QUALIFICATION FILE

NSDA Reference To be added by NSDA

CONTACT DETAILS OF THE AWARDING BODY FOR THE QUALIFICATION

Name and address of awarding body: Central Institute of Plastics Engineering and Technology (CIPET), Ministry of Chemicals and Fertilizers, Department of Chemicals and Petrochemicals, Govt. of India, Head Office, Guindy, Chennai

Name and contact details of individual dealing with the submission

Prof. (Dr.) S. K Nayak, Director General, CIPET, CIPET Head office, Guindy, Chennai

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List of documents submitted in support of the Qualifications File:

1. Qualification Document - Machine Operator - CNC Lathe
2. Curriculum/ Syllabus
3. Training delivery Plan
4. Criteria for Assessment of Trainees
5. Occupational Map
6. Composition of core committee for QP Development order, DCPC, MoCF, GOI
7. Presentation of 2nd core group committee meeting along with Minutes of meeting approved by members
8. Assessment Process flow
9. Documents supporting need of the Qualification:
   a. Report of the Coordination Committee address the issue related with Human Resources/ Skilled manpower requirement of Industry- Department of Chemicals and Petrochemicals, Ministry of Chemicals and Fertilizers, Govt. Of India
   b. A Report on Human Resource and Skill requirement for the Chemicals and Pharmaceutical sector (2022) by NSDC.
   c. Brief report of Chemicals and petrochemicals Industry in India, April 2015, Corporate Catalyst India Pvt Ltd, Page 4
   d. Report on Indian Plastics Industry 2013-17, edition 2, Nov 2014, PlastIndia Foundation.
   e. Indian Plastics Industry – Vision 2012, Leverage Plastic, A report by CRISIL
   f. Potential of Downstream Plastics Industry in North India, 26 June 2012, Knowledge and Strategy paper by Tata Strategic management Group & FICCI

g. Potential of plastics industry in Northern India with special focus on Plasticulture and Food Processing- 2014. A report on Plastic Industry by Tata Strategic management Group & FICCI.
h. Plastic Industry in India a BPF Overview for PlastIndia International Exhibition 2012, New Delhi
i. Porters Five force Analysis of the Plastics Industry by Santanu Mandal, International Journal of Multidisciplinary Research, Vol 1, Issue 7, November 2011, ISSN 2231 5780
j. Industry Engagement certificate in preparation of learning outcomes and Job Role Identification in Petrochemicals sector

QUALIFICATION FILE

SUMMARY

Qualification Title: Machine Operator – CNC Lathe
Nature and Purpose of the qualification: A CIPET trade certificate for Machine Operator – CNC Lathe and the main purpose of the Qualification is to get acquainted with the CNC Lathe process and get opportunity to work in Tool Room Industry.
Body/bodies which will award the qualification: The Academic Cell – HO, Central Institute of Plastics Engineering and Technology (CIPET), Ministry of Chemicals and Fertilizers, Department of Chemicals and Petrochemicals, Govt. of India, Head Office, Guindy, Chennai.
Body which will accredit providers to offer courses leading to the qualification: The Academic Cell – HO, Central Institute of Plastics Engineering and Technology (CIPET), Ministry of Chemicals and Fertilizers, Department of Chemicals and Petrochemicals, Govt. of India, Head Office, Guindy, Chennai.
Body/bodies which will be responsible for assessment: The assessment is being carried out at individual Centre level. Training Assessment Wing is created in Head Office (HO) of Central Institute of Plastics Engineering and Technology (CIPET), Ministry of Chemicals and Fertilizers, Department of Chemicals and Petrochemicals, Govt. of India, Guindy, Chennai is responsible for overall assessment.
Occupation(s) to which the qualification gives access: CNC Lathe Operator
Proposed level of the qualification in the NSQF: Level 3
Anticipated volume of training/learning required to complete the qualification: 480 Notional Hours**.**
Entry requirements / recommendations: Minimum qualification – Preferably 10th Standard, Minimum age - 18 years completed.
Progression from the qualification: CNC Lathe Machine Operator (Level 3) has a clear pathway to Machine Operator & Programmer - CNC Lathe (Level 4)

