="mailto:anup@anupengg.com">anup@anupengg.com</a>	
11	SHREE AMBA MECHANICAL WORKS	PANCHAL HASMUKH	Proprietor	B/9 DHANJIBHAI ESTATE, NR REVABHAI ESTATE, CTM AMRAIWADI AHMEDABAD	9426325593	<a href="mailto:shreeambaeng20@gmail.com">shreeambaeng20@gmail.com</a>	
12	P.C. INDUSTRIES	Honey Shah	Proprietor	Block No. 782, Pramukh Industrial Estate, Near Shilp Gravures Village Rakanpur, Takalol, Gandhinagar, Gujarat 382721	9662525222	<a href="mailto:pci@pcindustries.co.in">pci@pcindustries.co.in</a>	
13	A. M. Designs Pvt. Ltd.	JuhiMevada	HR	Kathwada G.I.D.C Plot No. 24 Road, Odhav Rd, Ahmedabad, Gujarat 382430	079 2970 8170	<a href="mailto:hadmin@amdiindia.in">hadmin@amdiindia.in</a>	
14	ShayburgValvesPvt Ltd.	ArvindSolanki	HR	PLOT NO. 176,186,187, AJANTA INDL. ESTATE, VILL: VASNA(IYAVA), TAL: SANAND, DIST: AHMEDABAD, Gujarat 382110	02717 619 100	<a href="mailto:mkt1@shayburgvalves.com">mkt1@shayburgvalves.com</a>	
15	STEELSTRONG VALVES (I) PVT LTD	NareshSuthar	HR	PLOT NO. 186,187, AJANTA INDL. ESTATE, VILL: VASNA(IYAVA), TAL: SANAND, DIST: AHMEDABAD, Gujarat 382110	9099972570	<a href="mailto:sanandworks@steelstrong.com">sanandworks@steelstrong.com</a>	
16	Indo-mac Engineers	Mr. Dinesh Panchal	Proprietor	541, GidcKathawada, Road No-15, Kathwada Road, Kathawada, Kathawada, Ahmedabad, Gujarat 382430	9824091598	<a href="mailto:engineering@indomac.com">engineering@indomac.com</a>	
17	Clartech Engineers Pvt Ltd	Mr. Bannur	Proprietor	Plot 413, Phase II GIDC Industrial Estate, Vatva, Ahmedabad, Gujarat 382445	079 29295055	<a href="mailto:Contact@clartechengineers.com">Contact@clartechengineers.com</a>	
18	Dinesh Enterprise	Mr. Dinesh	Proprietor	Plot No. 51,52 Ganshyam Estate, opp.mamta Nagar Nr.viratnagar Cross Road, Murgha Farm Rd, Ahmedabad, Gujarat 382350	079 2277 4185	<a href="mailto:dineshenterprise52@gmail.com">dineshenterprise52@gmail.com</a>	
19	Accumax Lab Devices Pvt.Ltd	Kaushik Patel	HR	Plot-16,Electronic Park "SEZ, GIDC Rd, Sector 26, Gandhinagar, Gujarat 382026	9904406061	<a href="mailto:info@accumaximum.com">info@accumaximum.com</a>	
20	Ashmor Electricals (India) Pvt. Ltd.	Pallav A. Shah	Support	KhatrajKalol Rd, MotiBhoayan, Takalol, Gandhinagar, Gujarat	87980 51886	<a href="mailto:ashmorelectricals@yahoo.com">ashmorelectricals@yahoo.com</a>	

