



QUALIFICATION FILE

MACHINE OPERATOR – TOOL ROOM

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

☐ Upskilling ☐ Dual/Flexi Qualification ☐ For ToT ☐ For ToA

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

NCrF/NSQF Level: 3.5

Submitted By:

Central Institute of Petrochemicals Engineering & Technology (CIPET)
Department of Chemicals & Petrochemicals, Ministry of Chemicals & Fertilizers, Govt. of India
CIPET Head office, T.V.K Industrial Estate, Guindy, Chennai – 600 032.

Table of Contents

Section 1: Basic Details	3
Section 2: Module Summary	5
NOS/s of Qualifications	5
Mandatory NOS/s:	5
Elective NOS/s:	6
Optional NOS/s:	6
Assessment - Minimum Qualifying Percentage	6
Section 3: Training Related	7
Section 4: Assessment Related	7
Section 5: Evidence of the need for the Qualification	7
Section 6: Annexure & Supporting Documents Checklist	8
Annexure: Evidence of Level	11
Annexure: Tools and Equipment (Lab Set-Up)	26
Annexure: Industry Validations Summary	27
Annexure: Training & Employment Details	28
Annexure: Blended Learning	29
Annexure: Detailed Assessment Criteria	30
Annexure: Assessment Strategy	41
Annexure: Acronym and Glossary	43

Section 1: Basic Details

1.	Qualification Name	Machine Operator – Tool Room (MO-TR)																
2.	Sector/s	Chemicals & Petrochemicals (CPC)																
3.	Type of Qualification: ☐ New ☒ Revised ☐ Has Electives/Options ☐ OEM	NQR Code & version of existing/previous qualification: <i>(change to previous, once approved)</i> 2021/CP/CIPET/04629	Qualification Name of existing/previous version: Machine Operator – Tool Room															
4.	a. OEM Name b. Qualification Name <i>(Wherever applicable)</i>	Not Applicable.																
5.	National Qualification Register (NQR) Code&Version <i>(Will be issued after NSQC approval)</i>	QG-3.5-CP-04124-2025-V2-CIPET	6. NCrf/NSQF Level: 3.5															
7.	Award (Certificate/Diploma/Advanced Diploma/ Any Other) <i>(Wherever applicable specify multiple entry/exits also & provide details in annexure)</i>	Certificate																
8.	Brief Description of the Qualification	Machine Operator - Tool Room qualification is to get acquainted with setting up and operating the Tool Room machine to produce good quality products from raw materials.																
9.	Eligibility Criteria for Entry for Student/Trainee/Learner/Employee	a. Entry Qualification & Relevant Experience: <table border="1"> <thead> <tr> <th>S. No.</th> <th>Academic/Skill Qualification (with Specialization - if applicable)</th> <th>Required Experience (with Specialization - if applicable)</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Grade 11th</td> <td>No Experience required</td> </tr> <tr> <td>2.</td> <td>Grade 10th or equivalent</td> <td>1.5 years relevant experience</td> </tr> <tr> <td>3.</td> <td>8th grade</td> <td>4.5 years relevant experience</td> </tr> <tr> <td>5.</td> <td>Previous relevant Qualification of NSQF Level 3</td> <td>1.5 years relevant experience</td> </tr> </tbody> </table>		S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)	1.	Grade 11 th	No Experience required	2.	Grade 10 th or equivalent	1.5 years relevant experience	3.	8 th grade	4.5 years relevant experience	5.	Previous relevant Qualification of NSQF Level 3	1.5 years relevant experience
S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)																
1.	Grade 11 th	No Experience required																
2.	Grade 10 th or equivalent	1.5 years relevant experience																
3.	8 th grade	4.5 years relevant experience																
5.	Previous relevant Qualification of NSQF Level 3	1.5 years relevant experience																
10.	Credits Assigned to this Qualification, Subject to Assessment <i>(as per National Credit Framework (NCrF))</i>	20	11. Common Cost Norm Category (I/II/III) <i>(wherever applicable)</i> : I															
12.	Any Licensing requirements for Undertaking Training on This Qualification <i>(wherever applicable)</i>	-																

13.	Training Duration by Modes of Training Delivery (<i>Specify Total Duration as per selected training delivery modes and as per requirement of the qualification</i>)	☒ Offline ☐ Online ☐ Blended <table border="1" data-bbox="938 180 2038 399"> <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>180</td> <td>360</td> <td>60</td> <td>-</td> <td>600</td> </tr> <tr> <td>Online</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> </tbody> </table> <i>(Refer Blended Learning Annexure for details)</i>					Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)	Classroom (offline)	180	360	60	-	600	Online	-	-	-	-	-
Training Delivery Modes	Theory (Hours)	Practical (Hours)	OJT Mandatory (Hours)	OJT Recommended (Hours)	Total (Hours)																			
Classroom (offline)	180	360	60	-	600																			
Online	-	-	-	-	-																			
14.	Aligned to NCO/ISCO Code/s (<i>if no code is available mention the same</i>)	NCO-2015/7223																						
15.	Progression path after attaining the qualification (<i>Please show Professional and Academic progression</i>)	Shift In-charge / Supervisor in Tool Room, Tool & Die Making, Mould Manufacturing Industry																						
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	During selection of candidates for the training programme, Female candidates are given preference																						
20.	Are Greening/ Environment Sustainability Aspects Covered (<i>Specify the NOS/Module which covers it</i>)	☐ Yes ☒ No																						
21.	Is Qualification Suitable to be Offered in Schools/Colleges	Schools ☐ Yes ☒ No Colleges ☒ Yes ☐ No																						
22.	Name and Contact Details of Submitting / Awarding Body SPOC (<i>In case of CS or MS, provide details of both Lead AB & Supporting ABs</i>)	Name: Arunav Banerejee Email: cipethovtc@cipet.gov.in Contact No.: 9402183512 Website: www.cipet.gov.in																						
23.	Final Approval Date by NSQC: 26.05.2025	24. Validity Duration: 3 Years			25. Next Review Date: 25.05.2028																			

Section 2: Module Summary

NOS/s of Qualifications

(In exceptional cases these could be described as components)

Mandatory NOS/s: 12

Specify the training duration and assessment criteria at NOS/ Module level. For further details refer to the 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.	Maintain basic health and safety practices at the workplace,5S	CPC/N0411 & V2.0	Non-Core	3.5	1	10	20	-	-	30	10	30	-	-	40	-
2.	Understanding the basic concepts, design, drawings and planning for machining components, making tools & dies and coordinating with others	CPC/N5110 & V2.0	Core	3.5	2	14	46	-	-	60	10	20	-	-	30	-
3.	Perform fitting operations on machining components using hand tools	CPC/N5111 & V2.0	Core	3.5	2	12	48	-	-	60	15	25	-	-	40	-
4.	Operation on Drilling	CPC/N5112 & V2.0	Core	3.5	2	20	40	-	-	60	20	40	-	-	60	-
5.	Operation on Shaping	CPC/N5113 & V2.0	Core	3.5	1	14	16	-	-	30	20	40	-	-	60	-
6.	Operation on Lathe machine	CPC/N5114 & V2.0	Core	3.5	2	10	50	-	-	60	25	55	-	-	80	-
7.	Operation on Milling machine	CPC/N5115 & V2.0	Core	3.5	2	20	40	-	-	60	20	60	-	-	80	-
8.	Operation on Grinding machines	CPC/N5116 & V2.0	Core	3.5	2	20	40	-	-	60	20	30	-	-	50	-
9.	Basic programming and operation on CNC Machines	CPC/N5117 & V2.0	Core	3.5	2	20	40	-	-	60	40	80	-	-	120	-
10.	Effective working with others	CPC/ N7014 & V2.0	Core	3.5	1	10	20	-	-	30	10	10	-	-	20	-
11.	Employability Skills	DGT/VSQ/N0101 & V1.0	Non-Core	3.5	1	30	-	-	-	30	10	10	-	-	20	-
12.	On the Job Training (OJT)	N/A	Core	3.5	2	-	-	60	-	60	-	-	-	-	-	-
Duration (in Hours) / Total Marks			-	3.5	20	180	360	60	-	600	200	400	-	-	600	-

Elective 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)
1.																
2.																
Duration (in Hours) / Total Marks																

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)
1.																
2.																
Duration (in Hours) / Total Marks																

Assessment - Minimum Qualifying Percentage

Please specify **any one** of the following:

Minimum Pass Percentage – Aggregate at qualification level:

50% for theory and 70% for practical (Every Trainee should score specified minimum aggregate passing percentage at qualification level to successfully clear the assessment.)

Minimum Pass Percentage – NOS/Module-wise:

(Every Trainee should score specified minimum passing percentage in each mandatory and selected elective NOS/Module to successfully clear the assessment.)

Section 3: Training Related

1.	Trainer's Qualification and experience in the relevant sector (in years) <i>(as per NCVET guidelines)</i>	Diploma with minimum 2 years experience in field of Mechanical / Production / Plastics Mould / Tool / Tool & Die / Manufacturing Engineering / Technology
2.	Master Trainer's Qualification and experience in the relevant sector (in years) <i>(as per NCVET guidelines)</i>	B.E. / B.Tech. / M.Sc. with 2 years experience in the field of Mechanical / Production / Plastics Mould / Tool / Tool & Die / Manufacturing Engineering / Technology
3.	Tools and Equipment Required for Training	☒ Yes ☐ No <i>(If "Yes", details to be provided in Annexure)</i>
4.	In Case of Revised Qualification, Details of Any Upskilling Required for Trainer	Nil

Section 4: Assessment Related

1.	Assessor's Qualification and experience in relevant sector (in years) <i>(as per NCVET guidelines)</i>	Diploma with minimum 5 years experience (or) B.E. / B.Tech. with minimum 2 years experience in the field of Mechanical / Production / Plastics Mould / Tool / Tool & Die / Manufacturing Engineering / Technology
2.	Proctor's Qualification and experience in relevant sector (in years) <i>(as per NCVET guidelines)</i>	Diploma with minimum 6 years experience (or) B.E. / B.Tech. with minimum 3 years experience in the field of Mechanical / Production / Plastics Mould / Tool / Tool & Die / Manufacturing Engineering / Technology
3.	Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years) <i>(as per NCVET guidelines)</i>	B.E. / B.Tech. with minimum 4 years experience (or) M.E. / M.Tech. with minimum 2 years experience in the field of Mechanical / Production / Plastics Mould / Tool / Tool & Die / Manufacturing Engineering / Technology
4.	Assessment Mode <i>(Specify the assessment mode)</i>	Physical Assessment
5.	Tools and Equipment Required for Assessment	☒ Same as for training ☐ Yes ☐ No <i>(details to be provided in Annexure-if it is different for Assessment)</i>

Section 5: Evidence of the need for the Qualification

Provide Annexure/Supporting documents name.

