**NSQF QUALIFICATION FILE**

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**CONTACT DETAILS OF THE AWARDING BODY FOR THE QUALIFICATION**

**Name and Address of Awarding Body:**

Ministry of Micro, Small and Medium Enterprises

Government of India

Udyog Bhawan, Rafi Marg,

New Delhi - 110011

**Name and Contact Details of Individual dealing with submission:**

L.Raja Sekhar

Dy. General Manager

Central Tool Room and Training Centre, Bhubaneswar

Contact No. +91 9437491950

Email- rajasekharl@yahoo.com

**List of documents submitted in support of the Qualification File:**

1. Detailed Curriculum**(Ref: Annexure-I)**

2. Decision of the management review meeting. **(Ref: Annexure- II)**

3. Industry Manpower Requirements **(Ref: Annexure-III)**

**NSDA Reference**

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**SUMMARY**

**Qualification Title:**

**CERTIFICATE COURSE IN ADVANCE MACHINING**

**Qualification Code:**

**MSME/CCAM/07**

**Nature and Purpose of the Qualification:**

**Nature:**

This is a certificate course

**Purpose:**

This Qualification is designed to

Impart new skill in advance machining areato adopt technological changes suitably.

Add flexibility for migration from fitting and assembly area to machining area whenever

needed by the industry.

Upgrade the skills of people already in the similar kind of work.

**Body/bodies which will award the Qualification:**

Ministry of MSME ( Certificate awarded by Central Tool Room and Training Centre,

Bhubaneswar

**Body which will accredit providers to offer courses leading to the qualification:**

Ministry of MSME, Government of India

**Body/bodies which will carry out assessment of learners:**

Examination Cell of Central Tool Room and Training Centre, Bhubaneswar

**Occupation(s) to which the Qualification gives access:**

Skilled Conventional/CNC Machine Operator

**Licensing Requirements:**

N/A

**Level of the Qualification in the NSQF:**

Level-5

**Anticipated volume of training /learning required to complete the Qualification:**

1920 Hours

**Entry requirements and/or recommendations:**

Preferably ITI fitter.

**Progression from the qualification:**

This qualification helps the trainee to work asoperatorsof the machines used in the field

ofmanufacturing/automobilesectors as Turner, Miller, Grinder, CNC Turner and CNC

Miller.

Later using the experience in these profession, they can get good opportunities to work

asCNC programmer or supervisor in above sector with better positions.

**Planned arrangements for the Recognition of Prior Learning (RPL)**

**Yes**

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**International comparability where known:**

UK- SEMMME2-19

UK- SEMMME2-20

Australia-MEM40105

**Date of planed review of the qualification:**01/2018

**Formal Structure of the Qualification:**

**Semester-I**

**Title of component and**

**Identification code**

**Mandatory/**

**optional**

**Estimated size**

**(learning hours) Level**

Production Technology

AutoCAD

Engineering drawing

Metrology

Communication Skill

M

M

M

M

M

600

120

120

80

40

Level-5

Level-5

Level-5

Level-4

Level-5

**Total 960 Hours**

**Semester –II**

**Title of component and**

**Identification code**

**Mandatory/**

**optional**

**Estimated size**

**(learning hours) Level**

CNC Lathe

CNC Milling

Non-conventional machining

Engineering drawing

Material technology

Entrepreneurship

In-plant training

M

M

O

M

O

O

M

240

240

120

120

40

40

160

Level-5

Level-5

Level-4

Level-5

Level-4

Level-4

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**Total 960 Hours**

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**SECTION 1**

**ASSESSMENT**

**Body/Bodies which will carry out Assessment:**

Examination Cell of Central Tool Room and Training Centre, Bhubaneswar

**Will theAssessment Body be responsible for RPL Assessment?**

Yes. Learnerswho have met the requirementsof any Unit Standard that forms partof this

qualification mayapply for recognitionof prior learning to the relevantEducationbody. The

applicantmust be assessedagainst the specific outcomes andwith the assessmentcriteriafor the

relevant UnitStandards.