21	Ambica optical industries	Abhay Shah	Partner	45, mahalaxmi estate, Bombay Conductor Rd, Vatva, Ahmedabad, Gujarat 382445	7965124588	<a href="mailto:ambicaoptical15@yahoo.com">ambicaoptical15@yahoo.com</a>	
22	Nilkanth Machine Tools	VINUBHAI SOLANKI	CEO	5503/1 G.I.D.C. Vatva, Cross Road, near Trikampura, B/h, Vatva, Ahmedabad, Gujarat 382445	094260 83725	<a href="mailto:info@milmac.com">info@milmac.com</a>	
23	Schilltek International	KIRAN CHAVDA	Proprietor	37, Karnavati Estate, Phase IV, GIDC Estate, Vatva, Ahmedabad, Gujarat 382445	099252 53737	<a href="mailto:skilltech@gmail.com">skilltech@gmail.com</a>	
24	Shiv Shakti Industries	PANKAJ PANCHAL	Proprietor	Phase I, GIDC, Vatva, Ahmedabad, Gujarat	9825061182	<a href="mailto:shivshaktiindustries191@gmail.com">shivshaktiindustries191@gmail.com</a>	
25	Gayatri Engineering Works	Nilesh Patel	Proprietor	55 SUPRABHAT INDUSTRIAL ESTATE O/S DARIYAPUR GATE, AHMEDABAD	9825186087	<a href="mailto:engineers369@yahoo.com">engineers369@yahoo.com</a>	
26	Shree Chamunda Engineering Works	Mr. N.M. Panchal	Proprietor	5, Ashirwad Industrial Estate, Saraspur, Ahmedabad, Gujarat 380024	098243 02494	<a href="mailto:chamundaenggworks@gmail.com">chamundaenggworks@gmail.com</a>	
27	Ginza Machinery Mfg. Co	MR. PRATIK	PARTNER	Plot No. 1106, 07, D - Road, Phase 3, GIDC Estate, Vatva, Ahmedabad, Gujarat 382445	96240 90000	<a href="mailto:pratik@armstitch.com">pratik@armstitch.com</a>	
28	GABBAR ENGINEERING CO.	MR. UMESH	PARTNER	PLOT NO 1903, GIDC INDUSTRIAL ESTATE, PHASE 3, Rd F, Vatva, Ahmedabad, Gujarat 382445	098240 62000	<a href="mailto:umesh@gabbar.com">umesh@gabbar.com</a>	
29	Shree Chamunda Industries	YOGESH DODIYA	PARTNER	8, Puspak Industrial Estate, Phase-1, Nika Tube Compound, Vatva, G I D C, Ahmedabad, Gujarat 382445	098980 70291	Yogesh.dodiya76@gmail.com	
30	Millmac Solutions	KasyapPanara	Proprietor	47, NR RAMOL TOLLPLAZA SVP RING ROAD RAMOL AHMEDABAD	7600810381	<a href="mailto:millmacsolutions@gmail.com">millmacsolutions@gmail.com</a>	

formation of all the industry validations in table. This is not required for OEM qualifications.

### 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
24-25	90	90	5	5	-	-
25-26	120	120	8	8	-	-
26-27	150	150	10	10	-	-

*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	76	76	71	69	0	0	0	0	0	0	0	0
1.0	21-22	56	56	46	46	0	0	0	0	0	0	0	0
1.0	22-23	36	36	35	35	0	0	0	0	0	0	0	0

*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.

**Content availability for previous versions of qualifications:**

Participant Handbook  Facilitator Guide  Digital Content  Qualification Handbook  Any Other:

**Languages in which Content are available:**

English

### 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	<input type="checkbox"/> 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	<input type="checkbox"/> Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners	Self-Learning Videos , Broadcasts, Mobile Learning , Curated Digital content	40:60
3	<input type="checkbox"/> Showing Practical Demonstrations to the learners	CNC Simulators/ CAD Software, Video Content , E-Resource library	100:0

4	<input type="checkbox"/> Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training	CNC Simulators, CNC Lathe Machines, Grinding Machines, Measuring, instruments, Cutting Tools, Hand Tools / CAD Software	100:0
5	<input type="checkbox"/> Tutorials/ Assignments/ Practice	Online Question Bank, Mobile Quick test app, MCQ based tests, Practical Test on Machines	40:60
6	<input type="checkbox"/> Proctored Monitoring/ Assessment/ Evaluation/ Examinations	Assessment engine for Essays, Up-loadable file examinations, Mock test sessions	50:50
7	<input type="checkbox"/> 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 for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>NOS / Module:</b> <b>MSME/DTE/01</b> ENGINEERING DRAWING-1	PC.1 Understand the scientific facts, concepts, principle and procedure of engineering drawing used in tool design, process planning, estimation, inspection and QC including supervisory management to express the ideas, conveying instructions for carrying out jobs in tool and die technology. PC.2 Understand the media used for engineering drawing PC.3 Student should be able to understand how to represent the drawing using the rules followed with the help of geometric dimensions and tolerances. PC.4 To scale, line and lettering drawing and practical in different lines and lettering. Drawing of different line and letters in drawing book.	-	100	-	0