1.	Latest Skill Gap Study (not older than 2 years) (Yes/No): YES
2.	Latest Market Research Reports or any other source (not older than 2 years) (Yes/No): NO
3.	Government /Industry initiatives/ requirement (Yes/No): YES
4.	Number of Industry validation provided: 06 Nos.
5.	Estimated nos. of persons to be trained and employed: 1500 candidates
6.	Evidence of Concurrence/Consultation with Line Ministry/State Departments: YES If "No", why:

Section 6: Annexure & Supporting Documents Checklist

Specify Annexure Name / Supporting document file name

1.	Annexure: NCrf/NSQF level justification based on NCrf level/NSQF descriptors <i>(Mandatory)</i>	- Entry Qualification for this course is Grade 11th with No Experience required OR Grade 10th or equivalent with 1.5 years relevant experience OR Grade 8th with 4.5 years relevant experience OR Previous relevant Qualification of NSQF Level 3 with 1.5 years relevant experience - After successful completion of training, Trainee / Candidates are eligible for Shift Incharge/ Supervisor in the Tooling Industry. - Job description: The Machine Operator Tool Room sets up, programs, and operates machines to produce precise components. Responsibilities include programming, quality control, troubleshooting and safety adherence.
2.	Annexure: List of tools and equipment relevant for qualification <i>(Mandatory, except in case of online course)</i>	Equipment Required: Classroom equipment: LCD Projector/Screen, Computer, charts, Black / White board & Duster. Measuring equipment: Steel Ruler, Micrometer, Vernier Caliper, Radius gauge, Feeler gage, Steel measuring tape, Weighing Balance (1 No.) Hand Tools: Hammer, screwdriver set with Multiple heads, Allen key hexagonal, Twist drills bit, File triangular, Hacksaw adjustable, Spanner set double side, Adjustable spanner, Crimping tools, Calculator, wrenches, pliers, cutters, striking tools, struck or hammered tools, vises, clamps, snips, saws, drills and knives Personal Protective equipments: Safety Goggles, Rubber Gloves, Asbestos gloves, Fire Extinguisher, Apron, Helmet, First Aid Box with Medicines Raw material: Mild Steel, Stainless Steel, Aluminium, Brass, Wood Equipment & Auxiliary Equipment: Conventional Lathe, Milling, Drilling, Shaping, Grinding Machines, Band Saw, CNC Simulator, CNC Lathe Machine, CNC Milling Machine / CNC VMC, 3-Jaw & 4-Jaw Chuck, Cutting Tools (Single Point) Both HSS & Carbide Inserts types, Computer Workstation, CAM Software, Tools, Tool Holders and Accessories for the machine tools.
3.	Annexure: Detailed Assessment Criteria <i>(Mandatory)</i>	- Criteria for assessment for each Qualification Document are being created by CIPET. - Each Assessable outcome (AO) will be assigned marks proportional to its importance

		in Learning Outcome and few performance criteria may be allotted marks in combination. 3. Each Learning outcome will be assessed both for theoretical knowledge and practical knowledge which is being proportionately demonstrated in the table below. 4. The assessment for the theory part will be based on a knowledge bank of questions created by CIPET which will contain multiple choice theory questions and a Practical question database with mark allotment criteria. 5. To pass the Qualification Document, every trainee should score a minimum of 50 % in Functional and all Generic Learning Outcomes. 6. In case of successfully passing only a certain number of Learning Outcomes, the trainee is eligible to take Subsequent assessment on the balance Learning Outcomes to pass the Qualification Document.
4.	Annexure: Assessment Strategy(Mandatory)	Assessment strategy: • Assessment criteria for Qualification Document have been developed. Each Learning outcome has separate marks for Theory and Practical Skills. • The Training Assessment Wing will have assessors who will not be associated with training activities and will be provided training on the said work. Thus it will ensure that the assessment carried out is fair and consistent. • Set of question banks developed to assess theoretical and practical knowledge. To ensure the quality, each trainee gets a unique set of questions. • Trainees have to score minimum marks separately for theoretical and practical skill and overall percentage should also be 50% for theory and 70% for practical. • Empanelment of subject matter expert as assessor to assess trainees specifically on practical skills. • Assessments are preferably conducted by written examination papers in English/ regional languages according to the requirement. • It has been ensured that TP/trainer should not be present during assessment.
5.	Annexure: Blended Learning (Mandatory, in case selected Mode of delivery is "Blended Learning")	-
6.	Annexure: Multiple Entry-Exit Details (Mandatory, in case qualification has multiple Entry-Exit)	-
7.	Annexure: Acronym and Glossary (Optional)	-

8.	Supporting Document: Model Curriculum <i>(Mandatory – Public view)</i>	<i>Enclosed as Annexure-I</i>
9.	Supporting Document: Career Progression <i>(Mandatory - Public view)</i>	<i>Enclosed as Annexure-II</i>
10.	Supporting Document: Occupational Map <i>(Mandatory)</i>	<i>Enclosed as Annexure-III</i>
11.	Supporting Document: Assessment SOP <i>(Mandatory)</i>	<i>Enclosed as Annexure-IV</i>
12.	Any other document you wish to submit: Industry validation	<i>Enclosed as Annexure-V</i>

Annexure: Evidence of Level

NCrF/NSQF Level Descriptors	Key requirements of the job role/ outcome of the qualification	How the job role/ outcomes relate to the NCrF/NSQF level descriptor	NCrF/NSQF Level
Process	The user/ individual on the job needs to know and understand how to: •Use protective clothing/equipment for specific tasks and work conditions Protective clothing: leather gloves, helmets etc. Equipment: hand shields, machine guards, residual current devices, shields, •State the name and location of people responsible for health and safety in the workplace •State the names and location of documents that refer to health and safety in the workplace •Carry out safe working practices while dealing with hazards to ensure the safety of self and others •State methods of accident prevention in the work environment of the job role •State location of general health and safety equipment in the workplace •Inspect for faults, set up and safely use steps and ladders in general use •Work safely in and around confined areas •lift heavy objects safely using correct procedures •Apply good housekeeping practices at all times •Identify common hazard signs displayed in various areas •Retrieve and/or point out documents that refer to health and safety in the workplace •Demonstrate rescue techniques applied during fire hazard •Demonstrate good housekeeping in order to prevent fire hazards •Demonstrate the correct use of a fire extinguisher •Demonstrate how to free a person from electrocution •Administer appropriate first aid to victims were required eg. In case of bleeding, burns, choking, electric shock, poisoning etc. •Demonstrate basic techniques of bandaging •Respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments •Perform and organize loss minimization or rescue activity during an accident in real or simulated environments •Administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock, before the arrival of emergency services in real or simulated cases •Demonstrate the artificial respiration and the CPR Process •Participate in emergency procedures •Complete a written accident/incident report or dictate a report to another person, and send report to person responsible •Demonstrate correct method to move injured people and others during an emergency •Follow the sorting process and check that the tools that are lying on workstations are the ones in use and unnecessary items are not disarranging the workbenches or work surfaces •Sort the tools/ equipment/ fasteners/ spare parts as per specifications/ utility into proper trays, cabinets,	Machine Operator – Tool Room covers operations of different machine tools performed both manually and through CNC machines. This role primarily involves all kinds of machining and in-line inspection activities for quality verification, change of worn out parts, gauging. The operator also looks after the various tool assembly processes.	3.5

	lockers as mentioned in the 5S guidelines/ work instructions. •Follow the floor markings/ area markings used for demarcating the various sections in the plant as per the prescribed instructions and standards • Ensure that the area has floors swept, machinery clean and generally clean. In case of cleaning, ensure that proper displays are maintained on the floor which indicate potential safety hazards • Check whether all hoses, cabling & wires are clean, in good condition and clamped to avoid any mishap or mix up •Ensure workbenches and work surfaces are clean and in good condition •Follow the cleaning schedule for the lighting system to ensure proper illumination •Store the cleaning material and equipment in the correct location and in good condition •Ensure self-cleanliness - clean uniform, clean shoes, clean gloves, clean helmets, personal hygien		
Professional knowledge	The user/ individual on the job needs to know and understand how to: •Meaning of “hazards” and “risks” •Health and safety hazards commonly present in the work environment and related precautions •Possible causes of risk, hazard or accident in the workplace and why risk and/or accidents are possible •Possible causes of risk and accident •Methods of accident prevention •Safe working practices when working with tools and machines •Safe working practices while working at various hazardous sites •Where to find all the general health and safety equipment in the workplace •Various dangers associated with the use of electrical equipment •Preventative and remedial actions to be taken in the case of exposure to toxic materials •Importance of using protective clothing/equipment while working •Precautionary activities to prevent the fire accident •Various causes of fire •Techniques of using the different fire extinguishers •Different methods of extinguishing fire •Different materials used for extinguishing fire •Rescue techniques applied during a fire hazard •Various types of safety signs and what they mean •Appropriate basic first aid treatment relevant to the condition eg. shock, electrical shock, bleeding, breaks to bones, minor burns, resuscitation, poisoning, eye injuries •Content of written accident report •Potential injuries and ill health associated with incorrect manual handling •Safe lifting and carrying practices •Personal safety, health and dignity issues relating to the movement of a person by others •Potential impact to a person who is moved incorrectly The user/individual on the job needs to : •Have basic knowledge of 5S procedures •Know various types 5s practices followed in various areas •Understand the 5S checklists provided in the department/ team	The Machine Operator – Tool Room should understand and know about the process, principle of various machining processes in the Tool Room.	3.5