QUALIFICATION FILE

Planned arrangements for the Recognition of Prior learning (RPL): RPL arrangements are being developed and will be informed in due course of time.			
International comparability where known: It will be carried out in next phase as comparability is being verified. **Date of planned review of Qualification:** 04.08.2017			
Format Structure of the Qualification:			
Title and Identification code of component	**Mandatory/ Optional**	**Estimated Size (Notional Hours)**	**Level**
1. CPC/N 7011: Perform lathe operations on metal or plastic material using Conventional Centre lathe machine	**M**	**240**	**3**
2. CPC/N 7012: Perform turning and other lathe operations on metal or plastic work pieces using Computer Numerically Controlled Lathe machines	**M**	**144**	**3**
3. CPC/N 7013:Maintain healthy and safe work practices	**M**	**24**	**3**
4. CPC/N 7014:Effective working with others	**M**	**24**	**3**
5. CPC/N 7015:Basics of computer and data entry	**M**	**24**	**3**
6. CPC/ N 7016:Soft Skills	**M**	**24**	**3**
Total		**480**	
Qualification Document - Machine Operator – CNC Lathe attached as Annexure			

QUALIFICATION FILE

SECTION 1

ASSESSMENT

Body/Bodies which will carry out assessment:

A Separate department/ body -Training Assessment Wing of Central Institute of Plastics Engineering and Technology (CIPET), Ministry of Chemicals and Fertilizers, Department of Chemicals and Petrochemicals, Govt. of India, Head Office, Guindy, Chennai.

Will the assessment body be responsible for RPL assessment?

RPL arrangements are being developed and will be informed in due course of time.

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

With uniformity and setting of learning outcomes for different Jobs Roles the assessment of candidates will be at learning outcome level. Assessment criterion has been defined for each learning outcome and it includes both theoretical and practical skills on which the candidate will be assessed. The question suite which will be used to check the skills of the trainee would include

- **Theoretical test suite –** Will include multiple choice questions, audio-video question etc. which will test the trainee on his knowledge of the subject
- **Practical Knowledge suite –** Practical knowledge can be tested through Assessor driven evaluation/test, Situational Judgment Tests etc to test practical core competence. A mix of these would be able to evaluate the trainee on his practical knowledge of the Qualification Document.

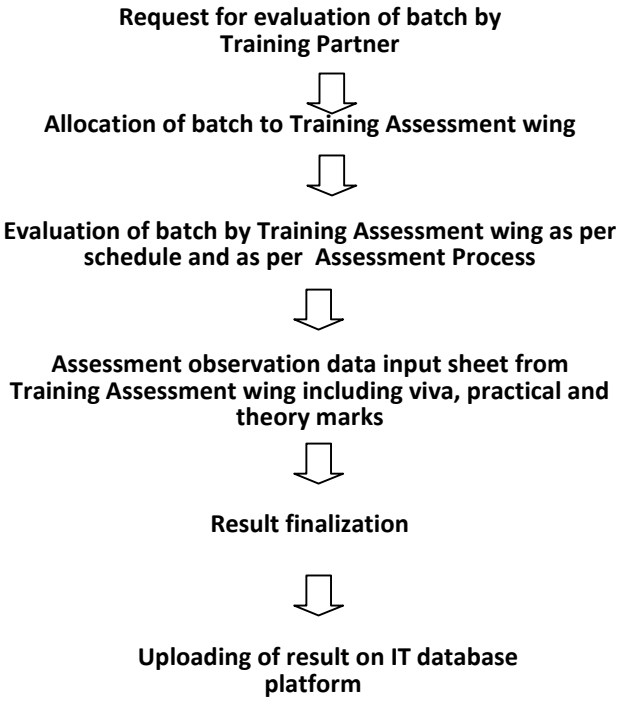
Assessment strategy:

- Assessment criteria for Qualification Document have been developed. Each Learning Outcome have 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 bank developed to assess the theoretical and practical knowledge. To ensure the quality, each trainees get the unique set of question
- Student has 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 trainee specifically on practical skills
- Assessments are preferably conducted by written examination papers in English/

regional languages according to the requirement.

- It has been ensure that TP/trainer should not be present during assessment.

Assessment Process Flow:



Summative Assessment:
Based on the Total Marks allotted for the specific subject, formal evaluation shall be conducted. Based on secured marks, candidates shall be declared pass or fail.

Steps undertaken for summative assessment:

1. Based on Completion of Batch, Evaluation Schedule shall be prepared
2. Identified Assessor is nominated for Evaluation
3. Setting up of separate Question Paper for Theory & Practical Examination
4. Conduct of examination as per the schedule
5. Evaluation & Certification

Evidence Collected during Assessment: Theoretical Answer Sheets, Practical Exam Sheets, Evaluation Sheets, Jobs produced during practical Exams.