	<p>PC.5 Procedure for drawing, straight line, angles, polygons, circle, all drawing drawn in sketch book.</p> <p>PC.6 Drawing of object as per 1st &amp; 3rd angle projection method, Procedure for drawing different view in 1st &amp; 3rd angle.</p> <p>PC.7 Procedure of indication of dimension</p> <p>PC.8 Able to understand how to project a drawing using the following projections:</p> <p>PC.9 Drawing projection of plane and point,</p> <p>PC.10 Drawing of isometric view of different object.</p> <p>PC.11 Conversion of Isometric view to orthographic projection.</p>				
<p><b>NOS / Module:</b> <b>MSME/DTE/02</b> WTC-I</p>	<p>PC.1 Understand tools and materials required and their use in industry</p> <p>PC.2 Type of material-ferrous &amp; non-ferrous</p> <p>PC.3 Safety application, safety rules, precaution of accidents</p> <p>PC.4 Safety precaution and safety rule</p> <p>PC.5 At the end of this unit student should be able to</p> <p>PC.6 Types of hand tools</p> <p>PC.7 Use &amp; application of hand tools.</p> <p>PC.8 Use &amp; application &amp; use of filing methods</p> <p>PC.9 Use &amp; application &amp; use of chisel</p> <p>PC.10 Use &amp; application of marking tool</p> <p>PC.11 Working principle of welding, soldering and brazing</p> <p>PC.12 Able to select &amp; use of drilling machine Use of drilling operation &amp; methods of drilling Function of drilling machine Use of work holding devices, Vice, angle plate, 'v' block, 'c' clamp Application &amp; use of drills Centre drill counter base, counter sink Application &amp; use of drill chuck, sleeves, drifts, tapping, attachment Use &amp; application of drilling, tapping, counter sink, counter boring, and their calculation of speed, feed, depth of cut.</p> <p>PC.13 Selection &amp; use of lathe machine, parts of lathe machine. Types of work holding device &amp; it's material Types of cutting tool</p>	<p>100</p>	<p>-</p>	<p>-</p>	<p>-</p>

	<p>Types of cutting tool/holder &amp; it's classification                  What is speed feed                  Types of operation construction                  Types of cutting fluid                  PC.14 Selecting &amp; use of milling machine                  Function of milling machine &amp; it's part                  Type of work holding devices                  Design &amp; types of cutting tools construction                  Cutting tool holder                  Tool geometry speed feed &amp; depth of cut</p>				
<p><b>NOS / Module:</b>  <b>MSME/DTE/03</b>                  WORKSHOP PRACTICE-I</p>	<p>PC.1 Able to understand different types of machining process.                  Turning                  Milling                  Surface grinding                  Maintenance of machine tools</p>		100	-	-
<p><b>NOS / Module:</b>  <b>MSME/DTE/04</b>                  COMPUTER APPLICATION</p>	<p>PC.1 Use of applications of the computer components of computer                  PC.2 Principles of computer operations                  PC.3 Classification of Computers                  PC.4 Input devices                  PC.5 Output devices                  PC.6 Storage devices                  PC.7 Microprocessor unit                  PC.8 Overview of the various computer systems                  PC.9 Number system                  PC.10 Algorithm &amp; flowchart                  PC.11 Computer codes, machine code, assemble code and Machine Code                  PC.12 operating system                  PC.13 Disk operating system                  PC.14 different type of operating system                  PC.15 Ms word page design with column, tables &amp; using graphics                  PC.16 Ms word of page design with columns tables &amp; graphics                  PC.17 Excel files, work books, mathematical operations used in excel sheet printing workbook and graphs generation                  PC.18 Ms excel -Text, borders, colours                  PC.19 Ms excel graphics &amp; objects</p>	100	-	-	-