- | | | |
|--|--|--|
| <ul style="list-style-type: none"> •Have skills to identify useful &non useful items •Have knowledge of labels , signs &colours used as indicators •Have knowledge on how to sort and store various types of tools, equipment, material etc. •Know , how to identify various types of waste products •Understand the impact of waste/ dirt/ dust/unwanted substances on the process/ environment/ machinery/ human body •Have knowledge of best ways of cleaning & waste disposal •The sources for information about job specifications •Read and prepare various types of job specification documents for job requirements •Hazards associated with the activities •The various fitting activities to be carried out •How to extract and use information from engineering drawings and related specifications in relation to work undertaken •Various hand fitting methods •How to interpret first and third angle drawings •Conventional machining methods •Basic knowledge of accessing computer drawing using Auto-Cad software to be used for viewing designs drawings •Factors that affect the selection of cutting speed, feed and depth of cut •The British and metric systems of measurement •Geometric dimensioning and tolerance •How to plan and organize the team •Machine operations and sequencing •Machine capacity and capabilities •Types of machine tools such as lathes, milling, drills, grinding, •Work holding devices and equipment •Machining accessories •limits and capabilities of tooling, accessories and holding devices •How to check the work piece and the measuring instruments. •Need to check that the component using calibrated measuring instrument •Properties of metals •Heat treatment processes of tool steel •Specific safe working practices, fitting procedures •Hazards associated with carrying out the fitting operations and how can they be minimized •Personal protective equipment to be used during the fitting activities and where can it be obtained •Types and sources of appropriate job specifications •Common terminology used in fitting •Importance of following specified fitting sequences and procedures •Importance and procedures of ensuring suitability of work piece and consumables for the specified job •Tools and equipment used for the fitting operations •Importance and procedures to ensure that tools and equipment are in a safe and usable condition | | |
|--|--|--|

	•Correct techniques and procedures to carry out specific fitting operations by hand tools and manually operated machines •Importance of securing the work piece correctly using appropriate devices and mechanisms •Common problems that can occur in the fitting operations and their implications •Correct procedures to address problems commonly encountered during fitting operations •Importance of reporting problems immediately and accurately •Meaning and importance of quality in relation to final and intermediate job output - How to check the correctness of the shaped components against the specified quality standards •Range of materials used in relevant fitting applications •Relevant mechanical properties of metals and implications for job •Importance of using correct procedures as per type and form of materials and metal components •Where personal protective equipment to be worn can be obtained •Where to obtain the component drawings, specifications and/or job instructions required for these components to be machined KB3. hazards associated with the drilling operations and how they can be minimized •Meaning and purpose of drilling •Safety mechanisms on the machine, and the procedure for checking that they function correctly •How to tighten all the bolts and other securing devices securely •Importance of keeping the work area clean and tidy •How to use metric systems of measurement •Main features of the Drilling machine and the accessories that can be used •Classification and purpose of various accessories •Tool materials (classification, properties and use) •How to identify the factors that affect the selection of cutting feeds and speeds, and the depth of cut that can be taken •The drilling operations that can be performed using various equipment, and the component features produced on metal and non-metal components •Effects of backlash in machine slides and screws, and how this can be overcome •Safety instructions and warning signs on the machine •Types of cutting fluids and their properties •Effects of clamping the workpiece in a chuck/work holding device, and how this can cause distortion in the finished components •Problems that can occur with the drilling and how these can be overcome •Correct equipment and procedure to use for checking critical quality parameters •Production cost, machine hour rate, raw material cost, tool cost, coolant cost, overheads, cycle time, idle time, cost of machine idling, part rejection cost •Selection of cutting tools, tool materials, selecting cutting parameters from tool catalogues, selecting coolant. •Relationship between surface finish, tool angle, speed and feed rate. •Impact of depth of cut on chatter, surface finish. •Extent of their own authority and to whom they should report if they have problems that they cannot		
--	--	--	--

	resolve •Here personal protective equipment to be worn can be obtained •Where to obtain the component drawings, specifications and/or job instructions required for them components to be machined •Hazards associated with the shaping operations and how they can be minimized •Meaning and purpose of shaping •Safety mechanisms on the machine, and the procedure for checking that they function correctly •How to tighten all the bolts and other securing devices securely •Importance of keeping the work area clean and tidy •How to use metric systems of measurement •KB9. main features of the shaper and the accessories that can be used •Classification and purpose of various accessories •Tool materials (classification, properties and use) •How to identify the factors that affect the selection of cutting feeds and speeds, and the depth of cut that can be taken •The shaping operations that can be performed using various equipment, and the component features produced on metal and non-metal components •Effects of backlash in machine slides and screws, and how this can be overcome •Safety instructions and warning signs on the machine •Types of cutting fluids and their properties •Effects of clamping the workpiece in a work holding device, and how this can cause distortion in the finished components •Problems that can occur with the shaping and how these can be overcome •Correct equipment and procedure to use for checking critical quality parameters •Production cost, machine hour rate, raw material cost, tool cost, coolant cost, overheads, cycle time, idle time, cost of machine idling, part rejection cost •Selection of cutting tools, tool materials, selecting cutting parameters from tool catalogues, selecting coolant. •Relationship between surface finish, tool angle, speed and feed rate. •Impact of depth of cut on chatter, surface finish. •Extent of their own authority and to whom they should report if they have problems that they cannot resolve •Where personal protective equipment to be worn can be obtained •Where to obtain the component drawings, specifications and/or job instructions required for them components to be machined •Hazards associated with the turning operations and how they can be minimized •Meaning and purpose of turning •Safety mechanisms on the machine, and the procedure for checking that they function correctly •How to tighten all the bolts, cam locks or other securing devices securely •Importance of keeping the work area clean and tidy •How to use metric systems of measurement		
--	--	--	--

	•Main features of the lathes and the accessories that can be used •Classification and purpose of various accessories •Tool materials (classification, properties and use) •How to identify the factors that affect the selection of cutting feeds and speeds, and the depth of cut that can be taken •The Turning operations that can be performed using various equipment, and the component features produced on metal and non-metal components •Effects of backlash in machine slides and screws, and how this can be overcome •Safety instructions and warning signs on the machine •Types of cutting fluids and their properties •Effects of clamping the workpiece in a chuck/work holding device, and how this can cause distortion in the finished components •Problems that can occur with the turning activities, and how these can be overcome •Correct equipment and procedure to use for checking critical quality parameters •Production cost, machine hour rate, raw material cost, tool cost, coolant cost, overheads, cycle time, idle time, cost of machine idling, part rejection cost •Selection of cutting tools, tool materials, chip breaker geometry, selecting cutting parameters from tool catalogues, selecting coolant. •Relationship between surface finish, tool LOe radius, speed and feed rate. •Impact of depth of cut on chatter, surface finish. •Extent of their own authority and to whom they should report if they have problems that they cannot resolve •Where personal protective equipment to be worn can be obtained •Hazards associated with the milling operations and how they can be minimized •Importance of keeping the work area clean and tidy •Where to obtain the component drawings, specifications and/or job instructions required for them •How to read and interpret first and third angle component drawings •How to extract information from engineering drawings or data and related specifications •How to use imperial and metric systems of measurement •Main parts of conventional milling machines and the accessories that can be used •Purpose and applications of milling •Different types of milling cutters and their uses •Various milling operations that can be performed, and the features produced on metal and non-metal components •Processes of milling e.g. up milling, down milling, face milling, end milling, etc. •Effects of backlash in machine slides and screws, and how this can be overcome •Effects of clamping the workpiece in a chuck/work holding device, and how this can cause distortion in the finished components •Production cost, machine hour rate, raw material cost, tool cost, coolant cost, overheads, cycle time, idle time, cost of machine idling, part rejection cost		
--	---	--	--

	• Selection of cutting tools, tool materials, chip breaker geometry, selecting cutting parameters from tool catalogues, selecting coolant • Relationship between metal cutting results, tool LOe radius, speed and feed rate • How to recognize machining faults and how to identify when tools need re-sharpening • Problems that can occur with the milling activities, and how these can be overcome • Extent of their own authority and to whom they should report if they have problems that they cannot resolve • Safe working practices and environmental regulations that must be observed • Importance of reporting problems in a timely manner • Safety mechanisms on the machine, and the procedure for checking that they function correctly • Correct operation of the grinding machine controls in both manual and power modes; how to stop the machine in both normal and emergency situations, and the procedure for restarting after an emergency • Importance of keeping the work area clean and tidy (eg. cleaning the machine, disposal of waste, ensuring any spilt cutting fluids are correctly dealt with) • How to use and extract information from engineering drawings and related specifications (to include ISO standard symbols and abbreviations, imperial and metric systems of measurement, work-piece reference points and system of tolerance) • How to mount the work-piece in the work-holding devices • Effects of clamping the work-piece in a chuck/work holding device, and how this can cause damage or distortion in the finished components • How to check that the grinding wheels are in a safe and serviceable condition (eg. free from damage, cracks, correctly balanced) • Need for 'truing up' and dressing of wheels to prevent glazing and burning of the work-piece, and methods of forming the wheels to the required profile (eg. use of pantograph, diamond dressing units) • Effects of backlash in machine slides and screws, and how this can be overcome • Techniques of taking trial cuts and checking dimensional accuracy • Application of roughing and finishing cuts, and the effect on tool life, surface finish and dimensional accuracy • Types of grinding wheels, cutting feeds and speeds to be used, and the depth of cut that can be taken • Application of cutting fluids with regard to a range of different materials, and why some materials do not require cutting fluids to be used • How to recognize grinding faults, and how to identify when grinding wheels need dressing • Checks to be carried out on the components before removing them from the machine (eg. have all operations been completed, dimensional checks, surface finish checks) • Problems that can occur with the grinding activities and how to address them • Importance of leaving the machine in a safe condition on completion of activities • Safe working practices and procedures to be followed when preparing and using grinding machines • Hazards associated with the grinding operations and how they can be minimized • Personal protective equipment (PPE) to be worn for the grinding activities and personal safety measures taken • Various categories of people that one is required to communicate and coordinate with in the		
--	--	--	--

	organization •Importance of effective communication in the workplace •Importance of teamwork in organizational and individual success •Various components of effective communication •Key elements of active listening •Value and importance of active listening and assertive communication •Barriers to effective communication •Importance of tone and pitch in effective communication •Importance of avoiding casual expletives and unpleasant terms while communicating professional circles •How poor communication practices can disturb people, environment and cause problems for the employee, the employer and the customer •Importance of ethics for professional success •Importance of discipline for professional success •What constitutes disciplined behavior for a working professional •Common reasons for interpersonal conflict •Importance of developing effective working relationships for professional success •Expressing and addressing grievances appropriately and effectively - Importance and ways of managing interpersonal conflict effectively.		
Professional skill	The user/ individual on the job needs to know and understand how to: •Plan and organize their own work schedule, work area, tools, equipment and materials to maintain decorum and for improved productivity •Remain congenial while discussing and debating issues with co-workers •Follow appropriate protocols for communication based on situation, hierarchy, organizational culture and practice •Ask for, provide and receive required assistance where possible to ensure achievement of work related objectives •Thank coworkers for any assistance received •Offer appropriate respect based on mutuality and respect for fellow workmanship and authority •Think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s) •Identify immediate or temporary solutions to resolve delays •Identify sources of support that can be availed of for problem solving for various kind of problems •Seek appropriate assistance from other sources to resolve problems •Report problems that you cannot resolve to appropriate authority •Identify cause and effect relations in their area of work •Use cause and effect relations to anticipate potential problems and their solution •Use common sense and make judgments during day to day basis •Use reasoning skills to identify and resolve basic problems using 5S •Persuade co team members to follow 5 S •Ensure that the co team members understand the importance of using 5 S tool •Use innovative skills to perform and manage 5 S activities at the work desk and the shop floor	The Machine Operator – Tool Room should use the proper methods to carry out the different machining process. He should recall general principles, procedure and process knowledge which may be a repetitive type of work in the area allotted.	3.5