Protocol for Selection of Assessors:

- The Assessors should have the minimum qualification: Degree in Engineering.
- The Assessors should have minimum 5 years of Experience in the relevant field.

QUALIFICATION FILE

ASSESSMENT EVIDENCE

Assessment Guidelines:

1. Criteria for assessment for each Qualification Document will be created by CIPET.
2. Each Assessable Outcome (AO) will be assigned marks proportional to its importance in Learning Outcome and few performance criteria may be allotted marks in combine.
3. Each Learning Outcome will be assessed both for theoretical knowledge and practical which is being proportionately demonstrated in the table below.
4. The assessment for the theory part will be based on knowledge bank of questions created by CIPET which will contain multiple choice theory questions and 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 Outcome's.
6. In case of successfully passing only certain number of Learning Outcome's, the trainee is eligible to take Subsequent assessment on the balance Learning Outcome's to pass the Qualification Document.

Title of the Component: Machine Operator – CNC Lathe

Assessable Outcome		**Assessment Criteria for the outcome**		
LO	**Assessable Outcome Description**	**Theory**	**Practical**	**Total**
CPC/ N 7011: Perform lathe operations on metal or plastic material using Conventional Centre lathe machine	AO1. Understand and comply with safety, environmental & other relevant regulations and guidelines	1	3	4
	AO2. Wear personal protective equipment (PPE) like safety glasses, apron, no loose cloths/ hair, safety shoes while performing lathe operations regulations while performing CNC turning operations	1	3	4
	AO3. Ensure work area is clean and safe	1	3	4
	AO4. Ensure that machine safety guards are in place and are in correctly working condition	1	3	4
	AO5. Ensure that all tools, equipments are in a safe and usable conditions	1	3	4
	AO6. Ensure availability of job specification i.e. approved drawings, sketches, instructions from the supervisor, job instruction sheet/ job card.	1	3	4

	AO7. Read and understand the Job requirements from the job specifications and attention shall be given to the geometric tolerances	1	3	4
	AO8. Check the work piece material for the dimensions and ensure that it is free from foreign objects, dirt or other contamination and is within the required size	1	3	4
	AO9. Plan to perform the turning or other lathe operations and the sequence of operations as per required job specifications	1	3	4
	AO10. Obtain all the appropriate tools and measuring instruments/ gauges required for the job	1	3	4
	AO11. Check the lathe machine for its functioning and ensure that it is ready for operation	1	3	4
	AO12. Prepare the lathe machine for the operations by mounting and setting the required work holding devices and cutting tools	1	3	4
	AO13. Clarify any doubt, if any and see necessary instruction /training on the operation of the machine whenever required	1	3	4
	AO14. Hold the work piece securely and correctly, without distortion	1	3	4
	AO15. Adjust the machine settings as per job requirement to maintain desired accuracy	1	3	4
	AO16. Adjust and set the speed and feed of the lathe machine to achieve the job specifications	1	3	4
	AO17. Operate the machine tool controls safely and correctly, in line with operational procedures both in manual and power modes.	1	3	4
	AO18. Stop the lathe machine, both in normal and emergency situations correctly by following the right procedure and should be able to restart the machine after & emergency	1	3	4
	AO19. Should be able to use the lathe machine accessories and attachments such as steady and follower rests, tail stock, taper turning attachments, profile attachments etc.	1	3	4
	AO20. Perform various lathe operations using different tools to produce components with	1	3	4

	various features. **Tool:** H.S.S, tools, brazed carbide tip tools, interchangeable carbide insert tools, drills, reamers, boring tool, threading tool. **Component Feature:** flat faces, outer diameter parallel, stepped, eccentric and taper, chambers, grooves, undercuts, holes – drilled, reamed, bored, tapered, internal and external threads, internal and external threads, parting off, knurling or special profiles			
	AO21. Produce components as per required quality standards and free from burrs & sharp edges	1	3	4
	AO22. Shall achieve given production targets	1	3	4
	AO23. Shall be able to apply roughing and finishing cuts, considering the effect on tool life, surface finish and dimensional accuracy	1	3	4
	AO24. Shall be able to use coolants/ cutting fluids for different combinations of work piece and tool as per different locations	1	3	4
	AO25. Shall be able to observe and report any difficulties/ discrepancies that may arise during the machine operation and carry out the corrective actions as per instructions	1	3	4
	AO26. Correctly shutting down the machine on completion of the machining operations, removing and disposing of the chips/ waste and critical parameters different locations	1	3	4
	AO27. Use of measuring instruments/ gauges to check the critical parameters **Range of checking equipment:** e.g external micrometers, vernier/digital/dial calipers, dial test indicators (DTI), surface finish equipment (eg. comparison plates), steel rules, micrometers (internal, depth), depth verniers, gauges (slip, bore/hole), thread gauges (eg. ring, plug, profile), gauges (plug, ring, radius/profile), protractors, etc **Critical parameters**: diameters (external, internal, eccentricity), parallelism, bore/hole size/fit, angle/taper, surface finish, linear dimensions (eg. lengths, depths), grooves/undercuts (eg. position, width, depth), concentricity, ovality, thread fit, straightness, squareness	1	3	4
	AO28. Shall be able to carry out the corrective	1	3	4

