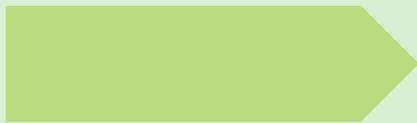


CERTIFICATE COURSE IN MACHINE OPERATION (CCMO)



QUALIFICATION FILE

**Ministry of Micro, Small and Medium
Enterprises, New Delhi
(MSME-Technology Centre)**

NATIONAL SKILL QUALIFICATION FRAMEWORK QUALIFICATION FILE

Version 6: Draft of 08 March 2016

DETAILS OF THE BODY SUBMITTING

CONTACT DETAILS OF THE BODY SUBMITTING THE QUALIFICATION FILE

Name and address of submitting body:

**OFFICE OF DC-MSME
MINISTRY OF MICRO, SMALL AND MEDIUM ENTERPRISES
“A” WING 7TH FLOOR, NIRMAN BHAWAN
New Delhi – 110108**

Name and contact details of individual dealing with the submission

Name: MR. G.C. DAS

Position in the organisation: ASST. MANAGER – TRG.

Address if different from above: - MSME TOOL ROOM – KOLKATA
(Central Tool Room & Training Centre)
BONHOOGHLY INDUSTRIAL AREA
KOLKATA 700108, WEST BENGAL

Tel number(s): (033) 2578-8769

E-mail address: cttc@cal.vsnl.net.in / cttc-msme@gov.in

List of documents submitted in support of the Qualifications File

1. Competency based curriculum for the Certificate Course of Machine Operation.
2. Industrial Validation
3. Presentation file

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

SUMMARY

Qualification Title :	CERTIFICATE COURSE IN MACHINE OPERATION																									
Qualification Code	MSME / CCMO /21																									
Nature and purpose of the : Qualification	<p>Nature of the course is trade Certificate Course. The purpose of the qualification are</p> <ul style="list-style-type: none"> • Learners who attend this qualification are competent to work on conventional machine tools in order to produce / Manufacture components as per predefined shape and size. • Qualified learners get employed into work. • People upgrade their skills and knowledge already in work. • People with vocational – professional skill access to the higher education courses. • Qualifying learners of this qualification would be able to get opportunity in particular sector to learn new skills to deal with technological change. 																									
Body/bodies which will award the qualification :	MSME – Technology Centre, Ministry of Micro, Small and Medium Enterprises, New Delhi.																									
Body which will accredit providers to offer courses leading to the qualification	MSME – Technology Centre, Ministry of Micro, Small and Medium Enterprises, New Delhi.																									
Body/bodies which will carry out assessment of learners	MSME – Technology Centre, Ministry of Micro, Small and Medium Enterprises, New Delhi.																									
Occupation(s) to which the : qualification gives access	Technician / Machine tools operator / Skilled worker in machine tool and manufacturing sectors.																									
Licensing requirements	NA																									
Level of the qualification in the NSQF	3																									
Anticipated volume of training/learning required to complete the qualification	<p>12 Months / 1 Year / 1560 hrs.</p> <table border="1"> <thead> <tr> <th>Sr. No</th> <th>Course Elements (Subject)</th> <th>Hourly Distribution</th> </tr> </thead> <tbody> <tr> <td>Module-1</td> <td>Practical Lab</td> <td>1030 hrs.</td> </tr> <tr> <td>Module-2</td> <td>- Machine shop Theory</td> <td>100 hrs.</td> </tr> <tr> <td>Module-3</td> <td>- Engineering Metrology</td> <td>50 hrs.</td> </tr> <tr> <td>Module-4</td> <td>- Engineering Drawing</td> <td>250 hrs.</td> </tr> <tr> <td>Module-5</td> <td>- Workshop Calculation & Science</td> <td>50 hrs.</td> </tr> <tr> <td>Module-6</td> <td>- Employability Skill - Examination</td> <td>50 hrs. 30 hrs.</td> </tr> <tr> <td></td> <td style="text-align: right;">Total</td> <td>1560hrs.</td> </tr> </tbody> </table>		Sr. No	Course Elements (Subject)	Hourly Distribution	Module-1	Practical Lab	1030 hrs.	Module-2	- Machine shop Theory	100 hrs.	Module-3	- Engineering Metrology	50 hrs.	Module-4	- Engineering Drawing	250 hrs.	Module-5	- Workshop Calculation & Science	50 hrs.	Module-6	- Employability Skill - Examination	50 hrs. 30 hrs.		Total	1560hrs.
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Entry requirements and/or recommendations	Passed 8th class Minimum Age: 15 Years.																									