	•Exhibit inquisitive behaviour to seek feedback and question on the existing set patterns of work •Do what is right, not what is a popular practices •Follow shop floor rules & regulations and avoid deviations; make 5S an integral way of life •Ensure self-cleanliness on a daily basis •Demonstrate the will to keep the work area in a clean and orderly manner •Identify problems with work planning, procedures, output and behavior and their implications •Prioritize and plan for problem solving •Communicate problems appropriately to others •Identify sources of information and support for problem solving •Seek assistance and support from other sources to solve problems •Identify effective resolution methods •Select and apply resolution techniques •Seek evidence for problem resolution •Plan, prioritize and sequence work operations as per job requirements •Organize and analyze information relevant to work •Basic concepts of shop-floor work productivity including minimize rejection and optimization of time •Undertake and express new ideas and initiatives to others •Modify work plan to overcome unforeseen difficulties or developments that occur as work progresses •One's competencies in new and different situations and contexts to achieve more •Exercise restraint while expressing dissent and during conflict situations •Avoid and manage distractions to be disciplined at work •Manage own time for achieving better results •Work in a team in order to achieve better results •Identify and clarify work roles within a team •Communicate and cooperate with others in the team for better results •Seek assistance from fellow team members •Apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action •Identify problems with work planning, procedures, output and behaviour and their implications •Prioritize and plan for problem solving •Communicate problems appropriately to others •Identify sources of information and support for problem solving •Seek assistance and support from other sources to solve problems •SB6. identify effective resolution techniques •Select and apply resolution techniques •Seek evidence for problem resolution •Plan, prioritize and sequence work operations as per job requirements •Organize and analyze information relevant to work •Basic concepts of shop-floor work productivity including waste reduction, efficient material usage and optimization of time •Undertake and express new ideas and initiatives to others		
--	--	--	--

	•Modify work plan to overcome unforeseen difficulties or developments that occur as work progresses •Participate in improvement procedures including process, quality and customer relationships •Competencies in new and different situations to achieve more •Exercise restraint while expressing dissent and during conflict situations •Avoid and manage distractions to be disciplined at work •Manage the time for achieving better results •Work in a team in order to achieve better results •Identify and clarify work roles within a team •Communicate and cooperate with others in the team for better results •Seek assistance from fellow team members •Identify problems with work planning, procedures, output and behavior and their implications •Prioritize and plan for problem solving •Communicate problems appropriately to others •Identify sources of information and support for problem solving •Seek assistance and support from other sources to solve problems •Identify effective resolution techniques •Select and apply resolution techniques •Seek evidence for problem resolution •Plan, prioritize and sequence work operations as per job requirements •Organize and analyze information relevant to work •Basic concepts of shop-floor work productivity including waste reduction, efficient material usage and optimization of time •Undertake and express new ideas and initiatives to others •Modify work plan to overcome unforeseen difficulties or developments that occur as work progresses •Participate in improvement procedures including process, quality and internal/external customer/supplier relationships •One's competencies in new and different situations and contexts to achieve more •Exercise restraint while expressing dissent and during conflict situations •Avoid and manage distractions to be disciplined at work •Manage own time for achieving better results •Work in a team in order to achieve better results •Identify and clarify work roles within a team •Communicate and cooperate with others in the team for better results •Seek assistance from fellow team members •Identify problems with work planning, procedures, output and behaviour and their implications •Prioritize and plan for problem solving •Communicate problems appropriately to others •Identify sources of information and support for problem solving •Seek assistance and support from other sources to solve problems •Identify effective resolution techniques •Select and apply resolution techniques		
--	--	--	--

- | | | |
|--|--|--|
| <ul style="list-style-type: none"> •Seek evidence for problem resolution •Plan, prioritize and sequence work operations as per job requirements •Organize and analyze information relevant to work •Basic concepts of shop-floor work productivity including waste reduction, efficient material usage and optimization of time •Undertake and express new ideas and initiatives to others •Modify work plan to overcome unforeseen difficulties or developments that occur as work progresses •Participate in improvement procedures including process, quality and internal/external customer/supplier relationships •One's competencies in new and different situations and contexts to achieve more •Exercise restraint while expressing dissent and during conflict situations •Avoid and manage distractions to be disciplined at work •SB18. manage own time for achieving better results •Work in a team in order to achieve better results •Identify and clarify work roles within a team •Communicate and cooperate with others in the team for better results •Seek assistance from fellow team members •Identify problems with work planning, procedures, output and behaviour and their implications •Prioritize and plan for problem solving •Communicate problems appropriately to others •Identify sources of information and support for problem solving •Seek assistance and support from other sources to solve problems •Identify effective resolution techniques •Select and apply resolution techniques •Seek evidence for problem resolution •Plan, prioritize and sequence work operations as per job requirements •Organize and analyze information relevant to work •Basic concepts of shop-floor work productivity including waste reduction, efficient material usage and optimization of time •Undertake and express new ideas and initiatives to others •Modify work plan to overcome unforeseen difficulties or developments that occur as work progresses •Participate in improvement procedures including process, quality and internal/external customer/supplier relationships •One's competencies in new and different situations and contexts to achieve more •Exercise restraint while expressing dissent and during conflict situations •Avoid and manage distractions to be disciplined at work •Manage own time for achieving better results •Work in a team in order to achieve better results •Identify and clarify work roles within a team •Communicate and cooperate with others in the team for better results •Seek assistance from fellow team members | | |
|--|--|--|

	•Identify problems with work planning, procedures, output and behaviour and their implications •Prioritize and plan for problem solving •Communicate problems appropriately to others •Identify sources of information and support for problem solving •Seek assistance and support from other sources to solve problems •Identify effective resolution techniques •Select and apply resolution techniques •Seek evidence for problem resolution •Plan, prioritize and sequence work operations as per job requirements •Organize and analyze information relevant to work •Basic concepts of shop-floor work productivity including waste reduction, efficient material usage and optimization of time •Undertake and express new ideas and initiatives to others •Modify work plan to overcome unforeseen difficulties or developments that occur as work progresses •Participate in improvement procedures including process, quality and internal/external customer/supplier relationships •One's competencies in new and different situations and contexts to achieve more •Exercise restraint while expressing dissent and during conflict situations •Avoid and manage distractions to be disciplined at work •Manage own time for achieving better results •Work in a team in order to achieve better results •Identify and clarify work roles within a team •Communicate and cooperate with others in the team for better results •Seek assistance from fellow team members •Identify problems with work planning, procedures, output and behaviour and their implications •Prioritize and plan for problem solving •Communicate problems appropriately to others •Identify sources of information and support for problem solving •Seek assistance and support from other sources to solve problems •Identify effective resolution techniques •Select and apply resolution techniques •Seek evidence for problem resolution •Plan, prioritize and sequence work operations as per job requirements •Organize and analyze information relevant to work •Basic concepts of shop-floor work productivity including waste reduction, efficient material usage and optimization of time •Undertake and express new ideas and initiatives to others •Modify work plan to overcome unforeseen difficulties or developments that occur as work progresses •Participate in improvement procedures including process, quality and customer relationships •One's competencies in new and different situations and contexts to achieve more •Exercise restraint while expressing dissent and during conflict situations		
--	--	--	--

	•Avoid and manage distractions to be disciplined at work •Manage own time for achieving better results •Work in a team in order to achieve better results •Identify and clarify work roles within a team •Communicate and cooperate with others in the team for better results Seek assistance from fellow team members		
Core skill	The user/ individual on the job needs to know and understand how to: •Read and comprehend basic content to read labels, charts, signage's •Read and comprehend basic English to read manuals of operations •Read and write an accident/incident report in local language or English •Question coworkers appropriately in order to clarify instructions and other issues •Give clear instructions to co-workers, subordinates others •Make appropriate decisions pertaining to the concerned area of work with respect to intended work objective, span of authority, responsibility, laid down procedure and guidelines •Read and interpret information correctly from various job specification documents, manuals, health and safety instructions, etc. •Fill up appropriate technical forms, process charts, log sheet as per organizational format in English and/or local language •Convey and share technical information clearly using appropriate language •Check and clarify task-related information •liaise with appropriate authorities using correct protocol •Communicate with people in respectful form and manner in line with organizational protocol •Understanding mathematical calculations and geometry •Use appropriate measuring techniques • Understanding mathematical calculations to a degree of accuracy that is appropriate to the value being calculated •Use a calculator to raise a number to a power and determine square roots •Calculation of the value of angles in a triangle •Maintain current knowledge of process developments •Clarify job related information with appropriate personnel or technical adviser •Seek to improve and modify own work practices •Perform basic operations in a computer like switching it on/off, using the mouse and keyboard, accessing files, opening, closing, creating and deleting folders, etc. •Use basic office applications like spreadsheet, word processor, presentations •Use email to communicate within the organization as per organization guidelines •Retrieve and enter data using standard system forms and templates •Take printouts of documents •Fill up appropriate technical forms, process charts, log sheet as per organizational format •Convey and share technical information clearly using appropriate language •Check and clarify task-related information •liaise with appropriate authorities using correct protocol	The Machine Operator – Tool Room should be able to read /write warnings, instructions and other text material on product labels, components etc with minimum required clarity to choose the correct process, tool & parameters, and should have skill of basic arithmetic to calculate the amount of raw material required for machining.	3.5