	action, in the case of deviation from the required specifications			
	AO29. Report the problem to the supervisor, if it cannot be resolved	1	3	4
	AO30. Seek guidance from the supervisor/ specialist of the problem is outside his/her area of competence	1	3	4
	Sub total	**30**	**90**	**120**
CPC/ N 7012: Perform turning and other lathe operations on metal or plastic work pieces using Computer Numerically Controlled Lathe Machine	AO1. Understand and comply with safety, environmental & other relevant regulations and guidelines	1	3	4
	AO2. Wear personal protective equipment (PPE) like safety glasses, apron, no loose cloths/ hair, safety shoes while performing lathe operations while performing CNC turning operations	1	3	4
	AO3. Ensure work area is clean and safe	1	3	4
	AO4. Ensure that machine safety guards are in place and are in correctly working condition	1	3	4
	AO5. Ensure that all tools, equipments are in a safe and usable conditions	1	3	4
	AO6. Ensure availability of job specification i.e. approved drawings, sketches, instructions from the supervisor, job instruction sheet/ job card.	1	3	4
	AO7. Read and understand the Job requirements from the job specifications and attention shall be given to the geometric tolerances	1	3	4
	AO8. Check the work piece material for the dimensions and ensure that it is free from foreign objects, dirt or other contamination and is within the required size	1	4	5
	AO9. Plan to perform the turning or other lathe operations and the sequence of operations as per required job specifications on CNC lathe machine	1	4	5
	AO10. Obtain all the appropriate tools and measuring instruments/ gauges required for the job	1	4	5
	AO11. Check the CNC lathe machine for its	1	4	5

	functioning and ensure that it is ready for operation			
	AO12. Prepare the CNC lathe machine for the operations by mounting and setting the required work holding devices and cutting tools	1	4	5
	AO13. Clarify any doubt, if any and see necessary instruction /training on the operation of the CNC Lathe machine whenever required	1	4	5
	AO14. Hold the work piece securely and correctly, without distortion	1	4	5
	AO15. Adjust the CNC Lathe machine settings as per job requirement to maintain desired accuracy	1	4	5
	AO16. Perform daily maintenance of machine according to defined checklist, at the beginning of day's shifts. **Basic maintenance activities**: replenish coolant; ensure all parts are clean; perform housekeeping tasks on the machine; remove and dispose swarf	1	4	5
	AO17. Use and extract information from engineering drawings, dimensioning and tolerances **Drawings, dimensioning & tolerances**: projections (orthographic [first angle, third angle]; isometric [including exploded], sectional view); reference points, lines, edges and surfaces	1	4	5
	AO18. Use and extract information from reference charts, tables, graphs and Engineering standards **Information pertaining to**: e.g. thread sizes; feeds and speeds; machining symbols and tolerances; surface finish symbols; etc.	1	4	5
	AO19. Load and unload component(s) using pre-determined fixtures or work holding devices as per work instructions **Work-holding devices to position and secure work-pieces**: chucks with hard jaws, chucks with soft jaws, fixtures, drive centres, collet chucks, faceplates, magnetic/pneumatic devices and other work-holding devices	1	4	5
	AO20. Make basic program and check correctness of program through dry run and	1	4	5