	<p>PC.20 PowerPoint wizard presentation perspective sliders auto layout, text objects clipart and pictures text object</p> <p>PC.21 Power point presentation PowerPoint with drawing</p>				
<p><b>NOS / Module:</b> <b>MSME/DTE/05</b> MATHEMATICS-I</p>	<p>PC.1 Able to understand what is sequence and series. General terms of a series, Formulation of series. Factorial notation. Principle of partial fraction. Determinants and matrices Permutation and combination Exponents and its series.</p> <p>PC.2 Able to understand the properties of triangle. Relation between sides &amp; angle of triangle. Sums&amp; difference formula.</p> <p>PC.3 Able to understand definition of function, constant, variable, limit &amp; evaluation of limits Logarithm function Trigonometric functions Partial differentiations</p>	100	-	-	-
<p><b>NOS / Module:</b> <b>MSME/DTE/06</b> APPLIED SCIENCE</p>	<p>PC.1 Able to understand importance of fundamental science</p> <p>PC.2 Purpose of learning physics, Applications in daily life</p> <p>PC.3 Able to understand types of unit and its importance</p> <p>PC.4 Able to understand distinction between rotary and circular motion, velocity, time and distance graph</p> <p>PC.5 Able to understand centripetal and centrifugal forces, banking of roads and bending of cyclist</p> <p>PC.6 Able to understand examples of periodic motion necessary conditions for the appearance and pursuance of periodic motion</p> <p>PC.7 Able to understand wave equation</p> <p>PC.8 Able to understand what is gravity</p> <p>PC.9 Newton’s principle</p> <p>PC.10 Principle and technique of launching of artificial satellite, natural and man-made satellite</p> <p>PC.11 Able to understand what is matter, its classifications and properties</p>	100	-	-	-

	<p>PC.12 Kinetic theory of matter relation of internal energy with quantity of heat and temperature.</p> <p>PC.13 Able to understand kinetic interpretation of temperature, absolute zero, Gaslaw's, Conceptof kinetic theory.</p> <p>PC.14 Able to understand the effect of temperature on ST of liquids and gases.</p> <p>PC.15 Experimental determination of ST of liquid by capillary rise</p> <p>PC.16 Able to understand by experimental determination by Posethic's method,</p> <p>PC.17 Dependence of viscosity of liquids on temperature, application</p> <p>PC.18 Able to understand first law of thermodynamics</p> <p>PC.19 Mechanical equivalent of heat,</p> <p>PC.20 Concept of latent heat of fusion of ice &amp; vaporization of water</p> <p>PC.21 Able to understand natural and forced convection</p> <p>PC.22 Ventilation of buildings</p> <p>PC.23 Radiation, Good and bad radiations, Absorbers</p> <p>PC.24 Provost's theory, Stefan-Boltzmann law</p> <p>PC.25 Able to understand importance of fundamental chemistry Radioactivity, Alfa gamma &amp; beta rays</p> <p>PC.26 Able to understand effect of temperature catalysis.</p> <p>PC.27 Able to understand Le- chateliers principle Effect of temperature, pressure &amp; concentration in NH<sub>3</sub></p> <p>PC.28 Able to understand classification on basis of, p, d, f model Actinide and lanthanide series.</p> <p>PC.29 Able to understand Redox Reactions Calculation of chemical equivalentents on its basis.</p> <p>PC.30 Able to understand electroplating of Cu and Ni.</p> <p>PC.31 Able to understand their sheet diagram for manufacture of sodium bicarbonates and ammonia</p> <p>PC.32 Able to understand composition&amp; uses of steel, brass, bronze and duralumin alloy.</p>				
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	<p>PC.33 Able to understand modification of environmental properties of metal Use of protective coatings anodic &amp;cathode protection, Modification in design and choice of material.</p> <p>PC.34 Able to understand modification of environmental properties of metal Use of protective coatings anodic &amp;cathode protection Modification in design and choice of material.</p> <p>PC.35 Able to understand protection against corrosion.</p> <p>PC.36 Able to understand laboratory preparation properties and uses of acetylene Laboratory preparation properties and uses of ethyl alcohol.</p> <p>PC.37 Able to understand different types of high polymers and their application.</p> <p>PC.38 Able to understand definition of electroplating, principles and factors influencing electroplating</p> <p>PC.39 Able to understand effect of waste and waste products in the environment.</p>				
<p><b>NOS / Module:</b> <b>MSME/DTE/07</b> PROJECT WORK-TOOL &amp; DIE MAKING</p>	<p>PC.1 Skill Development</p>	-	100	-	-
<p><b>NOS / Module:</b> <b>MSME/DTE/08</b> EMPLOYBILITY SKILL</p>	<p>PC.1 The importance of Employability Skills for the current job market and future of work</p> <p>PC.2 List different learning and employability related GOI and private portals and their usage</p> <p>PC.3 Research and prepare a note on different industries, trends, required skills and the available opportunities</p> <p>PC.4 Constitutional values, including civic rights and duties, citizenship, responsibility towards society etc.</p> <p>PC.5 Skills required for employment.(i.e. Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn)</p>	100	-	-	-