	•Communicate with people in respectful form and manner in line with organizational protocol •Undertake numerical operations, and calculations/ formulae •Identify and draw various basic, compound and solid shapes as per dimensions given •Use appropriate measuring techniques and units of measurement •Use appropriate units and number systems to express degree of accuracy •Interpret and express tolerance in terms of limits on dimensions •Calculation of the value of angles in a triangle •Maintain current knowledge of applicable standards, codes of practice and product/process developments •Participate in on-the-job and other learning, training and development interventions and assessment •Clarify task related information with appropriate personnel or technical adviser •Seek to improve and modify own work practices •Fill up appropriate technical forms, process charts, activity logs as per organizational format •Convey and share technical information clearly using appropriate language •Check and clarify task-related information •Liaise with appropriate authorities using correct protocol •Communicate with people in respectful form and manner in line with organizational protocol •Undertake numerical operations, and calculations/ formulae •Identify and draw various basic, compound and solid shapes as per dimensions given •Use appropriate measuring techniques and units of measurement •use appropriate units and number systems to express degree of accuracy •Use metric systems of measurement •Participate in on-the-job and other learning, training and development interventions and assessments •Clarify task related information with appropriate personnel or technical adviser •Seek to improve and modify own work practices •Maintain current knowledge of application standards, codes of practice and product/process developments •Fill up appropriate technical forms, process charts, activity logs as per organizational format •Convey and share technical information clearly using appropriate language •Check and clarify task-related information •Liaise with appropriate authorities using correct protocol •Communicate with people in respectful form and manner in line with organizational protocol •Undertake numerical operations, and calculations/ formulae •Identify and draw various basic, compound and solid shapes as per dimensions given •Use appropriate measuring techniques and units of measurement •Use appropriate units and number systems to express degree of accuracy •Use metric systems of measurement •Participate in on-the-job and other learning, training and development interventions and assessments •Clarify task related information with appropriate personnel or technical adviser		
--	--	--	--

	•Seek to improve and modify own work practices •Fill up appropriate technical forms, process charts, activity logs as per organizational format •Convey and share technical information clearly using appropriate language •Check and clarify task-related information •Liaise with appropriate authorities using correct protocol •Communicate with people in respectful form and manner in line with organizational protocol •Undertake numerical operations, and calculations/ formulae •Identify and draw various basic, compound and solid shapes as per dimensions given •Use appropriate measuring techniques and units of measurement •Use appropriate units and number systems to express degree of accuracy •Use metric systems of measurement •Participate in on-the-job and other learning, training and development interventions and assessments •Clarify task related information with appropriate personnel or technical adviser •Seek to improve and modify own work practices •Read and interpret information correctly from various job specification documents, manuals, health and safety instructions, memos, etc. applicable to the job in English and/or local language •Fill up appropriate technical forms, process charts, activity logs as per organizational format in English and/or local language •Convey and share technical information clearly using appropriate language •Check and clarify task-related information •Liaise with appropriate authorities using correct protocol •Communicate with people in respectful form and manner in line with organizational protocol •Undertake numerical operations, and calculations/ formulae •Identify and draw various basic, compound and solid shapes as per dimensions given •Use appropriate measuring techniques and units of measurement •Use appropriate units and number systems to express degree of accuracy •Use metric systems of measurement •Participate in on-the-job and other learning, training and development interventions and assessments •Clarify task related information with appropriate personnel or technical adviser •Seek to improve and modify own work practices		
Responsibility	The Machine Operator – Tool Room is understanding the design and produce the components using various machining operations like Lathe, Milling, Drilling, Shaping, Grinding, EDM etc	The Machine Operator – Tool Room is majorly responsible for his own job. He should be responsible for all kinds of activities from understanding the part design and creating the product using various machining and assembly operations.	3.5

Annexure: Tools and Equipment (Lab Set-Up)

List of Tools and Equipment

Batch Size: Maximum 40 candidates per batch

S. No.	Tool / Equipment Name	Specification	Quantity for specified Batch size
1.	Measuring equipments	Steel Ruler, Micrometer, Vernier Calliper, Radius gauge, Feeler gauge, Height gauge, Thread gauge, Steel measuring tape, Weighing Balance (1 No.)	As per requirement
2.	Hand Tools	Hammer, screwdriver set with Multiple heads, Allen key hexagonal ,Twist drills bit, File triangular, Hacksaw adjustable, Spanner set double side, Adjustable spanner, Crimping tools, Calculator, wrenches, pliers, cutters, striking tools, struck or hammered tools, vises, clamps, snips, saws, drills and knives	As per requirement
3.	Personal Protective equipments	Safety Goggles, Rubber Gloves, Asbestos gloves, Fire Extinguisher, Apron, Helmet,First Aid Box with Medicines	As per requirement
4.	Raw material	Mild Steel, Stainless Steel, Aluminium, Brass, Wood	As per requirement
5.	Equipment & Auxiliary Equipment	Conventional Lathe, Milling, Drilling, Shaping, Grinding Machines, Band Saw, CNC Simulator, CNC Lathe Machine, CNC Milling Machine / CNC VMC, 3-Jaw & 4-Jaw Chuck, Cutting Tools (Single Point) Both HSS & Carbide Inserts types, Computer Workstation, CAM Software, Tools, Tool Holders and Accessories for the machine tools.	As per requirement

Classroom Aids

The aids required to conduct sessions in the classroom are:

1. LCD Projector/Screen,
2. Computer
3. Charts
4. Whiteboard & Marker pen

Annexure: Industry Validations Summary

Provide the summary information of all the industry validations in table. This is not required for OEM qualifications.

S. No	Organization Name	Representative Name	Designation	Contact Address	Contact Phone No	E-mail ID	LinkedIn Profile (if available)
1.	Kisan Mouldings Limited	Mr. Sarfaraj khan	Head – Quality	Survey No. 108/1/6, Village Khadoli, Silvassa – 396 230	9825355496	khan@kisangroup.com	-
2.	Easy Agro Industries Pvt. Ltd.,	Mr. Dibyashree Sarangi	HR	Plot No. 253A, Zone A, Sector A, Mancheswar Industrial Estate, Bhubaneswar – 751 010, Odisha	9861475440	hr@easyagrotech.com	-
3.	J S Industries	Mr. Sudeepta Pattanayk	HR Manager	Plot No. 68/A, Sec-A, Zone-D, Mancheswar Industrial Estate, Bhubaneswar – 751 010, Odisha	9437331627	jsindustriespvcpipe@gmail.com	-
4.	Kalinga Gases Pvt. Ltd.,	Mr. Ajaya Kumar Tripathy	Manager	Plot No. 27/B, Chandaka Industrial Estate, Sec-B, Post – KIIT, Bhubaneswar – 751 024, Odisha	9861090322	Ajay.tripathy@kalingagases.com	-
5.	Glanze Engineering Co. Pvt. Ltd.,	Mr. Ajay Kolhe	Production Incharge	G-36, MIDC Chikalthana, Aurangabad – 431 210	8554049994	Ajayglanze.com	-
6.	Microturners	Mr. Ashwani Kumar	Plant Head	Unit-2, Village Jharmajri, Tehsil Baddi, Solan – 173 205, Himachal Pradesh	9218666023	ashwani.kumar@microturnersmail.com	-

Annexure: Training & Employment Details

Training and Employment Projections:

Year	Total Candidates		Women		People with Disability	
	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities
2024-25	1500	1200	75	60	-	-
2025-26	1500	1200	75	60	-	-
2026-27	1500	1200	75	60	-	-

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	2021-22	256	256	256	207	23	23	23	19	-	-	-	-
1.0	2022-23	539	539	539	452	76	76	76	64	-	-	-	-
1.0	2023-24	489	489	489	411	84	84	84	69	-	-	-	-

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. CSR Scheme
2. PM-DAKSH Scheme
3. NSSH Scheme

Content availability for previous versions of qualifications:

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

Languages in which Content is available: English & Hindi

Annexure: Blended Learning

Blended Learning Estimated Ratio & Recommended Tools:

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

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

S. No.	Select the Components of the Qualification	List Recommended Tools – for all Selected Components	Offline : Online Ratio
1	Theory/ Lectures - Imparting theoretical and conceptual knowledge		
2	Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners		
3	Showing Practical Demonstrations to the learners		
4	Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training		
5	Tutorials/ Assignments/ Drill/ Practice		
6	Proctored Monitoring/ Assessment/ Evaluation/ Examinations		
7	On the Job Training (OJT)/ Project Work Internship/ Apprenticeship Training		

Annexure: Detailed Assessment Criteria

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

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
1. CPC/N0411 Maintain basic health and safety practices at the workplace, 5S	AO1. Wear protective clothing/equipment for specific tasks and work conditions	0.5	2		
	AO2. Carry out safe working practices while dealing with hazards to ensure the safety of self and others.	0.5	2		
	AO3. Apply good housekeeping practices at all times	0.5	2		
	AO4. Use the various appropriate fire extinguishers on different types of fires correctly	0.5	2		
	AO5. Demonstrate rescue techniques applied during fire hazard, demonstrate good housekeeping in order to prevent fire hazards, demonstrate the correct use of a fire extinguisher	0.5	2		
	AO6. Identify activities which can cause potential injury through sharp objects, burns, fall, electricity, gas leakages, radiation, poisonous fumes, chemicals, loud noise, and Identify areas in the plant which are potentially hazardous/unhygienic in nature. Conduct regular checks with support of the maintenance team on machine health to identify potential hazards due to wear and tear of machine.	0.5	2		
	AO7. Inform the concerned authorities on the potential risks identified in the processes, workplace area/ layout, materials used etc, Inform the concerned authorities about machine breakdowns, damages which can potentially harm man/ machine during operations.	0.5	2		
	AO8. Create awareness amongst other by sharing information on the identified risks.	0.5	2		
	AO9. Follow the sorting process and check that the tools, fixtures & jigs that are lying on workstations are the ones in use and un- necessary items are not cluttering the workbenches or work surfaces.	0.5	2		
	AO10. Ensure segregation of waste in hazardous/ non Hazardous waste as per the sorting work instructions	0.5	2		
	AO11. Follow the technique of waste disposal and waste storage in the proper bins as per SOP	0.5	1		
	AO12. Segregate the items which are labeled as red tag items for the process area and keep them in the correct places	0.5	1		
	AO13. Sort the tools/ equipment/ fasteners/ spare parts as per specifications/ utility into proper trays, cabinets, lockers as mentioned in the 5S guidelines/ work instructions	0.5	1		
	AO14. Ensure that areas of material storage areas are not overflowing	0.5	1		
	AO15. Properly stack the various types of boxes and containers as per the size/ utility to avoid any fall of items/ breakage and also enable easy sorting when required				
	AO16. Return the extra material and tools to the designated sections and make sure that no additional material/ tool is lying near the work area	0.5	1		
	AO17. Follow the floor markings/ area markings used for demarcating the various sections in the plant as per the prescribed instructions and standards	0.5	1		
	AO18. Follow the proper labelling mechanism of instruments/ boxes/ containers and maintaining reference files/ documents with the codes and the lists	0.5	1		
	AO19. Check that the items in the respective areas have been identified as broken or damaged	0.5	1		
	AO20. Follow the given instructions and check for leveling of fluids, oils, lubricants, solvents, chemicals etc. and proper storage of the same To avoid spillage, leakage, fire etc.	0.5	1		
	AO21. Make sure that all material and tools are stored in the designated places and in the manner indicated in the 5S instructions.	0.5	1		