	single block check			
	AO21. Adjust and set the speed and feed of the CNC lathe machine to achieve the job specifications	1	4	5
	AO22. Operate the machine tool controls safely and correctly, in line with operational procedures.	1	4	5
	AO23. Stop the CNC lathe machine, both in normal and emergency situations correctly by following the right procedure and should be able to restart the machine after the emergency	1	4	5
	AO24. Do first part cutting trial by setting tool offsets to get oversize part	1	4	5
	AO25. Measure the critical parameters of the machined component on the machine (without removing from the machine), after the trial run **Critical parameters**: linear dimensions (such as lengths, depths), slots (position, width, depth), flatness, surface finish, squareness, parallelism, hole size/fit, angles, recesses, thread fit, runout and roundness	1	4	5
	AO26. Correct the offsets based on the measurements by accessing program edit facility in order to enter tooling data **Tooling data**: offset compensation, radius compensation	1	4	5
	AO27. Measure the component after unloading to check for accuracy in the critical parameters as per job specifications	1	4	5
	AO28. Produce machined components that combine different turning operations and have a range of features **Turning operations**: Turning (OD, ID), facing, grooving (OD and ID), face grooving, thread cutting (OD and ID), drilling, boring and tapping **Features of machined components** : diameters (parallel, stepped, tapered), faces, undercuts (internal and external), profiles (internal and external), holes (reamed, tapped, drilled, bored), parting-off and threads (internal, external)	1	4	5

	AO29. Follow the specified machining sequence and procedure as per job specifications	1	4	5
	AO30. Interpret in-built machine alarms and respond to the same as per operating manual or specified instructions	1	4	5
	AO31. Observe for inconsistency in dimensions due to tool wear and correct the offsets accordingly	1	4	5
	AO32. Ensure that machine settings are adjusted as and when required, either by self or the setter, to maintain the required accuracy	1	4	5
	AO33. Identify when tools need replacement and replace worn tool with new tool	1	4	5
	AO34. Produce components as per required standards **Produce component standards**: components to be free from false tool cuts, burrs and sharp edges; general dimensional tolerance +/- 0.02mm; specific dimensional tolerances within +/- 0.1mm; surface finish within 1.6µm; reamed holes within H8; screw threads 6G/6H; angles/tapers within +/- 15 sec; flatness and squareness 0.025mm	1	4	5
	AO35. Report problems and seek appropriate assistance in a timely manner	1	4	5
	AO36. Complete documentation during and post operations as per organizational procedures and applicable quality management system	1	4	5
	AO37. Return the machine and all tools and equipment to the correct location on completion of activities	1	4	5
	AO38. Leave the work area in a safe and tidy condition on completion of job activities as per 5S practices **Safe conditions**: correctly isolated; operating programs closed or removed; cleaning the machine; ensuring that any spilt cutting fluids are correctly dealt with; disposing of metal and other waste	1	4	5
	AO39. Report the problem to the supervisor, if it cannot be resolved	1	4	5

	AO40. Seek guidance from the supervisor/ specialist of the problem is outside his/her area of competence	1	4	5
	Sub total	**40**	**153**	**193**
CPC/ N 7013 Maintain healthy and safe work practices	AO1. Understand potential dangers/ risks and their causes at the workplace **Dangers:** Heated & sharp metal chips, sharp edged objects, heavy tools, loose rotating parts, loud noise, welding radiations, gas cylinders, fume, dust, chemical coolant, hazardous surfaces – slippery, broken, uneven etc., working at heights, intense light, electrical hazards- loose & naked cables, power supply and points, loose contacts etc. **Causes:** physical actions, inattention, mental sickness, drumpedness, health issues, other peoples mistake, faulty equipment, natural disaster.	1	2	3
	AO2. Use protective clothing/equipment for specific tasks and work conditions as per work environment **Protective clothing**: leather or asbestos gloves, flame proof aprons, flame proof overalls buttoned to neck, cuffless (without folds), trousers, industrial footwear, safety helmets, cap and shoulder covers, ear defenders/plugs, knee pads, glasses/goggles/visors **Equipment**: hand shields, machine guards, residual current devices, dust sheets, respirator	1	2	3
	AO3. Know the location of general health and safety equipments at the workplace **General health and safety equipment**: fire extinguishers; first aid equipment; safety instruments and clothing; safety installations(eg fire exits, emergency door)	1	2	3
	AO4. Shall know the name and location of people responsible for health and safety in the workplace	1	2	3
	AO5. Shall have complete knowledge of the names and location of documents that refer to health and safety in the workplace **Documents**: fire notices, accident reports, safety instructions for equipment and procedures, company notices and documents, legal documents (eg government notices)	1	2	3
	AO6. Carry out safe working practices to ensure	1	2	3