<p><b>NOS / Module:</b> <b>MSME/DTE/09</b> ENGINEERING DRAWING - II</p>	<p>PC.1 Understand about Tolerances, limits, fits and Surface texture. PC.2 Geometric tolerance symbols and characteristics. PC.3 Understand the Different Section view drawing and its detail view PC.4 Development of different types of surfaces PC.5 Interpenetration of solids PC.6 Understand the Practical drawing in different temporary joints as per BIS standard which is used for assembly PC.7 Understand the Assembly and detail drawing any object.</p>	<p>-</p>	<p>100</p>	<p>-</p>	<p>-</p>
<p><b>NOS / Module:</b> <b>MSME/DTE/10</b> WORKSHOP TECHNOLOGY-II</p>	<p>PC.1 Student should be able to Selection &amp; use of drilling machine Use of drilling operation &amp; methods of drilling Function of drilling machine Use of work holding devices Vice, angle plate, 'V' block, 'C' clamp Application &amp; use of drill chuck, sleeves, drifts, tapping, attachment Selection &amp; use of lathe machine Parts of lathe machine Types of work holding device &amp; it's material Types of cutting tool Types of cutting tool/holder &amp; it's classification Selecting &amp; use of milling machine function of milling machine &amp; it's part Type of work holding devices Design &amp; types of cutting tools construction Cutting tool holder Tool geometry speed feed &amp; depth of cut Types of milling operation Construction Use of grinding machine Application &amp; use of vices, sine table, angle table, 'V' block Use and selection of planing operation and planer Use and selection of slotting operation and slotting machine PC.2 Understand Pantograph machine and operations, Concept of main parts and functions of machine, Work holding devices, single lip grinder machine and operations,</p>	<p>100</p>	<p>-</p>	<p>-</p>	<p>-</p>

	Concept of main parts and functions of machine, Work holding				
<b>NOS / Module:</b> <b>MSME/DTE/11</b> WORKSHOP PRACTICE-II	PC.1 Understand different types of machining process. PC.2 Understand different machines. PC.3 Understand different parameter for use of different machines. PC.4 Different process regarding workshop and store	-	100	-	-
<b>NOS / Module:</b> <b>MSME/DTE/12</b> APPLIED MECHANICS	PC.1 Able to understand Scalar and vector quantities System of units Principle of abbreviation, symbols, units of quantities. PC.2 Able to understand Principle of statics Equilibrium of coplanar concurrent forces. Lami's theorem. Resolution and resultant, graphical methods. Newton's third law. PC.3 Able to understand Moments Lami's theory. Principle of parallel forces, unlike parallel forces, non-concurrent force, couple, resultant force. Condition of equilibrium. Varignon 's principle PC.4 Able to understand Concept of centre of gravity, Centroid, Symmetry consideration Theorem of moments, Axis of symmetry. State of equilibrium and application. PC.5 Friction in engineering field. PC.6 Terms related to motion PC.7 Laws of motion PC.8 Application. PC.9 Angular displacement PC.10 Velocity	100	-	-	-