	Sub total	10	30		
2. CPC/N5110 Understanding the basic concepts, design, drawings and planning for machining components, making tools & dies and coordinating with others	AO1. adhere to procedures or systems in place for health and safety, personal protective equipment (PPE) and other relevant safety regulations	0.25	1		
	AO2. ensure all the machines used are in a safe and useable condition	0.25	1		
	AO3. ensure that all the tool room machines are correctly guarded at all times	0.25	1		
	AO4. obtain sample component/ drawings and other engineering information as per company procedures	0.25	1		
	AO5. identify requirements by analyzing sample component, design and drawing	0.25	1		
	AO6. Plan sequence of operations for machining components keeping in mind various considerations like requirements, timelines, resources available, interdependencies, constraints, compliances, etc.	0.25	1		
	AO7. report and rectify cases of inappropriate information in design documents as per organizational procedures	0.25	1		
	AO8. compute dimensions, sizes, shapes and tolerances of machining component are as per specifications and as per company procedures	0.5	1		
	AO9. determine information such as number of parts to make, engineered components and material to be used, and machines to be used	0.5	1		
	AO10. identify and confirm resources required such as components, machinery, range of materials and processes	0.5	1		
	AO11. identify the operations that will be required for machining components based on design requirements	0.5	0.5		
	AO12. identify type of equipment required for machining components based on the operations selected	0.5	0.5		
	AO13. estimate timelines for each task accurately	0.5	0.5		
	AO14. establish work completion time by determining a schedule of operations	0.5	0.5		
	AO15. obtain necessary approvals for the action plan	0.5	0.5		
	AO16. allocate responsibilities to machine operators as per the operations selected	0.5	0.5		
	AO17. ensure that the machine operators are clear about the sequence of activities, priorities and considerations	0.5	0.5		
	AO18. release drawings and machining specifications to machine operators	0.5	0.5		
	AO19. identify and select machines for machining components based on design and drawings	0.5	0.5		
	AO20. identify and select cutting tools based on design and drawings	0.5	0.5		
	AO21. select and procure appropriate metals to be used for machining components as per design requirement	0.5	0.5		
	AO22. hand over cutting tools and raw material for machining to the machine operators	0.5	0.5		
	AO23. handle all clarifications sought by the operators	0.5	1		
	AO24. collect job from all operators	0.5	1		
	AO25. check the jobs as per drawing/instruction	0.5	1		
	AO26. ensure in-process inspection of the machining component	0.5	1		
	Sub total	10	20		
3.CPC/N5111 Perform fitting operations on machining components using hand tools	AO1. comply with health and safety, environmental and other relevant regulations and guidelines at work	0.5	1		
	AO2. adhere to procedures and guidelines for personal protective equipment (PPE) and other relevant safety regulations while performing die fitting operations	0.5	1		
	AO3. work following laid down procedures and instructions	0.5	1		
	AO4. ensure work area is clean and safe from hazards	0.5	1		
	AO5. ensure that all tools, equipment, power tool cables, extension leads are in a safe and usable condition	0.5	1		
	AO6. obtain job specification from a valid and approved source	0.5	1		
	AO7. read and understand job requirements from the job specification document properly	0.5	1		

	AO8. report and rectify incorrect information in job specification documents as per job requirement	0.5	1		
	AO9. preparation for the fitting operations as per procedure	0.5	1		
	AO10. ensure that all calibrated measuring instruments are used.	0.5	1		
	AO11. ensure that the components used are free from foreign objects, dirt and corrosion	0.5	1		
	AO12. obtain correct work pieces and consumables as per job requirements	0.5	1		
	AO13. obtain appropriate tools and measuring instruments.	0.5	1		
	AO14. Setting of work pieces as per job requirements using appropriate holding devices	0.5	1		
	AO15. Marking specified features with the help of marking-out methods on the work pieces as per job specification by using appropriate measuring and marking tools.	0.5	1		
	AO16. mark out templates for tracing/transferring the specified features on the work pieces as per drawing	1	1		
	AO17. Tracing or transferring the specified features from the templates onto the work pieces as per drawing	1	1		
	AO18. perform fitting operations on various forms of metal components using a range of hand tools and manually operated machines	1	1		
	AO19. follow the specified machining sequence and procedure as per job specifications	1	1		
	AO20. check the machined components to ensure completeness of work	0.5	0.5		
	AO21. check the quality of the output as per required standards, using visual checks and measurement of dimensional parameters using measuring instruments.	0.5	0.5		
	AO22. produce components with various features as per standards applicable to the process	0.5	1		
	AO23. Check the finished components as per job requirement	0.5	1		
	AO24. complete documentation during and post operations as per procedures	0.5	1		
	AO25. return all tools and equipment to the correct location on completion of the fitting activities	0.5	1		
	AO26. leave the work area in a safe and tidy condition on completion of job activities	0.5	1		
	Sub total	15	25		
4. CPC/N5112: Operation on Drilling	AO1. comply with health and safety, environmental and other relevant regulations and guidelines at work	1	1		
	AO2. adhere to procedures and guidelines for personal protective equipment (PPE) and other relevant safety regulations while performing machining operations	0.5	1		
	AO3. ensure work area is clean and safe from hazards	0.5	1		
	AO4. ensure that all tools, equipment, power tool cables, extension leads are in a safe and usable condition	0.5	1		
	AO5. ensure that machine guards are in place and are correctly fitted.	0.5	1		
	AO6. read and understand safety instructions, warning signs on the machine	0.5	1		
	AO7. ensure that all measuring equipments are within calibration due date	0.5	1		
	AO8. ensure availability of job specification from a valid source/Drawings	0.5	1		
	AO9. read and establish job requirements from the job specification document	0.5	1		
	AO10. ensure that the incoming components used are free from foreign objects, dirt or other contamination	0.5	1		
	AO11. prepare and maintain the work area as per procedure or operation specification	0.5	1		
	AO12. plan to carry out the required drilling activities and the sequence of operations as per specifications	0.5	1		
	AO13. apply safe working practices and procedures at all times	0.5	1		
	AO14. obtain all the appropriate materials, cutting tools and measuring equipments required for the drilling operations	0.5	1		
	AO15. confirm that the machine is ready for production	0.5	1		
	AO16. get prepared for the Drilling activities by mounting, positioning and correctly setting a range of work holding	0.5	1		

	devices and cutting tools				
	AO17. seek any necessary instruction/training on the operation of the machine, where required	0.5	1		
	AO18. hold components securely, without distortion	0.5	1		
	AO19. ensure that machine settings are adjusted as and when required to maintain the required accuracy	0.5	1		
	AO20. obtain the component drawings, specifications, job instructions required for the components to be machined	0.5	1		
	AO21. use and extract information from engineering drawings and related specifications (to include symbols and conventions to appropriate IS or ISO standards in relation to work undertaken)	0.5	1		
	AO22. set and adjust the machine tool speeds and feeds to achieve the component specification	0.5	1		
	AO23. mount and set the required work holding devices, work piece and cutting tools	0.5	1		
	AO24. operate the machine tool controls safely and correctly, in line with operational procedures	0.5	1		
	AO25. control the machine in both hand and power modes for normal operations	0.5	1		
	AO26. stop the machine in both normal and emergency situations correctly, and follow right procedure for restarting after an emergency	0.5	1		
	AO27. use drilling machine accessories that consist of vices, drill chuck, sleeves, clamps, tool holders, Chuck key, etc.	0.5	1		
	AO28. position and secure work holding devices to the machine spindle	0.5	1		
	AO29. perform drilling operations using various equipments to produce components with various features	0.5	1		
	AO30. produce components as per given quality standards	0.5	1		
	AO31. plan and work to achieve given production targets	0.5	1		
	AO32. overcome the effects of backlash in machine slides and screws	0.5	1		
	AO33. perform the technique of trial cut for checking dimensional accuracy	0.5	1		
	AO34. apply roughing and finishing cuts, considering the effect on tool life, surface finish and dimensional accuracy	0.5	1		
	AO35. use cutting fluids for different materials	0.5	1		
	AO36. use range of measuring instruments to check critical parameters	0.5	1		
	AO37. clamp the workpiece in a chuck/work holding device	0.5	1		
	AO38. perform the checks to be carried out on the components before removing them from the machine, and the equipment needed for this activity	0.5	1.5		
	AO39. ensure that the quality control procedures are used while operating the equipment	0.5	1.5		
	Sub total	20	40		
5. CPC/N5113: Operation on Shaping	AO1. comply with health and safety, environmental and other relevant regulations and guidelines at work	0.5	1		
	AO2. adhere to procedures and guidelines for personal protective equipment (PPE) and other relevant safety regulations while performing machining operations	0.5	1		
	AO3. ensure work area is clean and safe from hazards	0.5	1		
	AO4. ensure that all tools, equipment, power tool cables, extension leads are in a safe and usable condition	0.5	1		
	AO5. ensure that machine guards are in place and are correctly fitted	0.5	1		
	AO6. read and understand safety instructions, warning signs on the machine	0.5	1		
	AO7. ensure that all measuring equipment is within calibration due date	0.5	1		
	AO8. ensure availability of job specification from a valid source/Drawings	0.5	1		
	AO9. read and establish job requirements from the job specification document	0.5	1		
	AO10. ensure that the incoming components used are free from foreign objects, dirt or other contamination	0.5	1		