**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.**

**1. ASSESSMENT GUIDELINE:**

Criteria for assessment based on each learning outcome, will be assigned marks

proportionately 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 (CTTC, Bhubaneswar)

For each Individual batch, Examination cell will create unique question papers for theory

part as well as practical for each examination.

To pass the Qualification, every trainee should score a minimum of 70% cumulatively

(Theory and Practical)

Assessment comprises the following components:

Job carried out in labs/workshop

Record book/ daily diary

Answer sheet of assessment

Viva –voce

Progress chart

Attendance and punctuality

**2. ASSESSORS:**

CTTC, Bhubaneswar faculty looking after the course “Certificate Course in Advance

Machining”, also assesses the students as per guidelines set by Examination cell of CTTC,

Bhubaneswar. Faculties have been trained from time to time to upgrade their skills on various

aspects such as conduct of assessments, teaching methodology etc. These training are usually

conducted at Xavier Institute of Management (XIMB), Bhubaneswar, Xavier Labor Relations

Institute (XLRI), Jamshedpur and other renownedInstitutions/Establishments of the country.

**3. ELIGIBILITY TO APPEAR IN THE EXAM:**

Minimum 80% attendance is compulsory for the students to appear for the

assessments.

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**4. MARKING SCHEME:**

**Sr. No. Method of Assessments Weightage (Max. marks) Evaluator**

1 Written Test 20 Trainer + Course

coordinator +

Examiner nominated

by Examination Cell

of CTTC,

Bhubaneswar

2 Practical Test 40

3 Viva-voce 10

4 Class/Workshop/Lab

performance

10

5 Project 20

**TOTAL 100**

**5. PASSING MARKS:**

Passing criteria is based on marks obtained in attendance record, term works,

assignments, practical performance, viva or oral exam, module test, practical exam and final

exam.

Minimum Marks to pass practical exam – 60%

Minimum Marks to pass final exam – 70%

Minimum Marks to pass viva / oral exam – 60%

Minimum Marks to pass Project report and presentation exam – 80%

**6. RESULTS AND CERTIFICATION:**

The assessment results are backed by evidences collected by assessors. Successful trainees are

awarded the certificates by CTTC, Bhubaneswar.

**ASSESSMENT EVIDENCE**

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

1) Job carried out in labs/workshop

2) Record book/ daily diary

3) Answer sheet of assessment

4) Viva –voce

5) Progress chart

6) Attendance and punctuality

**Title of Component: Production Technology**

**Outcome to be assessed Assessment criteria for the outcome**

Explain Hand tools - scriber, divider,

punch, surface plate, 'v' blocks, angle

plate, hammer, screw driver, spanner,

pliers , etc.

State the purpose of Hand tools - scriber, divider, punch,

surface plate, 'v' blocks, angle plate, hammer, screw driver,

spanner, pliers , etc.

Select the Hand tools - scriber, divider, punch, surface plate,

'v' blocks, angle plate, hammer, screw driver, spanner, pliers

, etc.

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Mark the flat and cylindrical job using marking tool, Use

hand tool for various operations, Use different type of vice

for hold the job

Explain Holding tools - vice, ‘c’ clamp,

tool maker vice.

Explain the purpose of Holding tools - vice, ‘c’ clamp, tool

maker vice.

Use different type of holding tools

Explain Hand tools-file, chisel, scraper,

hacksaw etc.

State the purpose / use of Hand tools-file, chisel, scraper,

hacksaw etc.

Select appropriate tool

Remove the material by using hand cutting tools.

Explain Cutting tools-Drill bits,

reamer,

State the purpose / use of Cutting tools-Drill bits, reamer,

Select appropriate tool

Do the drilling operations of various diameters and finish it

with reaming.

Explain Cutting tools and operations -

hand taps, thread dies

State the purpose of Cutting tools and operations - hand

taps, thread dies

Select appropriate Cutting tools and operations - hand taps,

thread dies

Use the different screw, nut, bolt stud etc. in assembly.

Explain Screw threads fasteners Use the different screw, nut, bolt stud etc. in assembly.

Explain Transmission power- belt

drive, chain drive, gear drive, clutch,

cam, etc.

