

## Qualification Pack



# Automotive Machining Operator

QP Code: ASC/Q3501

Version: 5.0

NSQF Level: 3

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## Qualification Pack

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## Qualification Pack

### ASC/Q3501: Automotive Machining Operator

#### Brief Job Description

The individual in this role supports the machining technician in various machining and inspection work on CNC/conventional machines such as quality verification, minor repair work, change of worn out tools, re-setting of the tools, machine programming and de-burring.

#### Personal Attributes

The person should be patient, organised, team-oriented and have the ability to work for long hours in adverse conditions. They should be keen observers and have an eye for detail and quality.

#### Applicable National Occupational Standards (NOS)

##### Compulsory NOS:

1. [ASC/N9803: Organize work and resources \(Manufacturing\)](#)
2. [DGT/VSQ/N0101: Employability Skills \(30 Hours\)](#)
3. [ASC/N9805: Interpret engineering drawing](#)
4. [ASC/N3506: Support in machining and post machining activities](#)

#### Qualification Pack (QP) Parameters

<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Manufacturing
<b>Occupation</b>	Machining Operation
<b>Country</b>	India
<b>NSQF Level</b>	3
<b>Credits</b>	12
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/7223.5001

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<b>Minimum Educational Qualification &amp; Experience</b>	5th Class with 4 Years of experience of relevant experience OR 8th Class with 1 Year of experience of relevant experience OR 9th Class OR Certificate-NSQF (Automotive Machining Assistant Level 2) with 2 Years of experience of experience
<b>Minimum Level of Education for Training in School</b>	
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	NA
<b>Next Review Date</b>	17/11/2025
<b>NSQC Approval Date</b>	17/11/2022
<b>Version</b>	5.0
<b>Reference code on NQR</b>	2022/AUT/ASDC/06560
<b>NQR Version</b>	5

## Qualification Pack

### ASC/N9803: Organize work and resources (Manufacturing)

#### Description

This NOS unit is about implementing safety, planning work, adopting sustainable practices for optimising use of resources

#### Scope

The scope covers the following :

- Maintain safe and secure working environment
- Health and hygiene
- Perform work as per quality standards
- Effective waste management practices
- Material/energy conservation practices

#### Elements and Performance Criteria

##### *Maintain safe and secure working environment*

To be competent, the user/individual on the job must be able to:

- PC1.** identify hazardous activities and the possible causes of risks or accidents in the workplace
- PC2.** follow safe working practices while dealing with hazards to ensure safety of self and others
- PC3.** carry out routine check of the machine for identifying potential hazards
- PC4.** use appropriate protective clothing/equipment for specific tasks and work
- PC5.** follow safety hazards and preventive techniques during fire drill
- PC6.** report any identified breaches in health, safety and security policies and procedures to the designated person

##### *Health and hygiene*

To be competent, the user/individual on the job must be able to:

- PC7.** ensure workstation and equipment are regularly clean and sanitized
- PC8.** clean hands with soap, alcohol-based sanitizer regularly
- PC9.** avoid contact with ill people and self-isolate in a similar situation
- PC10.** wear and dispose PPEs regularly and appropriately
- PC11.** report advanced hygiene and sanitation issues to appropriate authority
- PC12.** follow stress and anxiety management techniques

##### *Perform work as per quality standards*

To be competent, the user/individual on the job must be able to:

- PC13.** ensure that work is accomplished as per the requirements within the specified timeline
- PC14.** ensure team goals are given preference over individual goals

##### *Effective waste management practices*

To be competent, the user/individual on the job must be able to:

- PC15.** follow the fundamentals of 5S for waste management

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- PC16.** segregate waste into different categories
- PC17.** follow processes specified for disposal of hazardous waste
- PC18.** identify recyclable, non-recyclable and hazardous waste
- PC19.** dispose non-recyclable, recyclable and reusable waste appropriately at identified location

### *Material/energy conservation practices*

To be competent, the user/individual on the job must be able to:

- PC20.** identify ways to optimize usage of material in various tasks/activities/processes
- PC21.** check for spills/leakages in various tasks/activities/processes
- PC22.** plug spills/leakages and escalate to appropriate authority if unable to rectify
- PC23.** check if the equipment/machine is functioning normally before commencing work and rectify wherever required
- PC24.** report malfunctioning (fumes/ sparks/emission/vibration/noise) and lapse in maintenance of equipment
- PC25.** ensure electrical equipment and appliances are properly connected and turned off when not in use

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** organisation procedures for health, safety and security, individual role and responsibilities in this context
- KU2.** the organisation's emergency procedures for different emergency situations and the importance of following the same
- KU3.** evacuation procedures for workers and visitors
- KU4.** how and when to report hazards as well as the limits of responsibility for dealing with hazards
- KU5.** potential hazards, risks and threats based on the nature of work
- KU6.** preventative and remedial actions to be taken in case of exposure to toxic material
- KU7.** various types of fire extinguisher
- KU8.** various types of safety signs and their meaning
- KU9.** appropriate first aid treatment relevant to different condition e.g. bleeding, minor burns, eye injuries etc.
- KU10.** relevant standards, procedures and policies related to 5S followed in the company
- KU11.** the various materials used and their storage norms
- KU12.** efficient utilisation of material and water
- KU13.** basics of electricity and prevalent energy efficient devices
- KU14.** common practices of conserving electricity
- KU15.** common sources and ways to minimize pollution
- KU16.** categorisation of waste into dry, wet, recyclable, non-recyclable and items of single-use plastics
- KU17.** usage of different colors of dustbins

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**KU18.** waste management techniques

**KU19.** significance of greening

### Generic Skills (GS)

User/individual on the job needs to know how to:

**GS1.** read safety instructions/guidelines

**GS2.** modify work practices to improve them

**GS3.** ask for clarifications from superior about the job requirement

**GS4.** work with supervisors/team members to carry out work related tasks

**GS5.** complete tasks efficiently and accurately within stipulated time

**GS6.** inform/report to concerned person in case of any problem

**GS7.** make timely decisions for efficient utilization of resources

**GS8.** write reports such as accident report, in at least English/regional language

**GS9.** be punctual and utilize time efficiently

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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Maintain safe and secure working environment</i>	<b>11</b>	<b>5</b>	-	<b>7</b>
<b>PC1.</b> identify hazardous activities and the possible causes of risks or accidents in the workplace	2	1	-	2
<b>PC2.</b> follow safe working practices while dealing with hazards to ensure safety of self and others	2	-	-	1
<b>PC3.</b> carry out routine check of the machine for identifying potential hazards	2	1	-	1
<b>PC4.</b> use appropriate protective clothing/equipment for specific tasks and work	2	1	-	1
<b>PC5.</b> follow safety hazards and preventive techniques during fire drill	2	1	-	1
<b>PC6.</b> report any identified breaches in health, safety and security policies and procedures to the designated person	1	1	-	1
<i>Health and hygiene</i>	<b>7</b>	<b>5</b>	-	<b>2</b>
<b>PC7.</b> ensure workstation and equipment are regularly clean and sanitized	2	2	-	1
<b>PC8.</b> clean hands with soap, alcohol-based sanitizer regularly	1	1	-	1
<b>PC9.</b> avoid contact with ill people and self-isolate in a similar situation	1	-	-	-
<b>PC10.</b> wear and dispose PPEs regularly and appropriately	1	-	-	-
<b>PC11.</b> report advanced hygiene and sanitation issues to appropriate authority	1	1	-	-
<b>PC12.</b> follow stress and anxiety management techniques	1	1	-	-
<i>Perform work as per quality standards</i>	<b>5</b>	<b>3</b>	-	<b>2</b>
<b>PC13.</b> ensure that work is accomplished as per the requirements within the specified timeline	2	2	-	1