	AO11. prepare and maintain the work area as per procedure or operation specification	0.5	1		
	AO12. plan to carry out the required shaping activities and the sequence of operations as per specifications	0.5	1		
	AO13. apply safe working practices and procedures at all times	0.5	1		
	AO14. obtain all the appropriate materials, cutting tools and measuring equipments required for the shaping operations	0.5	1		
	AO15. confirm that the machine is ready for production	0.5	1		
	AO16. get prepared for the shaping activities by mounting, positioning and correctly setting a range of work holding devices and cutting tools	0.5	1		
	AO17. seek any necessary instruction/training on the operation of the machine, where required	0.5	1		
	AO18. hold components securely, without distortion	0.5	1		
	AO19. ensure that machine settings are adjusted as and when required to maintain the required accuracy	0.5	1		
	AO20. obtain the component drawings, specifications, job instructions required for the components to be machined	0.5	1		
	AO21. use and extract information from engineering drawings and related specifications (to include symbols and conventions to appropriate IS or ISO standards in relation to work undertaken)	0.5	1		
	AO22. set and adjust the machine tool speeds and feeds to achieve the component specification	0.5	1		
	AO23. mount and set the required work holding devices, workpiece and cutting tools	0.5	1		
	AO24. operate the machine tool controls safely and correctly, in line with operational procedures	0.5	1		
	AO25. control the machine in both hand and power modes for normal operations	0.5	1		
	AO26. stop the machine in both normal and emergency situations correctly, and follow right procedure for restarting after an emergency	0.5	1		
	AO27. use shaping machine accessories that consist of vices, clamps, tool holders.	0.5	1		
	AO28. position and secure work holding devices to the machine ram	0.5	1		
	AO29. perform shaping operations using various equipments to produce components with various features	0.5	1		
	AO30. produce components as per given quality standards	0.5	1		
	AO31. plan and work to achieve given production targets	0.5	1		
	AO32. overcome the effects of backlash in machine slides	0.5	1		
	AO33. perform the technique of trial cut for checking dimensional accuracy	0.5	1		
	AO34. apply roughing and finishing cuts, considering the effect on tool life, surface finish and dimensional accuracy	0.5	1		
	AO35. use cutting fluids for different materials	0.5	1		
	AO36. use range of measuring instruments to check critical parameters	0.5	1.5		
	AO37. clamp the workpiece in a chuck/work holding device	0.5	1.5		
	AO38. perform the checks to be carried out on the components before removing them from the machine, and the equipment needed for this activity	0.5	1		
	AO39. ensure that the quality control procedures are used while operating the equipment	0.5	1		
	Sub total	20	40		
6.CPC/N5114: Operation on Lathe machine	AO1. comply with health and safety, environmental and other relevant regulations and guidelines at work	0.75	2		
	AO2. adhere to procedures and guidelines for personal protective equipment (PPE) and other relevant safety regulations while performing turning operations	0.75	2		
	AO3. ensure work area is clean and safe from hazards	0.75	2		
	AO4. ensure that all tools, equipment, power tool cables, extension leads are in a safe and usable condition	0.75	2		

AO5. ensure that machine guards are in place and are correctly fitted.	0.75	2		
AO6. read and understand safety instructions, warning signs on the machine	0.75	2		
AO7. ensure that all measuring equipment is within calibration due date	0.75	1		
AO8. ensure availability of job specification from a valid source/Drawings	0.75	1		
AO9. read and establish job requirements from the job specification document	0.75	1		
AO10. ensure that the incoming components used are free from foreign objects, dirt or other contamination	0.75	1		
AO11. prepare and maintain the work area as per procedure or operation specification	0.75	1		
AO12. plan to carry out the required turning activities and the sequence of operations as per specifications	0.75	1		
AO13. apply safe working practices and procedures at all times	0.75	1		
AO14. obtain all the appropriate materials, cutting tools and measuring equipments required for the turning operation	0.75	1		
AO15. confirm that the machine is ready for production	0.75	1		
AO16. prepare for the turning activities by mounting, positioning and correctly setting a range of work holding devices and cutting tools	0.75	1		
AO17. seek any necessary instruction/training on the operation of the machine, where required	0.75	1		
AO18. hold components securely, without distortion	0.75	1		
AO19. ensure that machine settings are adjusted as and when required to maintain the required accuracy	0.75	1		
AO20. obtain the component drawings, specifications, job instructions required for the components to be machined	0.75	1		
AO21. use and extract information from engineering drawings and related specifications (to include symbols and conventions to appropriate IS or ISO standards in relation to work undertaken)	0.5	1		
AO22. set and adjust the machine tool speeds and feeds to achieve the component specification	0.5	1		
AO23. mount and set the required work holding devices, workpiece and cutting tools	0.5	1		
AO24. operate the machine tool controls safely and correctly, in line with operational procedures	0.5	1		
AO24. operate the machine tool controls safely and correctly, in line with operational procedures	0.5	1		
AO25. control the machine in both hand and power modes for normal operations	0.5	1		
AO26. stop the machine in both normal and emergency situations correctly, and follow right procedure for restarting after an emergency	0.5	1		
AO27. use lathes and the accessories that consists of saddle, capstan/turret head, compound slide, tailstock, taper turning attachments, profile attachments, fixed and travelling steadies	0.5	1		
AO28. position and secure work holding devices to the machine spindle	0.5	1		
AO29. perform turning operations using various equipments to produce components with various features	0.5	1		
AO30. produce components as per given quality standards	0.5	2		
AO31. plan and work to achieve given production targets	0.5	2		
AO32. overcome the effects of backlash in machine slides and screws	0.5	2		
AO33. perform the technique of trial cut for checking dimensional accuracy	0.5	2		
AO34. apply roughing and finishing cuts, considering the effect on tool life, surface finish and dimensional accuracy	0.5	2		
AO35. use cutting fluids for different materials	0.5	2		
AO36. use range of measuring instruments to check critical parameters	0.5	2		
AO37. clamp the work piece in a chuck/work holding device	0.5	2		
AO38. perform the checks to be carried out on the components before removing them from the machine, and the equipment needed for this activity	0.5	2		

	AO39. ensure that the quality control procedures are used while operating the equipment	0.5	2		
	Sub total	25	55		
7.CPC/N5115: Operation on Milling machine	AO1. comply with health and safety, environmental and other relevant regulations and guidelines at work	0.5	2		
	AO2. adhere to procedures and guidelines for personal protective equipment (PPE) and other relevant safety regulations while performing machining operations Personal protective equipment: correctly fitting overalls; safety glasses; long hair is tied back or netted; removing any jewelry or other items that can become entangled in the machinery; covered shoes; face mask	0.5	2		
	AO3. work following laid down procedures and instructions	0.5	2		
	AO4. ensure work area is clean and safe from hazards	0.5	2		
	AO5. ensure that all tools, equipment, power tool cables, extension leads are in a safe and usable condition	0.5	2		
	AO6. ensure that all measuring instruments are within calibration due date	0.5	2		
	AO7. ensure that the components used are free from foreign objects, dirt or other contamination	0.5	2		
	AO8. ensure availability of job specification from a valid source	0.5	2		
	AO9. read and establish job requirements from the job specification document	0.5	2		
	AO10. prepare and maintain the work area as per procedure or operation specification	0.5	2		
	AO11. confirm that the machine is ready for production	0.5	2		
	AO12. seek any necessary instruction/training on the operation of the various milling machines, where appropriate	0.5	2		
	AO13. ensure that machine guards are in place and are correctly adjusted	1	2		
	AO14. identify different types of cutters used in horizontal and vertical milling machines	0.5	2		
	AO15. identify different parts of the vertical and horizontal milling machine	0.5	2		
	AO16. hold components securely, without distortion	0.5	2		
	AO17. ensure that machine settings are adjusted as and when required to maintain the required accuracy and quality standards Quality	1	2		
	AO18. obtain the component drawings, specifications and job instructions required for the components to be machined	1	2		
	AO19. use and extract information from engineering drawings and related specifications to include symbols and conventions to appropriate ISO standards in relation to work undertaken	1	2		
	AO20. operate the machine controls in both hand and power modes	0.5	2		
	AO21. stop the machine in both normal and emergency situations, and use correct procedure for restarting after an emergency	0.5	2		
	AO22. use imperial and metric systems of measurement	0.5	2		
	AO23. perform various milling operations to produce various features on metal and non-metal components	1	2		
	AO24. produce components as per given quality standards	0.5	2		
	AO25. achieve given production targets	0.5	1		
	AO26. overcome the effects of backlash in machine slides and screws	1	1		
	AO27. apply roughing and finishing cuts considering the effect on tool life, surface finish and dimensional accuracy	0.5	2		
	AO28. apply cutting fluids with regard to a range of different materials	1	2		
	AO29. clamp the workpiece securely and without distortion in a chuck/work holding device such as vice, V-block, clamp, angle plate, etc.	1	2		
	AO30. ensure that the quality control procedures are used on the equipment	0.5	2		

	AO31. use range of equipment to check critical parameters	0.5	2		
	Sub total	20	60		
8.CPC/N5116: Operation on Grinding machines	AO1. comply with health and safety, environmental and other relevant regulations and guidelines at work	1	1.5		
	AO2. adhere to procedures and guidelines for personal protective equipment (PPE) and other relevant safety rules and regulations	1	1.5		
	AO3. work following laid down procedures and instructions	1	1.5		
	AO4. ensure work area is clean and safe from hazards	1	1.5		
	AO5. ensure that all tools, equipment, power tool cables, extension leads are in a safe and usable condition	1	1.5		
	AO6. check that all measuring instruments are within calibration due date	1	1.5		
	AO7. obtain and prepare the appropriate materials, tools and measuring instruments	1	1.5		
	AO8. mount the work-piece safely and securely, in line with instructions	1	1.5		
	AO9. set and adjust the grinding machine speed and feed, in line with instructions	1	1.5		
	AO10. use the grinding machine controls safely and correctly, in line with operational procedures	1	1.5		
	AO11. check that the finished components meet the drawing dimensions as required	1	1.5		
	AO12. report any difficulties or problems that may arise during grinding activities, and carry out suitable actions	1	1.5		
	AO13. shut down the machine to a safe condition on completion of the grinding activities	1	1.5		
	AO14. prepare grinding wheels through various methods	1	1.5		
	AO15. Grind components to produce various features	1	1.5		
	AO16. check the quality of output, using measuring equipment appropriate to the aspects being checked and the tolerances to be achieved	1	1.5		
	AO17. check the machined component for accuracy in dimensions, parallelism and surface texture as per job specifications	1	1.5		
	AO18. refer the problem to a competent internal specialist if it cannot be resolved	1	1.5		
	AO19. obtain help or advice from specialist if the problem is outside his/her area of competence or experience	1	1.5		
	AO20. comply with relevant standards, policies and procedures	1	1.5		
	Sub total	20	30		
9.CPC/N5117:Basic programmingand operation on CNC Machines	AO1. comply with health and safety, environmental and other relevant regulations and guidelines at work	0.75	1		
	AO2. adhere to procedures and guidelines for personal protective equipment (PPE) and other relevant safety regulations while programming CNC machines	0.75	1		
	AO3. work following laid down procedures and instructions	0.75	1		
	AO4. ensure that machine guards are in place and are correctly adjusted	0.75	1		
	AO5. read and understand safety instructions, warning signs on the machine	0.75	1		
	AO6. ensure work area is clean and safe from hazards	0.75	1		
	AO7. ensure that all the cutting tools, measuring instruments, cables, extension leads are in a safe and usable condition	0.75	1		
	AO8. obtain job specification from a valid and approved source	0.75	1		
	AO9. read and establish job requirements from the job specification document accurately	0.75	1		
	AO10. follow job instructions, assembly drawings and laid down procedures at all times	0.75	1		
	AO11. report and rectify incorrect and inconsistent information in job specification documents as per organization procedures	0.75	1		
	AO12. use and extract information from reference charts, tables, graphs and standards	0.75	1		