<p>Progression from the qualification</p>	<p>Qualifying trainee should obtain a NSQF certificate in Machine Operation trade. This qualification shall enable the trainee to find employment on a skilled work in Machining (Machine tools) Industries.</p> <p>Having Scope to access to other qualification at the same level and at the next higher level.</p> <p>After completion of course the trainee can work as a Junior Machinist / Technician / Machine Tools Operator and after that 3 years of experience, the person can work as a Senior Machinist / Technician / Machine Tools Operator.</p>
<p>Planned arrangements for the Recognition of Prior learning (RPL)</p>	<p>Learner who have passed 8th class & 3 years experience in this field, the qualification certificate can be achieved by the learner through appearing / passing the examination of the qualification modules.</p> <p>RPL Assessment will done by the assessment body.</p>
<p>International comparability where known</p>	<p>Not Known</p>
<p>Date of planned review of the qualification.</p>	<p>After 3 years of recognition. September, 2019</p>

NSQF QUALIFICATION FILE

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Formal structure of the qualification

Title and identification code of component.			Mandatory/ Optional	Estimated size (learning hours)	Level
"Certificate Course in Machine Operation"					
Title Code : MSME / CCMO / 21					
Sl. No	Subject Code	Subject Name			
1	P1	Practical Lab	Mandatory	1030 hrs.	3
2	T1	Machine Shop Theory	Mandatory	100 hrs.	3
3	T2	Engineering Metrology	Mandatory	50 hrs.	3
4	T3	Engineering Drawing	Mandatory	250 hrs.	3
5	T4	Workshop Calculation and Science.	Mandatory	50hrs.	3
6	T5	Employability Skills	Mandatory	50 hrs.	3
Examination			Mandatory	20 hrs.	
Total =				1560 hrs.	

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

SECTION 1

ASSESSMENT

Body/Bodies which will carry out assessment:

MSME – Technology Centre, Ministry of Micro, Small and Medium Enterprises, New Delhi.

Will the assessment body be responsible for RPL assessment?

: Yes. Assessment body will be responsible for RPL assessment.

How will RPL assessment be managed and who will carry it out?

The Learners who have met the requirements of any Unit Standard that forms part of this qualification may apply for recognition of prior learning (RPL) to the relevant Education body/Institute with proper evidences. The applicant must be assessed against the specific outcomes and with the assessment criteria for the relevant Unit Standards by the Assessment Body of Respective Institute.

Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, reliable and fair and show that these are in line with the requirements of the NSQF.

The assessment for the Session -based qualification is carried out by conducting formative assessments, and end-of-session examinations for all trainees aspiring for this qualification, as per the guidelines given. The internal assessments for theory subjects and practical are conducted by the concerned instructors for evaluating the knowledge and skill acquired by trainees and the behavioural transformation of the trainees as per the learning outcomes specified the qualification. This assessment is primarily carried out by collecting evidence of competence gained by the trainees by observing them at work, asking questions and initiating formative discussions to assess understanding and by evaluating records and reports, and marks are awarded to them. Theory examinations are conducted in Machine Shop Theory, Engineering Metrology, Workshop Calculation & Science, Engineering Drawing and Employability Skills. The question papers for the theory Examinations contain objective type questions. Trade practical examinations are conducted. Criteria for assessment based on each learning outcomes, will be assigned marks proportional to its importance. The assessment for the theory & practical part is based on knowledge bank of questions created by trainers and approved by Examination cell/Assessment body. The distribution of marks for the qualification are as under:

ELIGIBILITY TO APPEAR IN THE EXAM: Minimum 75% class attendance is compulsory for the students to appear for the assessments

Marking Pattern		
S. No. / Subject Code	Subject for the trade test	Maximum marks for the each subject
1 / P1	Practical Lab	400
2 / T1	Machine Shop Theory	200
3 / T2	Engineering Metrology	100
4 / T3	Engineering Drawing	100
5 / T4	Workshop Calculation and Science.	100
6 / T5	Employability Skills	100
	Total	1000

Minimum pass mark (COMPETENT): 40% for each theory subject and 60% for practical; Fail candidates are entitled three chances to clear the paper. RESULTS AND CERTIFICATION: Successful trainees will be awarded the Final Mark Sheet and Certificates by **MSME TECHNOLOGY CENTRE**.