Explain Transmission power- belt drive, chain drive, gear

drive, clutch, cam, etc.

Open the power transmission drive of machine and reset it.

Explain Lubricant, coolant and general

maintenance

Explain Lubricant, coolant and general maintenance

Explain the process of general maintenance

Change the coolant from machine tank and replace with

new coolant by mixing water and cutting oil and also put

lubricant oil in sliding parts of machine

Explain Jigs and fixtures, types of jig

and fixture, drill jig, leaf jig, etc.

Explain jigs and fixures and its applications

Prepare the fixture for holding different complicated job.

Explain Lathe, types , attachment and

accessories,

Explain the parts of lathe

Draw the sketch of lathe and write the functions of each part

Identify and demonstrate different parts of lathe

Explain lathe tool nomenclature Grind the lathe tool by pedestal grinding machine

Explain lathe operation Explain lathe operation

perform various operations in lathe like turning , facing,

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grooving, threading, etc.

**Title of Component: AUTO CAD**

**Outcome to be assessed Assessment criteria for the outcome**

Demonstrate co-ordinate system, used

in CAD/CAM & AutoCAD

Explain the CAD/CAM software and its use

Use auto-cad to draw geometry by co-ordinate system**.**

Demonstrate interface of AutoCAD,

mouse function, functional keys,

shortcut keys, paper size

State the keys and function

Set the standard paper size in the AutoCAD.

Demonstrate scratch window, limits,

line, construction line, ray, trim,

extend, erase.

Prepare the drawings in auto-cad by using limits, line,

construction line, ray, trim, extend, erase.

Demonstrate circle, rectangle, copy,

move, and offset, rotate.

Define the commands circle, rectangle, copy, move, and

offset, rotate.

Use commands to prepare the drawings.

Demonstrate array, mirror, scale,

stretch, polyline, polygon, and arc.

Define the commands array, mirror, scale, stretch, polyline,

polygon, and arc.

Identify the proper commands and draw the given drawings

in auto-cad.

Demonstrate spline, ellipse, revision

cloud, region, xplode, join, break,

break at a point.

Define the commands spline, ellipse, revision cloud, region,

xplode, join, break, break at a point.

Use the commands properly while drafting in Auto-CAD

Demonstrate point, point style, divide,

measure, fillet, chamfer, blend curve

Define the commands point, point style, divide, measure,

fillet, chamfer, blend curve

Identify the proper commands and draw the given drawings

in auto-cad.

Demonstrate hatch, gradient, details

of sectional view.

Define hatch, gradient, details of sectional view.

Identify the commands for proper sectioning methods as

per the material.

Demonstrate text, mtext, text style,

arc aligned text, mirror text

Define the commands text, mtext, text style, arc aligned

text, mirror text

Use the commands for putting the text on the drawing.

Demonstrate block, wblock, insert

block, edit block

Draw the title block using those commands using auto-cad.

Identify dimension toolbar,

dimension style &gd&t symbols

Provide dimension on the geometry by using auto-cad

software.

Demonstrate solid modeling, 3d

environment & toolbars, extrude,

revolve, Boolean operation, sweep,

loft, press pull, 3d move, 3d rotate, 3d

array, 3d align, solid editing toolbar,

primitives.

Prepare the solid model by using the commands in auto-cad

and do the editing whenever it is necessary to modify.

Explain the method of plotting a

drawing.

Plot the drawing with the help of auto-cad software.

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**Title of Component:Engineering Drawing**

**Outcome to be assessed Assessment criteria for the outcome**

Explain types of line, line group, arrow

head, type of paper size, title block,

out boundary.

Do the drawing with the help of drawing toolslike, drawing

board, mini drafter, pencil etc.

Demonstrate scale, dimension,

dimensioning rules & its use.

Use scale and put dimension with the help of drawing tools

on different mechanical objects.

Demonstrate angle of projection

method, orthographic views,

Sectioning, its type and application.

Do the orthographic viewby seeing isometric drawing.

Demonstrate the application and

importance of surface roughness

symbol.

Do the drawing by provide different surface roughness

symbols on the drawing as per requirement.

Demonstrate limits, fits and tolerances

and its application.