	the safety of self and others **Safe working practices**: using protective clothing and equipment; putting up and reading safety signs; handle tools in the correct manner and store and maintain them properly; keep work area clear of clutter, spillage and unsafe object lying casually; while working with electricity take all electrical precautions like insulated clothing, adequate equipment insulation, use of control equipment, dry work area, switch off the power supply when not required, etc.; safe lifting and carrying practices; use equipment that is working properly and is well maintained			
	AO7. Understand methods of accident prevention at the workplace **Methods of accident prevention**: training in health and safety procedures; using health and safety procedures; use of equipment and working practices (such as safe carrying procedures); safety notices, advice; instruction from colleagues and supervisors	1	2	3
	AO8. Identify common danger signs displayed in various areas **Various areas**: on chemical containers; equipment; packages; inside buildings; in open areas and public spaces, machine, electrical panels etc	1	2	3
	AO9. Apply good housekeeping practices at all times **Good housekeeping practices**: clean/tidy work areas, removal/disposal of waste products, protect surfaces, 5S practices	1	2	3
	AO10. Understand the application and use the various appropriate fire extinguishers on different types of fires correctly **Types of fires**: Class A: eg. ordinary solid combustibles, such as wood, paper, cloth, plastic, charcoal, etc.; Class B: flammable liquids and gases, such as gasoline, propane, diesel fuel, tar, cooking oil, and similar substances; Class C: eg. electrical equipment such as appliances, wiring, breaker panels, etc.; Class D: combustible metals such as magnesium, titanium, and sodium (These fires burn at extremely high temperatures and require special suppression agents)	1	2	3
	AO11. Understand and follow rescue techniques practices during fire hazard	1	2	3

	AO12. Follow good housekeeping in order to prevent fire hazards	1	2	3
	AO13. Participate in emergency procedures **Emergency procedures**: raising alarm, notifying authorities, contacting emergency numbers, safe/efficient, evacuation, correct means of escape, correct assembly point, roll call, correct return to work	1	2	3
	AO14. Respond promptly and appropriately to an accident situation or medical emergency	1	2	3
	AO15. Demonstrate correct method to move injured people and others during an emergency	1	2	3
	AO16. Provide appropriate first aid to victims where required eg. in case of bleeding, burns, choking, electric shock, poisoning etc.	1	2	3
	AO17. Demonstrate how to free a person from electrocution	1	2	3
	AO18. Complete a written accident/incident report or dictate a report to another person, and send report to person responsible **Incident Report includes details of**: name, date/time of incident, date/time of report, location, environment conditions, persons involved, sequence of events, injuries sustained, damage sustained, actions taken, witnesses, supervisor/manager notified	1	2	3
	Sub total	**18**	**36**	**54**
CPC/ N 7014 Effective working with others	AO1. Display appropriate communication etiquette while working **Communication etiquette:** use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism, use appropriate titles and terms of respect; do not use abusive language	1	1	2
	AO2. Display active listening skills while interacting with others at work	1	1	2
	AO3. Demonstrate responsible and disciplined behaviors at the workplace **Disciplined behaviors:** e.g. punctuality; completing tasks as per given time and standards; not gossiping and idling time;	1	1	2

	eliminating waste, observing honesty, etc **General health and safety equipment**: fire extinguishers; first aid equipment; safety instruments and clothing; safety installations(eg fire exits, emergency door)			
	AO4. Accurately receive information and instructions from the supervisor and fellow workers, getting clarification where required	0.5	1	1.5
	AO5. Accurately pass on information to authorized persons who require it and within agreed timescale and confirm its receipt	0.5	1	1.5
	AO6. Display helpful behavior by assisting others in performing tasks in a positive manner, where required and possible	0.5	1	1.5
	AO7. Consult with and assist others to maximize effectiveness and efficiency in carrying out tasks	0.5	1	1.5
	AO8. Escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict.	0.5	1	1.5
	Sub total	**5.5**	**8**	**13.5**
CPC/ N 7015 Basics of computer and data entry	AO1. Fill and process mandated forms for receiving, processing, or tracking data, enter data from source documents in to Computer application having MS OFFICE software	0.5	1	1.5
	AO2. Verify data entered with source documents, checks for compliance and corrects all typographical errors and missing or repeated data.	0.5	1	1.5
	AO3. Maintain files of source documents or other information related to data entered.	0.5	1	1.5
	AO4. Update database information to reflect most current source information	0.5	1	1.5
	AO5. Assist in the filing and storage of security and back up data files	0.5	1	1.5
	AO6. Respond to requests for information and access relevant files	0.5	1	1.5
	Sub total	**3**	**6**	**9**