ASSESSMENT EVIDENCE: Assessment evidence comprises the following components document in the form of records:

- Job carried out in labs/workshop ; Record book/ work diary
- Examination - Answer sheet of assessment
- Viva –voce ; Class test
- Progress chart ; Attendance and punctuality
- Assignment of practical exercise job ; Practical Exam for each module

EVALUATION PATTERN FOR CERTIFICATE COURSE IN MACHINE OPERATION

SUBJECTS	EVALUATION PATTERN								
	INTERNAL ASSESSMENT MARKS				ANNUAL EXAMINATION MARKS		TOTAL MARKS	PASSING	PASSING MARKS
	Class Test	Assignment , Attendance & Behaviour	Practical Exercises & Project	Oral (Viva)	Theory	Practice			
Practical Lab		20	100	40		240	400	Minimum 40 % for theory and 60% for Practical.	240
Machine Shop Theory	40	20		20	120		200		80
Engineering Metrology	20	10		10	60		100		40
Engineering Drawing	20	10		10	60		100		40
Workshop Calculation & Science	20	10		10	60		100		40
Employability Skill	20	10		10	60		100		40
TOTAL							1000		

NSQF QUALIFICATION FILE

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ASSESSMENT EVIDENCE

Complete a grid for each component as listed in “Formal structure of the qualification” in the Summary.

Title of Component: “Certificate Course in Machine Operation”

Assessable outcomes:

Outcomes to be assessed	Assessment Criteria for the Outcome
Performance on operating of conventional machines and techniques of various operations on – Bench Work- filling, layout, sawing , punching , using of tools & instruments , drill machine and performing of drilling operations , tapping using suitable tools, accessories, and measuring instruments	Identify the parts of a file, hammer, chisel, punch, hacksaw, bench vice, and their uses and all features.
	Identify the features of a steel rule, try square and its uses.
	Identify vernier calliper, common gauges and its uses.
	Select material piece, study the drawing of exercise job.
	Practice sawing, Filing work etc.
	Layout and marking of job using surface plate, height gauge, angle plate, vee block, vernier calliper, scriber etc.
	Marking as per drawing.
	Identify & select of drill machine, vice or clamp holding devices, Drill chuck, sleeve, etc.
	Knowing of belt drive and gear drive.
	Centre punching , setting of job on machine.
	Setting parameter on machining.
	Operation of Centre drilling, drilling, counter sinking, Counter boring, reaming, boring , etc. Using coolants.
	Selection of tap , parameter setting and tapping using lubricating oil.
	Inspecting of job by measuring tool , gauges.
Cleaning of machine and oiling.	
Performance on operating of Lathe Machine and techniques of various operations on lathe machine for manufacturing a job using suitable tools, accessories, and measuring instruments	Identify and knowing the functions, features and uses of different parts of a lathe machine.
	Study the drawing, identify and select material , machine, tools, & measuring instruments.
	Formation of cutting tool.
	Setting of job and machining parameter.
	Setting of cutting tool to the centre height.
	Operation carried out on facing, centre drilling, drilling, turning, step turning, grooving, knurling thread cutting, taper turning, Parting off, chamfering, boring, etc.
	Use of three jaw chuck, four jaw chuck , steady rest, follow rest, face plate, taper turning attachment, lathe carrier, mandrel etc.
	Inspecting of job by measuring tool , gauges.