	PC.11 Acceleration PC.12 Centrifugal forces PC.13 Centripetal forces. PC.14 The application of work done, work done by torque, horse power, torque, speed relationship. PC.15 The application of horse power, kinetic energy & potential energy. PC.16 The mechanical advantages and velocity ratio in simple machine.				
<b>NOS / Module:</b> <b>MSME/DTE/13</b> MATHEMATICS-II	PC.1 Transformation of co-ordinates PC.2 Standards form, general equations PC.3 Scalar and vector product of two vectors. PC.4 Definition, fundamental and properties of integration PC.5 Matrix, different types of matrix PC.6 Reversal laws, inverse laws	100	-	-	-
<b>NOS / Module:</b> <b>MSME/DTE/14</b> MECHANICAL MEASUREMENT AND METROLOGY	PC.1 Importance of Accurate Measurements PC.2 Types of Measurements PC.3 Measurement Standards and Units PC.4 Metrology in Industry PC.5 Role of Measurement in Quality Control PC.6 Linear Measurement Instruments: Vernier Calipers, Micrometers, Dial Indicators, Height Gauges PC.7 Angular Measurement Instruments: Vernier Calipers, Micrometers, Dial Indicators, Height Gauges PC.8 Calibration Methods PC.9 Sources of Errors in Measurement PC.10 Systematic and Random Errors PC.11 Precision and Accuracy PC.12 Uncertainty in Measurement PC.13 Error Analysis PC.14 Measurement of Length, Width, and Height PC.15 Measurement of Angles and Tapers PC.16 Measurement of Surface Roughness PC.17 Measurement of Straightness, Flatness, and Roundness PC.18 Measurement of Hardness	100	-	-	-

	PC.19 Measurement of Tensile Strength PC.20 Measurement of Impact Strength PC.21 Measurement of Fatigue Strength PC.22 Coordinate Measuring Machines (CMM) PC.23 Optical Measurement Techniques PC.24 Laser Interferometry PC.25 X-ray and CT Scanning PC.26 3D Scanning and Non-Contact Measurement PC.27 Introduction to Statistical Process Control (SPC) PC.28 Control Charts and Process Capability Analysis PC.29 Gage R&R (Repeatability and Reproducibility) PC.30 ISO Standards for Quality Assurance PC.31 Nano metrology PC.32 3D Printing and Additive Manufacturing PC.33 Industry 4.0 and Metrology PC.34 Future Challenges and Innovations in Metrology				
<b>NOS / Module:</b> <b>MSME/DTE/15</b> PROJECT WORK-TOOL & DIE MAKING (ELECTIVE)	Project 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: <ul style="list-style-type: none"> <li>• Details of Department/ Organization</li> <li>• Brief Job description &amp; work activity</li> <li>• Specific problem faces if any with the solution.</li> <li>• Technical Books referred during the OJT</li> <li>• Conclusion</li> </ul>	-	100	-	-
<b>NOS / Module:</b> <b>MSME/DTE/16</b> EMPLOYBILITY SKILL	PC.1 Read English text PC.2 Write a brief note/paragraph / letter/e -mail using correct English	100	-	-	-
	<b>Total Marks</b>	1000	600		0

## 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 Central MSME NSQF Examination Cell via email for the assessment.
- Central MSME NSQF Examination Cell sends the assessment confirmation to respective TC/AB
- Central MSME NSQF Examination Cell deploys the certified Assessor for executing the assessment at respective TC/AB via online / offline mode.
- Central MSME NSQF Examination Cell & respective TC/AB Internal Examination Cell monitors the assessment process & records

### 2. Testing Environment:

- Central MSME NSQF Examination Cell confirms the Assessment location, date and time
- For number of candidates more than 30 separate assessors are assigned for the assessment.
- Central MSME NSQF Examination Cell & 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 Central MSME NSQF Examination Cell and it is verified by the Central MSME NSQF Examination Cell 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 Central MSME NSQF Examination Cell to respective TC & Assessor. Reporting of the assessor from assessment location is verified by the Central MSME NSQF Examination Cell through the online Meeting Link. Students are also required to join for the online link for verification by the Central MSME NSQF Examination Cell

- Assessment Photographs are shared with the Central MSME NSQF Examination Cell & are also with the respective TC.

**5. Method of verification or validation:**

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

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

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

**On the Job Training:**

- The module / NOS (which covers the job profile of CNC Operator- Turning will be assessed.
- 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
<b>AA</b>	Assessment Agency

<b>AB</b>	Awarding Body
<b>ISCO</b>	International Standard Classification of Occupations
<b>NCO</b>	National Classification of Occupations
<b>NCrF</b>	National Credit Framework
<b>NOS</b>	National Occupational Standard(s)
<b>NQR</b>	National Qualification Register
<b>NSQF</b>	National Skills Qualifications Framework
<b>OJT</b>	On the Job Training

**Glossary**

<b>Term</b>	<b>Description</b>
<b>National Occupational Standards (NOS)</b>	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.
<b>Qualification</b>	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
<b>Qualification File</b>	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.
<b>Sector</b>	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>