Do the drawingby showing GD & T of different fittings in an

assembly drawing.

Demonstrate the methods of

assembling the machine parts.

Assemble all the assigned parts of a mechanical drawingand

mention its functionality.

**Title of Component:Metrology**

**Outcome to be assessed Assessment criteria for the outcome**

Explain standardization of measuring

instrument (linear,angular,precision &

non precision).

State the purpose of measuring instruments

Explain how to do standardization of the measuring

instruments.

Explain Gauges (standard gauge:

feelergauge, radiusgauge, screw pitch

gauge).

Explain Gauges (standard gauge: feeler gauge, radius gauge,

screw pitch gauge).

Use the gauges for checking the machined parts.

Explain Telescopic gauge, slipgauge,

standard wire gauge.

Explain Telescopic gauge, slip gauge, standard wire gauge.

Check the hole diameter and wire diameter using telescopic

gauge and wire gauge respectively.

Demonstrate Limit gauge: plug gauge,

thread plug gauge, snap gauge.

Explain with sketch Limit gauge: plug gauge, thread plug

gauge, snap gauge.

Do inspection of a hole and internal thread using plug gauge

and thread plug gauge.

Demonstrate Ring gauge, thread ring

gauge.

Explain with sketch Ring gauge, thread ring gauge

Check the size of a shaft and threaded shaft using ring gauge

and thread ring gauge.

Demonstrate Comparators as well as

hand on practice on CMM,

Inspect the given job using CMM.

Demonstrate Heightmaster, profile

projector.

Use height master and profile projector for the measurement.

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**Title of Component:Communication Skill**

**Outcome to be assessed Assessment criteria for the outcome**

Informal Introduction Through

Interactive Session, Body Language Or

Formal Introduction

Selection of communication mode

Efficiency of communication

Presentation skills

Language and gestures

Communication in a team

Demonstrate Public Speaking

techniques, presentation skill, resume

writing or letter writing, role plays on

verbal and non-verbal, psychometric

test.

Clarity of speech

Confidence

Content of the speech

Presentation media and skills

Aptitude

Prepare resume and write a letter

Explain about the group discussion

rules, HR question discussion.

Listening skills

Agreement and disagreement

Presenting the ideas

Participation and initiation

Do the group discussion on various topics.

**Title of Component: CNC Turning**

**Outcome to be assessed Assessment criteria for the outcome**

Demonstrate CNC turning, mode of

controller, homing or reference point,

G and M code. Mechanism of machine

chuck clamp and declamp in CNC

Lathe.

Identify CNC lathe machine parts.

Move the machine in jog and MPG mode.

Do the homing of machine by various modes.

Do the jaw settings in CNC Lathe.

Explain and select appropriate Tool

holder & Carbide cutting tool,

specification, signature and

nomenclatures, Tool parameter,

cutting speed, feed, depth of cut,

Offset setting in CNC Lathe.

Explain Tool holder & Carbide cutting tool, specification,

signature and nomenclatures, Tool parameter, cutting speed,

feed, depth of cut, Offset setting in CNC Lathe.

Select proper cutting tool and tool holder. Set the parameter

in CNC lathe machine for machining operation..

Demonstrate Program writing,

simulation of Facing program, plain

turning programs, Plain turning, and

step turning in CNC Lathe.

Perform/Implement Program writing, simulation of Facing

program, plain turning programs, Plain turning, and step

turning in CNC Lathe.

Check the simulation and solve the trouble shooting. Do the

facing, turning, step turning operation in CNC Lathe.

Demonstrate Tapper turning, Radius,

fillet program in CNC Lathe.

Develop Tapper turning, Radius, fillet program in CNC Lathe.

Do the tapper turning, turning operation and give chamfer

in sharp edges in CNC Lathe.

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Demonstrate Drilling, Reaming, Boring,

step boring, grooving, Threading

program in CNC Lathe.

Do the drilling, reaming, boring, step boring, grooving,

threading operations in CNC Lathe.

**Title of Component: CNC Milling**

**Outcome to be assessed Assessment criteria for the outcome**

Demonstrate parts of milling

machine

Describe parts of milling machine with sketch

Identify CNC milling machine parts.