	Cleaning of machine and oiling.
Performance on operating of Milling Machine and techniques of various operations on milling machine for manufacturing a job using suitable tools, accessories, and measuring instruments.	Identify and knowing the function and features and uses of different parts of a milling machine.
	Study the drawing, identify and select material , machine, tools, & measuring instruments.
	Selection of different milling cutters for specific operation.
	Setting and dialling of job and setting of machining parameter,
	Operation carried out on surface milling, open & close slot milling, angle milling, form milling, vee slot milling, narrow slot milling, 'T'-slot milling, dovetail milling etc.
	Use of machine vice , 'T' bolt clamps, vee block, rotary table, indexing devices, etc.
	Uses of cutter holding device like arbour, collets, adapters, spring collect etc.
	Inspecting of job by measuring tool, gauges.
	Cleaning of machine and oiling.
Performance on operating of Grinding Machine and techniques of various operations on grinding machine for manufacturing a job using suitable tools, accessories, and measuring instruments)	Identify and knowing the function and features and uses of different parts of a grinding machine.
	Study the drawing, identify machine, tools, & measuring instruments.
	Selection of different grinding wheel for specific operation.
	Setting and dialling of job and setting of machining parameter,
	Operation carried out on surface grinding , slot grinding, angle grinding, form grinding , vee slot grinding , narrow slot grinding, external and internal cylindrical grinding etc.
	uses of sine table, magnetic vice, stick dresser , sitting dresser, etc.
	Inspecting of job by measuring tool, gauges.
	Cleaning of machine and oiling.
Practical test in order to access skill and knowledge of trainees on their trade training curriculum by allotting test piece / project	Performing work by identifying and selecting all relevant items in order to complete the job with individual effort with in stipulated time period
Describe Principle function of various machines and machining techniques. Measuring instruments used	Sessional examination to test the knowledge on conventional machines and machining techniques. Principle function and application of Measuring instruments and gauges.
Use basic health and safety practice at the work place, environment regulation and housekeeping.	Follow and maintain procedures to achieve a safe working environment in line with occupational health and safety regulations and requirements and according to site policy.
	Recognize and report all unsafe situations according to site policy.
	Identify and take necessary precautions on fire and safety hazards and report according to site policy and procedures.

	Identify, handle and store / dispose of dangerous goods and substances according to site policy and procedures following safety regulations and requirements.
	Identify and observe site policies and procedures in regard to illness or accident.
	Identify safety alarms accurately.
	Report supervisor/ Competent of authority in the event of accident or sickness of any staff and record accident details correctly according to site accident/injury procedures.
	Identify and observe site evacuation procedures according to site policy.
	Identify Personal Productive Equipment (PPE) and use the same as per related working environment.
	Identify different fire extinguisher and use the same as per requirement.
	Identify environmental pollution & contribute to the avoidance of instances of environmental pollution.
	Deploy environmental protection legislation & regulations.
	Take opportunities to use energy and materials in an environmentally friendly manner.
	Avoid waste and dispose waste as per procedure.
	Recognize different components of 5S and apply the same in the working environment.
Work effectively with others Work in a team, understand and practice soft skills, technical English to communicate with required clarity	Obtain sources of information and recognize information.
	Use and draw up technical drawings and documents.
	Use documents and technical regulations and occupationally related provisions.
	Conduct appropriate and target oriented discussions with higher authority and within the team.
	Present facts and circumstances, possible solutions & use English special terminology.
	Resolve disputes within the team.
	Conduct written communication.

Demonstrate knowledge of concept and principles of basic arithmetic, algebraic, trigonometric, statistics, coordinate system and apply knowledge of specific area to perform practical operations. Describe Materials used	Sessional examination to test basic skills on arithmetic, algebra, trigonometry and statistics. Knowledge of different material, properties, applications of materials.
	Their applications will also be assessed during execution of assessable outcome and also tested during theory and practical examination.
Understand basic maintenance work in the field of study	Sessional examination to test basic skills in the field of study including basic mechanical, electrical and hydraulics & pneumatics.

	Their applications will also be assessed during execution of assessable outcome and also tested during theory and practical examination.
Read and apply engineering drawing for different application in the field of work.	Sessional examination to test basic skills on engineering drawing.
	Their applications will also be assessed during execution of assessable outcome and also tested during theory and practical examination.
Understand and explain the concept in productivity, quality tools, and labour welfare legislation and apply such in day to day work to improve productivity & quality.	Sessional examination to test the concept in productivity, quality tools and labour welfare legislation.
	Their applications will also be assessed during execution of assessable outcome.
Explain energy conservation, global warming and pollution and contribute in day to day work by optimally using available resources.	Sessional examination to test knowledge on energy conservation, global warming and pollution.
	Their applications will also be assessed during execution of assessable outcome.
Understand and apply basic computer working, basic operating system and uses internet services to get accustomed & take benefit of IT developments in the industry.	Sessional examination to test knowledge on basic computer working, basic operating system and uses internet services.
	Their applications will also be assessed during execution of assessable outcome.

Means of assessment :

Assessment comprises the following components:

- Job carried out in labs/workshop (Based on degree of Individual skill & knowledge on specific task, habit on safe working practices, environment regulation & housekeeping, mentality & flexibility to work in a team.
- Record book/ work diary
- Answer sheet of assessment
- Written Class Test
- Viva-voce
- Progress chart
- Attendance and punctuality
- Assignment of each module
- Practical Exam for each module

Pass(Competent)/Fail (Not yet Competent): 40% for each Theory subject and 60% for Practical. Fail candidates (not yet competent) are entitled three chances to clear the paper in order to be competent.