AO13. prepare the work area as per procedure or operational specification	0.75	2		
AO14. conduct a preliminary check of the readiness of the program so that the CNC machine operates correctly	0.75	2		
AO15. determine what operational objectives and targets need to be achieved and how best the machine needs to be programmed to achieve	0.75	2		
AO16. extract and use information from engineering drawings and related specifications in relation to work undertaken	0.75	2		
AO17. identify tool requirements from tooling layout and assess their suitability	0.75	2		
AO18. identify suitable work holding or fixturing device as per the job requirement	0.75	2		
AO19. ensure the correct and latest part-program is uploaded onto the CNC system	0.75	2		
AO20. Use Electric Discharge Machining to hole out blind spots and also to create hole in the die formation plate/ work piece	0.75	2		
AO21. Setup the electrodes of the EDM machine and measure the distance between the electrodes as mentioned in the Work Instructions	0.75	2		
AO22. Ensure that the correct current and voltage are selected for the EDM process	0.75	2		
AO23. Ensure that the work piece/ metal piece is carefully loaded on the EDM machine surface tables/ work platform using manual/ automatic tools	0.75	2		
AO24. Ensure that there is uniform flow of dielectric liquid i.e. flushing of the dielectric liquid to remove any debris which would have collected during the EDM process	0.75	2		
AO25. Ensure that the machine operations are regularly monitored to detect any malfunctions in machine operations or any out of tolerance machining	0.75	2		
AO26. Ensure that the electrode properties like surface, dimensions, metallurgical properties are periodically checked as per the checklist provided	0.75	2		
AO27. Ensure that the electrodes are changed in case there is a deviation from the specifications	0.75	2		
AO28. Prepare the CNC program with commands for tool motions, spindle motions, miscellaneous functions and tool change, in syntax corresponding to the machine and control system on which the component will be machined.	0.75	2		
AO29. various ways to make CNC program are by writing it on paper or in a computer's text editor, or using CAM software or controllers on machine	0.75	2		
AO30. ensure that the part program is efficient and results in minimal cycle time, with optimal cutting parameters and no unnecessary tool motions	0.75	2		
AO31. use subprograms and canned cycles, to reduce program size and input time and avoid memory overflow on the machine	0.75	2		
AO32. transfer the program to the machine by entering it at the console or transmitting it through a wired link or through a data transfer device	0.75	1		
AO33. follow the correct procedures for calling up the program and dealing with any error messages or faults	0.75	1		
AO34. handle the typical problems that can occur with the programming, loading and editing activities effectively using approved procedures	0.75	1		
AO35. save the proven program in the appropriate storage medium – paper, computer hard disk etc. - and location	0.75	1		
AO36. complete relevant documentation as per procedure	0.75	1		
AO37. leave the work area in a safe and tidy condition on completion of the activities	0.75	1		
AO38. obtain appropriate equipment or tools needed as per job requirements	0.75	1		

	AO39. ensure that all measuring equipment is calibrated and approved for usage	0.75	1		
	AO40. ensure that the tools and fixtures are in usable condition(eg. free from breakage, damage, calibration, etc.)	0.75	1		
	AO41. pre-set the tooling appropriately using setting jigs/fixtures	0.75	1		
	AO42. seek any necessary instruction/training on the operation of the machine where required	0.75	1		
	AO43. mount tools in the correct positions in the tool turret or magazine	0.75	1		
	AO44. check that the tools have been mounted in positions corresponding to tool numbers in the part program	0.75	1		
	AO45. measure tool and work offset data - X and Z offsets for lathes; work offsets, length offsets and tool radius for machining centers.	0.75	1		
	AO46. ensure that the component is free of burrs, chips or other material adhering to its butting surfaces	0.5	1		
	AO47. mount the part on machine firmly in the specified work holding devices, with the appropriate clamping forces.	0.5	1		
	AO48. enter work offset and tool data on the machine – X and Z offsets, tool orientation and LOe radius for lathes; length offsets and tool radius for machining centers.	0.5	1		
	AO49. ensure that tool data has been entered in offset number corresponding to the tool offset numbers in the part program	0.5	1		
	AO50. deal with error messages and faults on the program or equipment	0.5	1		
	AO51. cut a trial part using single block run, dry run and feed and speed override controls	0.5	1		
	AO52. edit the program and adjust tool and wear offsets to correct any dimensional errors on the part	0.5	1		
	AO53. ensure that the trial part conforms to drawing specifications in terms of dimensions, surface finishes and geometrical parameters like concentricity, parallelism, run out, etc.	0.5	1		
	AO54. hand-over the machine to the machine operator for machining the batch of parts, along with relevant instructions and documentation on periodic inspection of components, change of worn out tools	0.5	1		
	AO55. correct the tool wear offsets whenever required, based on the results of the period inspection	0.5	1		
	AO56. change worn out tools and indexable inserts whenever required	0.5	1		
	AO57. after every change of a worn out tool or insert, cut a trial part and correct any dimensional inaccuracies by adjusting the tool offsets or wear offsets	0.5	1		
	AO58. return worn out cutting tools, work holding device / fixtures / instruments / drawings to store	0.5	1		
	AO59. ensure that there is no damage to the tool/fixture while doing the prove-out	0.5	1		
	AO60. shut down the equipment to a safe condition on conclusion of the activities	0.5	1		
	AO61. deal promptly and effectively with problems within span of responsibility and control and report those that cannot be solved	0.5	1		
Sub total		40	80		
10.CPC/N7014 Effective working with others	PC1. Display appropriate communication etiquette while working.	1	1		
	PC2. Display active listening skills while interacting with others at work	1	1		
	PC3. Demonstrate responsible and disciplined behaviors at the workplace.	2	2		
	PC4. Accurately receive information and instructions from the supervisor and fellow workers, getting clarification where required	1	1		
	PC5. Accurately pass on information to authorized persons who require it and within agreed timescale and confirm its receipt	2	2		
	PC6. Display helpful behavior by assisting others in performing tasks in a positive manner, where required and	1	1		

	possible				
	PC7. Consult with and assist others to maximize effectiveness and efficiency in carrying out tasks	1	1		
	PC8. Escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict.	1	1		
	Sub total	10	10		
11. DGT/VSQ/N0101 Employability Skills	AO1. Discuss the importance of Employability Skills in meeting the job requirements.	1	1		
	AO2. Use appropriate basic English sentences/phrases while speaking, Demonstrate how to communicate in a well - mannered way with others & working with others in a team.	1	1		
	AO3. Discuss the significance of using financial products and services safely and securely. Explain the importance of managing expenses, income, and savings & Explain the significance of approaching the concerned authorities in time for any exploitation as per legal rights and laws.	2	2		
	AO4. Discuss the significance of using the internet for browsing, accessing social media platforms, safely and securely.	1	1		
	AO5. Discuss the need for identifying opportunities for potential business, sources for arranging money and potential legal and financial challenges.	2	2		
	AO6. Differentiate between types of customers & Explain the significance of identifying customer needs and addressing them.	2	2		
	AO7. Create biodata, use various sources to search and apply for jobs & Discuss the significance of dressing up neatly and maintaining hygiene for an interview.	1	1		
	Sub total	10	10		
	Total	200	400		

Annexure: Assessment Strategy

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

Mention the detailed assessment strategy in the provided template.

1. Assessment System Overview:

- Batches are assigned to Training Assessment Wing (TAW), CIPET HO for planning of assessment
- Training Centres, requesting TAW for Assessment and Certification of Trainees
- TAW identifies suitable assessor and nominates the assessor to the respective Training Centre
- TAW monitors the assessment process
- Training Centres are maintaining the records

2. Testing Environment:

- Check the Assessment location, date and time
- If the batch size is more than 30, then there should be 02 Assessors in a day (or) 01 assessor in 2 days
- Check that the allotted time to the candidates to complete the Theory & Practical Assessment

3. Assessment Quality Assurance levels/Framework:

- Question bank / Question Paper is prepared by the Subject Matter Experts (SME) / Assessor
- Questions are mapped to the specified assessment criteria
- Certified Assessor & Trainer will be engaged in the process

4. Types of evidence or evidence-gathering protocol:

- Date / Time recorded for the reporting of the assessor from assessment location
- Assessment batch - Group Photo of Trainees along with Assessor

5. Method of verification or validation:

- Surprise visit to the assessment location
- Virtual meet with the Assessor / Trainees

6. Method for assessment documentation, archiving, and access

- Hard copies of the documents are stored, soft copies of assessment evidences are stored in Email for future correspondence

On the Job:

1. Each module (which covers the job profile of Plastics Product Manufacturing Operator) will be assessed during the assessment.
2. The candidate must have adequate knowledge in the relevant module of the OJT.
3. Evidences of OJT:
 - Videos of Trainees during the OJT
 - Photographs of Trainees during the OJT
4. Ensure that the candidate is able to:
 - Effective engagement with the customers
 - Understand the working of various tools and equipment

Annexure: Acronym and Glossary

Acronym

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

Glossary

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