Explain CNC milling and operate,

mode of controller, Homing or

reference point, G and M code.

Mechanism of automatic tool

changer machine chuck clamp and

declamp

Describe the operation, process and function of CNC milling

Explain the processes, , mode of controller, Homing or

reference point, G and M code.

Describe the mechanism of automatic tool changer machine

chuck clamp and declamp.

Move the machine in jog and MPG mode. Do the homing of

machine by various modes.

Demonstrate the tool holder &

carbide cutting tool, specification,

signature and nomenclatures, tool

parameter, cutting speed, feed,

depth of cut in CNC Milling.

Describe the function/purpose of the tool holder & carbide

cutting tool.

Explain the concepts such as, specification, signature and

nomenclatures, tool parameter, cutting speed, feed, depth

of cut in CNC Milling.

Select proper cutting tool and tool holder.

Set the parameter in CNC milling machine for machining

operation.

Explain Cutter compensation in CNC

milling and write the program for

checking compensation.

Explain Cutter compensation in CNC milling.

Write a program and check compensation in CNC Milling.

Explain and implement the Process of

Datum setting in CNC Milling.

Define the Process of Datum setting in CNC Milling

Explain the Process of Datum setting in CNC Milling

Do the datum setting in various coordinate in CNC Milling.

Explain Programmingand simulation

techniques in trouble shooting and

check the program in simulation.

Explain Programmingand simulation techniques in trouble

shooting

Check the simulation and solve the trouble shooting in CNC

Milling.

Demonstrate facing program,

pocketing program, contour

program

Describe the facing program, pocketing program, contour

program

Do the facing, pocketing, contour operation as per the given

assignment.

Explainand implement Drilling,

Reaming program

Explain Drilling, Reaming program

Do the drilling, reaming operation

Explainand implement Multiple

program

Describe with example the Multiple program

Do the multiple program operation

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**Title of component: Non- Conventional machining.**

**Outcome to be assessed Assessment criteria for the outcome**

Demonstrate non-conventional

machining processes(EDM,LBM,AJM)

State the working principle of EDM, LBMand AJM.

Operate machines for performing the machining processes

Demonstrate Electrode Material and

di-electric medium for machining

operations.

Describe Electrode Material and di-electric medium for

machining operations

Select the proper electrode and di- electric medium.

Explain simulation of program and

execute the same to see the output.

Createprogram,

Check simulation and

Execute the same onthe machine.

Explain formula of overcut and metal

removal rate after machining

Explain formula of overcut and metal removal rate after

machining

Check and calculate overcut, metal removal rate and tool

wear ratio.

**Title of Component:Material Technology**

**Outcome to be assessed Assessment criteria for the outcome**

Demonstrate the material properties

and their advantage and application.

Describe the material properties and their advantage and

application.

Compare the materials

Identify different types of material by studying their

properties.

Select the material based on the type of application

Demonstrate the procedure used in

metal extraction process.

Explain metal extraction process with neat sketch.

Implement/demonstrate the extraction process

Demonstratedifferent types of cast

iron and steel application in

engineering field

Describe different types of cast iron and steel application in

engineering field

Compare cast iron with steel

Identify cast iron, steel, and alloys steel as-per their uses.

Select the either of material for the specific product under

demonstration

Demonstrate phase transformation

stages in iron with respect to the

temperature and effect of heat

treatment on properties of iron.

Describe phase transformation stages in iron with respect to

the temperature and effect of heat treatment on properties of

iron.

Draw the iron-carbon diagram and explain briefly the effect of

temperature on microstructure of steel and iron.

Demonstrate different microstructure

and their position in iron carbon

equilibriumdiagram.

Explain different types of microstructure with neat sketch.

Demonstratedifferent types of heat

treatment process

Explain the significance of heat treatment in the

manufacturing process

Explain the different types of heat treatment process.

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Explain heat treatment process.

Explain the heat treatment process adopted/designed for the

demo product

**Title of Component: Entrepreneurship Skills**

**Outcome to be assessed Assessment criteria for the outcome**

Demonstrate entrepreneurship,

ability to deal with risk, results

oriented, and multitasking ability.