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

SECTION 2 **EVIDENCE OF LEVEL**

Awarding bodies will enter a proposed NSQF level for the qualification in the Qualification File Summary. This section asks for the evidence on which that proposal is based. The evidence must refer to the level descriptors of the NSQF.

NSDA recommends an approach to working out the level of qualifications which starts with the level descriptor domains (Process, Professional knowledge, Professional skill, Core skill and Responsibility: see annex A). Two variants for providing the evidence of level are offered here: Option A and Option B in the following pages. Awarding bodies should choose the option which best suits the qualification.

- As per recommendation, the necessary evidence and qualification file summary are offered for **level 3**

NSQF QUALIFICATION FILE

Version 6: Draft of 08 March 2016

OPTION A

Title/Name of qualification/component: "Certificate Course in Machine Operation" Level: 3			
NSQF Domain	Outcomes of the Qualification/Component	How the job role relates to the NSQF level descriptors	NSQF Level
Process	Technician performs activities on metal cutting machining operation by using / operating conventional machine tools for producing job in predetermined process.	<p>Technician is expected to understand /predict the process of doing job and its related limited range of activities to be carried out by him in order to perform the job successfully.</p> <p>Therefore, the said role matches with NSQF level 3</p> <p>(Ref NSQF descriptor level chart: "Person may carry out a job which may require limited range of activities routine and predictable".)</p>	3
Professional knowledge	<p>Technician have knowledge on -</p> <ul style="list-style-type: none"> Safe working practices and procedures before starting the machine ensuring personal protective equipment. Principle knowledge on operating machines, tools and instruments. Basic technical knowledge for machining process. Types and valid sources of appropriate job specification such as work drawing and instructions from supervisor, etc. Understanding of technical drawing of the job to be performed. To decide parameter setting of machine. Sequence of operation. Selection of tools and instruments required for the job. Importance of ensuring work pieces / materials and consumables for the specified job and related procedures. To ensure that tool and equipment's are in a safe and useable condition. Should understand how to do self. Inspection of shaped components against 	<p>Technician is expected of having knowledge on principle functions of all parts of conventional machines. Technician able to understand the technical drawing, knowing of parameter setting etc. required by his trade employment.</p> <p>Therefore, the said role matches with NSQF level 3</p> <p>(Ref NSQF descriptor level chart : "Basic facts, process and principle applied in trade of employment".)</p>	3

	<p>specified quality standards.</p> <p>Importance of leaving the work area and machine in a safe condition on completion of the activities.</p>		
Professional skill	<p>Technician have skill and ability to :</p> <p>Operate machines in order to manufacture part with specific shape and size.</p> <p>Identify problems with work planning, procedures, output and behaviour and their implications.</p> <p>Communicate problems appropriately to others identify sources of information and support for problem solving.</p> <p>Plan, prioritize and sequence of work operations as per job requirement.</p> <p>Understand basic concepts of shop floor work productivity including waste reduction, efficient material usage and optimization of time.</p> <p>Manage own time for achieving better result.</p> <p>Seek assistance from team members.</p>	<p>Technician expected having skill and ability to perform the repetitive and routine jobs within predefined specification.</p> <p>Therefore, the said role matches with NSQF level 3</p> <p>(Ref NSQF descriptor level chart: "Recall and demonstrate practical skill, routine and repetitive in narrow range of application".)</p>	3
Core skill	<p>Technician understands how to :</p> <p>Read and interpret information correctly from various job specification documents, manuals etc.</p> <p>Communicate with people in respectful form and manner in line with organizational protocol.</p> <p>Undertake basic numerical operations and calculations / formulae.</p> <p>Identify various basic, compound and solid shape as per dimensions given.</p> <p>Use appropriate measuring techniques and units of measurements and also units and numbers systems to express degree of accuracy.</p> <p>Clarify task related information with appropriate or technical adviser.</p>	<p>Technician expected having skill and ability to communicate others in his workplace and organisation and also in social domain within limited capacity and also have skill and knowledge of doing calculations as needed by his trade employment.</p> <p>Therefore, Above role matches with NSQF level 3</p> <p>(Ref NSQF descriptor level chart:" Communication written and oral, with minimum required clarity skill of basic arithmetic and algebraic principles personal banking, basic understanding of social and natural environment".)</p>	3
Responsibility	<p>Technician follows instructions from superior and works with close supervision.</p> <p>Taking personal responsibility for own</p>	<p>Technician expected to perform his job under close supervision. but have</p>	3

	actions and for the quality and accuracy of the work.	responsibility on his own trade work with limited range Therefore, Above role matches with NSQF level 3 (Ref NSQF descriptor level chart: “Under close supervision. Some responsibility for own work with defined limit”.)	
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**India-EU Skills Development project:
Qualification File**