CPC/ N 7016 Soft Skills	AO1. Able to effectively understand the verbal instructions in English or any vernacular language	0.5	1	1.5
	AO2. Able to communicate effectively with the supervisor and fellow colleagues to carry out day to day activities.	0.5	1	1.5
	AO3. Able to read the reports either in English or any vernacular language	0.5	1	1.5
	AO4. Understand the meaning of these reports and its importance.	0.5	1	1.5
	AO5. Filing of the reports and formats in proper location.	0.5	1	1.5
	AO6. Retrieval and producing the specific reports/files to the supervisor as and when required.	0.5	1	1.5
	AO7. Numbering and orderliness maintenance of files in safe locations	0.5	1	1.5
	Sub total	**3.5**	**7**	**10.5**
	Total	**100**	**300**	**400**

Means of Assessment 1:

The assessment comprise of :

- Theory
- Viva-voce
- Practical assessment

Means of Assessment 2:

Pass/Fail –

The Pass mark of theory written assessment is 50% and for viva and practical assessment is 70%.
The candidate has to pass separately in Theory and Practical.

QUALIFICATION FILE

SECTION 2

EVIDENCE OF LEVEL

Level of qualification: 3

Title /Name of Qualification/Component: Machine Operator – CNC Lathe **Level:** 3			
NSQF Domain	**Outcomes of the Qualification/Component**	**How the job role relates to the NSQF Level descriptors**	**NSQF Level**
Process	Machine Operator – CNC Lathe is expected to Operate Computerized Numerical Controlled (CNC) Lathe Machine and he has to carried out the following: • Understanding the working principle & construction of lathe machine • Carrying out operations on conventional lathe machine • To perform lathe operations such as facing, turning, stepped turning, taper turning, internal & external threading, grooving, chamfering, drilling, boring and reaming, profiles and special forms. • Measuring and checking the work piece as per specification • Understanding the working principle of CNC Lathe machine • Carry out turning operations using CNC machine • To understand the importance, knowledge and practices an operator needs to observe at the workplace. • It includes understanding of the	Machine Operator – CNC Lathe requires limited range of activities in the CNC Lathe Machine like operation of machine such as facing, turning, stepped turning, taper turning, internal & external threading, grooving, chamfering, drilling, boring and reaming, profiles and special forms.	3

	potential dangers at the workplace, the practices to minimize risks and how to deal in case of accidents and emergency situations.		
Professional knowledge	The user/individual on the job needs to know and understand: • Working principle, construction, knowledge and practices of the conventional & CNC Lathe machine • Concept of engineering drawing, isometric and orthographic projection, sectional views, auxiliary views, dimensioning. • Safety mechanisms on the machine, safety guards and procedure to check their functionality • Different kinds of Operations in CNC Lathe Machine.	The operator should understand and know basic facts, process, and principle of CNC Lathe Machine.	3
Professional skill	The user/individual on the job needs to know and understand: • General principles, procedure and process knowledge, loading and unloading procedure for the Conventional and CNC Lathe Machines. • Different types of tools and machinery The individual on the job needs to know and understand how to: • Plan, prioritize and sequence work operations as per job requirements • Shall be able to detect out of tolerance limit of component or any malfunctioning of the machine and take corrective action • Decide when to contact supervisor in case of any unresolved problems	The operator should recall the procedures, process need to carried out in the machine and understand the safety procedures. Thus he should demonstrate practical skill , routine and repetitive in CNC Lathe application/ process.	3

	• Analyse and interpret geometric dimensions and tolerances and apply balanced judgments to different situations. • Think through the problem, evaluate the possible solutions and take or suggest optimum solution • Seek appropriate assistance from other sources to resolve problems • Identify sources of support that can be availed of for problem solving for various kind of problems • Identify immediate or temporary solutions to resolve delays • Identify and understand the possible causes and their effect on the health and safety at the workplace.		
Core skill	The individual on the job needs to know and understand how to: • Read and interpret correctly the job specifications from drawing/ job card, manuals, safety instructions etc. in English and/ or local language • Able to fill up the required formats/ documents in English and / or local language • Interact and communicate with supervisor or other company personnel as per requirement • Shall be able to use simple numerical computation such as addition, subtraction, multiplication, division, fractions and decimal, percentages and	The operator should be able to read warnings, instructions and other text material on product labels, components etc with minimum required clarity, should have skill of basic arithmetic, communication skill and basic understanding of working environment	3

	proportions, simple ratios and average • Check and clarify task-related information, other issues from the supervisor, coordinates, subordinates etc.		
Responsibility	The operator is having some responsible for his own job and self learning. He/she set up basic machine controls and operates the CNC Lathe in order to produce the desired machined components as per the approved drawings.	The operator is responsible for his own job in CNC Lathe and self learning and work under the close supervision in the Machines.	3

QUALIFICATION FILE

SECTION 3

EVIDENCE OF NEED

What evidence is there that the qualification is needed?