Explain the attributes of entrepreneur

Describe theentrepreneurship skills based on those

concerned area they are going to set up a unit.

Describe with example the connect of dealing with risk

and multitasking ability

Demonstrate productivity Job

creation, transfer of technology

entrepreneurial firms, advantages

of small & medium enterprises and

The Indian SME Sector

Explain productivity and its factors that can arrange the

quality manpower and type of organization.

Describe productivity Job creation, transfer of technology

entrepreneurial firms.

Explain the advantages of small & medium enterprises

Explain the nature of Indian SME Sector

Demonstrate entrepreneurship and

the environment, social factor,

women, as entrepreneurs,

education, government policies,

economic infrastructure and social

overheads

Explain entrepreneurship factors and risk analysis before

going to setup a unit and supply of product demand.

Describe the current entrepreneurship environment at

national and global level.

Describe the role of, social factor, women, and education

as an entrepreneur.

Explain the government policies, economic infrastructure

and social overheads in the business/entrepreneurship

environment.

Demonstrate marketing, relevance

of marketing, selling and

marketing, marketing mix, value

chain concept and market research

Explain marketing and its key point about the product /

services size, price, quality.

Explain the suitable and alternative market strategy in

respect of the domain of CNC manufacturing business.

**Means of assessment 1 and 2**

**Skill performance is assessed by conducting**

i) Assignment for each module

ii) Written test for each module

iii) Final exam after completion of all module

iv) Practical exam for each module

v) Final practical exam after completion of all module

vi) Viva / Oral Exam

vii) Project report and presentation

**Pass/Fail**

Passing criteria is based on marks obtain in attendance record, term works , assignments,

practical’s performance, viva or oral exam, module test, practical exam and final exam

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i) Minimum Marks to pass practical exam – 60%

ii) Minimum Marks to pass final exam – 70%

iii) Minimum Marks to pass viva / oral exam –60%

iv) Minimum Marks to pass Project report and presentation exam – 80%

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**SECTION 2**

**Evidence of Level**

**Title/Name of the qualification/Component: Certificate course in Advance Machining**

**Level-5**

**NSQF**

**Domain**

**Outcomes of the**

**Qualification/Compo**

**nent**

**How the job role relates to the NSQF level**

**descriptors**

**NSQ**

**F**

**Leve**

**l**

Process Carry out various

conventional

manufacturing

operations like Bench

work and fitting,

Turning, Milling, CNC

Turning and CNC

Milling safely and

securely according to

given drawing within

required accuracy

which requires well

developed skill and

procedure.

The job role after attaining this qualification

“CCAM” is to manufacture the desired

jobs/components within tolerance provided as per

the drawing using specific/limited manufacturing

process like fitting, turning Milling, CNC Turning,

and CNC Millingwith well developed skill and

procedures. The role also involves study and

understand the drawing and measure the various

dimensions of the job/component.

**5**

Profession

al

Knowledge

Study and analyze the

job/ component

drawing provided to

manufacture the

same within

prescribed tolerance

and check/measure

the job/component

with suitable

measuring

instruments.

Select the proper

cutting speed, feed

and depth of cut to

manufacture the job.

Select the correct

processes along with

the manufacturing

The job holder in this job role musthave

knowledgeandunderstanding ofbasic facts, defined

processes and principles withrespect to different

kinds ofmachining.Understandhow to

extractinformationfromEngineeringdrawings

withrespect

tomachining;variousmachiningsequences

andprocedures;suitability ofwork pieces

andconsumable tothe jobs; correcttechniques

andprocedures tocarry out

specificmachiningoperations; etc.The

candidatemust be able toapply theseappropriately

asper the job athand.

**5**

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principles while

selecting the

manufacturing the

component.

Profession

al Skill

Develop/Manufactur

e the job/ component

according to specified

drawing using correct

sequence of

operations with

desired accuracy by

solving inline

manufacturing

problems.

Identify the material

which will be used for

making the finished

product.

Identify and select

the proper machines,

cutting tools and

measuring

instruments to carry

out the job.