SECTION 3

EVIDENCE OF NEED

What evidence is there that the qualification is needed?

MSME TOOL ROOM – KOLKATA has 38 years of experience in the field of skill development and vocational education. With valuable feedbacks from industries, Placement records, midterm evaluation studies, the need for the qualification has been realised and accordingly the qualification has been newly framed out.

Reference: Requirement for Placement of this qualification by the Industries: - e.g. Patton International-kolkata, Motherson Moulds & Die Casting Ltd.-Gurgaon, Hindustan National glass & Industries Ltd.- Harayana, Ichinitek Precision Tools & Engineering – Bangalore, Hindustan Fibre Glass-Vadodora , Mindrill Systems & Solutions Pvt. Ltd (Howrah), Sarita Die Works(Navi Mumbai), East Coast Enterprise (W.B), Naveen Industries(Kolkata), Carbide Cutting Tools Pvt. Ltd. (W.B.), Glad Stone Engineering Industries Ltd.(Kolkata), MMDL(Gurgaon), I Design(Banglore), Tea Make India(Kolkata), Yashaswi Dies & Moulds(Pune), CTM(I) (Chennai), HAL, AGI Glaspac, Vaata Smart Ltd, RSPL Ltd.

What is the estimated uptake of this qualification and what is the basis of this estimate?

Report of NSDC Human Resource & Skill Requirement in Capital Goods Sector projected large volume of demand of skill manpower requirement with this qualification in the particular sector/sub sectors.

What steps were taken to ensure that the qualification(s) does (do) not duplicate already existing or planned qualifications in the NSQF?

The qualification is newly designed on the basis of NSQF norms and guidelines.

The qualification is originally designed by curriculum committee comprising the training head, industrial expert, professional experts.

The work group under the guidance of curriculum development committee already conducted desk search as well as refers the qualification packs for as a supporting document for the mapping of curriculum.

What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated

A mentor body or committee has to be formed who monitor and review the curriculum of this qualification according to the demand and requirement of the industries under this sector, as well as the learners progression also.

NSQF QUALIFICATION FILE

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SECTION 4

EVIDENCE OF PROGRESSION

What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?

Qualified learner of this qualification will obtain NSQF compliance certificate in the trade of machine operation which place the learners in the position to level 3 of NSQF.

There is a clear path for progression to higher level of qualification.

There is a facility of mobility for horizontal and vertical progression from qualification to qualification (same level as well as higher level) within the sector/sub sectors.

Diagram shows the mobility for horizontal and vertical progression from qualification to qualification within same sector / sub sector



MSME – TOOL ROOM KOLKATA



HORIZONTAL PROGRESSION

MACHINE OPERATOR

NSQF LEVEL

LEVEL 8

LEVEL 7

LEVEL 6

LEVEL 5

LEVEL 4

LEVEL 3

LEVEL 2

LEVEL 1



Machinist/
Machine
Operator



Fitter
Mechanical
Assembly



CNC Operator
(Turner)



CNC Operator
(VMC)



CNC Operator
(EDM)



Welding
Operator



Maintenance
Technician





MSME – TOOL ROOM KOLKATA



Vertical Progression

NSQF LEVEL

LEVEL 8

LEVEL 7

LEVEL 6

LEVEL 5

LEVEL 4

LEVEL 3

LEVEL 2

LEVEL 1

Manager

CNC Programmer (CAD/CAM)

Mechanical Designer (CAD)

CNC Setter cum Operator (VMC)

Technician (Tooling)

CNC Setter cum Operator (Turning)

Mechanical Draftsmen

Setter & Operator – EDM

Tool & Die Maker



Machining/ Machine Operator



Fitter Mechanical Assembly



CNC Operator (Turner)



CNC Operator (VMC)



CNC Operator (EDM)



Welding Operator



Maintenance Technician