Qualification document has been developed by suggestion and approval of Chemicals and Petrochemicals Core committee constituted by Department of Chemicals and Petrochemicals, Ministry of Chemicals and Fertilizers, Govt. Of India vide order no. 45012/86/2015-PC-IV Dt. 10.03.2016 which consist of senior leaders and experts from Plastics and Allied Industry, Associations etc and has been further substantiated by various study reports, Annual reports etc. A report on the Coordination Committee addresses the issue related with Human Resources/ Skilled manpower requirement of Industry- Department of Chemicals and Petrochemicals, Ministry of Chemicals and Fertilizers, Govt. Of India (page no. 4, Attached as Annexure 9(a)).

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

The Skill gap report states that, there will be 11.6 Lakhs additional manpower is required by 2023-24 is based on the Machinery & Sector growth and Technical Manpower. Refer: Name of the Report **"A report of the coordination committee to address the issues related with human resources/skilled manpower required of the industry" (page no. 6, Attached as Annexure 9 (a)) (Copy of the Skill Gap Report is enclosed).**

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

Mapping of Machine Operator – CNC Lathe has been done with National Classification of Occupation 2004 to ensure the qualification does not duplicate, the qualification have being checked with qualification pack of other sectors like Rubber, Electronics etc and there is no duplicity observed in terms of contents, module/syllabus covered etc.

The NSDC list of approved and under developed Qualification Packs was checked prior to stating the work to ensure no duplicity.

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?

Qualification documents shall be revised every two years and the feedback from Industries/ Associations, Alumni will be collected and necessary revisions/updating in Qualification document will be carried out. The feedback received from the industry in term of employability, course coverage, placement factors etc will be checked and growth indicators will be identified and reviewed.

ANNEXURE:

QUALIFICATION FILE

7. Presentation of 2nd core group committee meeting along with Minutes of meeting approved by members
9. Documents supporting need of the qualification:

a. Report of the Coordination Committee address the issue related with Human Resources/ Skilled manpower requirement of Industry- Department of Chemicals and Petrochemicals, Ministry of Chemicals and Fertilizers, Govt. Of India
b. A Report on Human Resource and Skill requirement for the Chemicals and Pharmaceutical sector (2022) by NSDC.
c. Brief report of Chemicals and petrochemicals Industry in India, April 2015, Corporate Catalyst India Pvt Ltd, Page 4
d. Report on Indian Plastics Industry 2013-17, edition 2, Nov 2014, PlastIndia Foundation.
e. Indian Plastics Industry – Vision 2012, Leverage Plastic, A report by CRISIL
f. Potential of Downstream Plastics Industry in North India, 26 June 2012, Knowledge and Strategy paper by Tata Strategic management Group & FICCI.
g. Potential of plastics industry in Northern India with special focus on Plasticulture and Food Processing- 2014. A report on Plastic Industry by Tata Strategic management Group & FICCI.
h. Plastic Industry in India a BPF Overview for PlastIndia International Exhibition 2012, New Delhi
i. Porters Five force Analysis of the Plastics Industry by Santanu Mandal, International Journal of Multidisciplinary Research, Vol 1, Issue 7, November 2011, ISSN 2231 5780

QUALIFICATION FILE

SECTION 4

EVIDENCE OF RECOGNITION AND 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?

Relevant information was collected from Industries and allied sector working in this area. The Plastics industries are recruiting people based on the qualification acquired. Maximum of the industries accept this as qualification for selection/short listing of the individual ***(Minutes of Meeting of Core committee is attached)***.

The skills acquired at level 3 for a particular duration makes it easy for the Individual to progress to the next level.

ANNEXURE:

7. Presentation of 2nd core group committee meeting along with Minutes of meeting approved by members.

Vertical Pathway:

The Occupational Map has been created & attached.
CNC Lathe Machine Operator (Level 3) has a clear pathway to Machine Operator & Programmer - CNC Lathe (Level 4)

Horizontal Pathway:

The individual can migrate within the Plastics Processing related industries.

Occupation Map – Vertical Pathway