The Job holder must know to solvethe problems

commonlyencountered during machining

operations by selecting the correct method ,tools

and materials.

**5**

Core Skill Calculate the

machining

parameters like

cutting speed, feed

and depth of cut.

Read the drawing and

conceive the idea to

get the finished

product.

Aware about the

social as well as

environmental

situations during

working and

communicate the

same to the coworkers.

The job holder isrequired to have

desired

numericalandcomputationalabilities,communicati

ons,health, safety,first aid,He must also be

able to readdrawing andcomplete

documentation asper organizationalprocedures

whichcould be in localor Englishlanguage.

**5**

Responsibil

ity

Capabilities of

studying the

The candidateis expected toperform as

pergiveninstructions,

**5**

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drawings of the

component ,need to

be manufactured.

Responsible for own

work and supports

others during

manufacturing.

Before starting the

machining work

check the machine

for lubrication of

sliding mechanism,

coolant level in the

tank.

Check the measuring

instruments to be

used for its error or

proper working.

Use PPE as per job

requirement.

Clean and lubricate

the machine after

completion of the

machining work.

Takingresponsibilityof properfunctioning ofthe

machinesand his actionsfor theoperation,quality

andaccuracy of thework.The candidate with this

job role worksindependentlyand also took some

responsibility to solve as perinstructions .

**SECTION 3**

**Evidence of Need**

**What Evidence is there that the Qualification is needed?**

Decision of the management review meeting.**(Ref: Annexure- II)**

Industry Requirements **(Ref: Annexure-III)**

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

The estimated uptake of this qualification in the year of 2016-17 is 410.

The basis of this estimation is based on the requirements of manpower in the

industries and percentage of placement of this qualification of last five years.

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**Trainees Trained/Trainees Opted for Placement/Trainees Placed**

1990/1496/1376

**What steps were taken to ensure that the Qualification(s) does/do not duplicate already**

**existing or planned Qualifications in NSQF?**

The qualification is originally designed by curriculum committee comprising the training

head, industrial expert, academic professional experts.

The work group under the guidance of curriculum development commi

conducted desk search as well as refers the qualification packs for as a supporting document

for the mapping of curriculum.

As per the search it is found that, the certificate course is not available for the skill

development of the candidates in

Capital Goods and Automotive Sector Skill Council.

**What arrangements are in the place to monitor and review the Qualification(s)?**

**What data will be used and at what point will the**

The curriculum committee meeting for review will be in the month of Jan 2018 which

comprising industrial expert,

The data used for revision or update will be im

and new subject area opportunities, multiple entry and exits incorporated or RPL

strategy implementations.

The curriculum review and updates, in consultation with industries and expert of

respective domain, NOS approv

**0**

**50**

**100**

**150**

**200**

**250**

**300**

**350**

**2011-12**

**NO. OF TRAINEES PLACED DURING LAST FIVE YEARS**

committee already

s Advance Machining Course of 1 year duration

**Qualification(s) be revised or updated?**

Training Head, Representative from existing employers

impact analysis (student and industries)

approved by NSDA will also be referred to from time to time.

**1012-13 2013-14 2014-15 2015-16**

17

ttee under the

employers.

pact ed

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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?**

While designing this qualification proper care is taken to linkup with the skill development in

the field of CNC-technology and other areas, especially in machine tools, dies, moulds and

press tools, plastics manufacturing machinery, textile manufacturing machinery, process

plant machinery, electrical and power machinery, light engineering.

Qualifying trainee will obtain a CTTC, Bhubaneswar Certificate in ‘Certificate Course in

Advance Machining’. After 2 year of experience give the opportunities to the trainees to work

as CNC Programmer as a career progression with this position and experience of 3 yearsgives

career scope of Assistant Supervisor and 5 years experience leads to Supervisor. Also he/she

can become an entrepreneurin this sector after getting 3 year of experience. The below

mention diagrams represent the vertical mobility for the job holder as a job progression in

Manufacturing Sector.

**Career Progression for a trainee appointed as Conventional/CNC Operator**

Supervisor

Assistant

Supervisor

CNC

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Programmer

Conventional/CNC

Operator