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC14.</b> ensure team goals are given preference over individual goals	3	1	-	1
<i>Effective waste management practices</i>	<b>15</b>	<b>10</b>	-	<b>4</b>
<b>PC15.</b> follow the fundamentals of 5S for waste management	3	2	-	1
<b>PC16.</b> segregate waste into different categories	2	1	-	-
<b>PC17.</b> follow processes specified for disposal of hazardous waste	2	2	-	1
<b>PC18.</b> identify recyclable, non-recyclable and hazardous waste	4	2	-	1
<b>PC19.</b> dispose non-recyclable, recyclable and reusable waste appropriately at identified location	4	3	-	1
<i>Material/energy conservation practices</i>	<b>12</b>	<b>7</b>	-	<b>5</b>
<b>PC20.</b> identify ways to optimize usage of material in various tasks/activities/processes	2	1	-	1
<b>PC21.</b> check for spills/leakages in various tasks/activities/processes	2	1	-	1
<b>PC22.</b> plug spills/leakages and escalate to appropriate authority if unable to rectify	2	1	-	-
<b>PC23.</b> check if the equipment/machine is functioning normally before commencing work and rectify wherever required	2	2	-	1
<b>PC24.</b> report malfunctioning (fumes/sparks/emission/vibration/noise) and lapse in maintenance of equipment	2	1	-	1
<b>PC25.</b> ensure electrical equipment and appliances are properly connected and turned off when not in use	2	1	-	1
<b>NOS Total</b>	<b>50</b>	<b>30</b>	-	<b>20</b>

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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N9803
<b>NOS Name</b>	Organize work and resources (Manufacturing)
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Generic
<b>Occupation</b>	Generic
<b>NSQF Level</b>	3
<b>Credits</b>	2
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	17/11/2025
<b>NSQC Clearance Date</b>	17/11/2022

## Qualification Pack

### DGT/VSQ/N0101: Employability Skills (30 Hours)

#### Description

This unit is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

#### Scope

The scope covers the following :

- Introduction to Employability Skills
- Constitutional values - Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting ready for Apprenticeship & Jobs

#### Elements and Performance Criteria

##### *Introduction to Employability Skills*

To be competent, the user/individual on the job must be able to:

**PC1.** understand the significance of employability skills in meeting the job requirements

##### *Constitutional values - Citizenship*

To be competent, the user/individual on the job must be able to:

**PC2.** identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices

##### *Becoming a Professional in the 21st Century*

To be competent, the user/individual on the job must be able to:

**PC3.** explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.

##### *Basic English Skills*

To be competent, the user/individual on the job must be able to:

**PC4.** speak with others using some basic English phrases or sentences

##### *Communication Skills*

To be competent, the user/individual on the job must be able to:

**PC5.** follow good manners while communicating with others

**PC6.** work with others in a team

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### *Diversity & Inclusion*

To be competent, the user/individual on the job must be able to:

**PC7.** communicate and behave appropriately with all genders and PwD

**PC8.** report any issues related to sexual harassment

### *Financial and Legal Literacy*

To be competent, the user/individual on the job must be able to:

**PC9.** use various financial products and services safely and securely

**PC10.** calculate income, expenses, savings etc.

**PC11.** approach the concerned authorities for any exploitation as per legal rights and laws

### *Essential Digital Skills*

To be competent, the user/individual on the job must be able to:

**PC12.** operate digital devices and use its features and applications securely and safely

**PC13.** use internet and social media platforms securely and safely

### *Entrepreneurship*

To be competent, the user/individual on the job must be able to:

**PC14.** identify and assess opportunities for potential business

**PC15.** identify sources for arranging money and associated financial and legal challenges

### *Customer Service*

To be competent, the user/individual on the job must be able to:

**PC16.** identify different types of customers

**PC17.** identify customer needs and address them appropriately

**PC18.** follow appropriate hygiene and grooming standards

### *Getting ready for apprenticeship & Jobs*

To be competent, the user/individual on the job must be able to:

**PC19.** create a basic biodata

**PC20.** search for suitable jobs and apply

**PC21.** identify and register apprenticeship opportunities as per requirement

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

**KU1.** need for employability skills

**KU2.** various constitutional and personal values

**KU3.** different environmentally sustainable practices and their importance

**KU4.** Twenty first (21st) century skills and their importance

**KU5.** how to use basic spoken English language

**KU6.** Do and dont of effective communication

**KU7.** inclusivity and its importance

**KU8.** different types of disabilities and appropriate communication and behaviour towards PwD

**KU9.** different types of financial products and services

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- KU10.** how to compute income and expenses
- KU11.** importance of maintaining safety and security in financial transactions
- KU12.** different legal rights and laws
- KU13.** how to operate digital devices and applications safely and securely
- KU14.** ways to identify business opportunities
- KU15.** types of customers and their needs
- KU16.** how to apply for a job and prepare for an interview
- KU17.** apprenticeship scheme and the process of registering on apprenticeship portal

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** communicate effectively using appropriate language
- GS2.** behave politely and appropriately with all
- GS3.** perform basic calculations
- GS4.** solve problems effectively
- GS5.** be careful and attentive at work
- GS6.** use time effectively
- GS7.** maintain hygiene and sanitisation to avoid infection

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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Introduction to Employability Skills</i>	<b>1</b>	<b>1</b>	-	-
<b>PC1.</b> understand the significance of employability skills in meeting the job requirements	-	-	-	-
<i>Constitutional values - Citizenship</i>	<b>1</b>	<b>1</b>	-	-
<b>PC2.</b> identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	<b>1</b>	<b>3</b>	-	-
<b>PC3.</b> explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.	-	-	-	-
<i>Basic English Skills</i>	<b>2</b>	<b>3</b>	-	-
<b>PC4.</b> speak with others using some basic English phrases or sentences	-	-	-	-
<i>Communication Skills</i>	<b>1</b>	<b>1</b>	-	-
<b>PC5.</b> follow good manners while communicating with others	-	-	-	-
<b>PC6.</b> work with others in a team	-	-	-	-
<i>Diversity &amp; Inclusion</i>	<b>1</b>	<b>1</b>	-	-
<b>PC7.</b> communicate and behave appropriately with all genders and PwD	-	-	-	-
<b>PC8.</b> report any issues related to sexual harassment	-	-	-	-
<i>Financial and Legal Literacy</i>	<b>3</b>	<b>4</b>	-	-
<b>PC9.</b> use various financial products and services safely and securely	-	-	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC10.</b> calculate income, expenses, savings etc.	-	-	-	-
<b>PC11.</b> approach the concerned authorities for any exploitation as per legal rights and laws	-	-	-	-
<i>Essential Digital Skills</i>	<b>4</b>	<b>6</b>	-	-
<b>PC12.</b> operate digital devices and use its features and applications securely and safely	-	-	-	-
<b>PC13.</b> use internet and social media platforms securely and safely	-	-	-	-
<i>Entrepreneurship</i>	<b>3</b>	<b>5</b>	-	-
<b>PC14.</b> identify and assess opportunities for potential business	-	-	-	-
<b>PC15.</b> identify sources for arranging money and associated financial and legal challenges	-	-	-	-
<i>Customer Service</i>	<b>2</b>	<b>2</b>	-	-
<b>PC16.</b> identify different types of customers	-	-	-	-
<b>PC17.</b> identify customer needs and address them appropriately	-	-	-	-
<b>PC18.</b> follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship &amp; Jobs</i>	<b>1</b>	<b>3</b>	-	-
<b>PC19.</b> create a basic biodata	-	-	-	-
<b>PC20.</b> search for suitable jobs and apply	-	-	-	-
<b>PC21.</b> identify and register apprenticeship opportunities as per requirement	-	-	-	-
<b>NOS Total</b>	<b>20</b>	<b>30</b>	-	-

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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	DGT/VSQ/N0101
<b>NOS Name</b>	Employability Skills (30 Hours)
<b>Sector</b>	Cross Sectoral
<b>Sub-Sector</b>	Professional Skills
<b>Occupation</b>	Employability
<b>NSQF Level</b>	2
<b>Credits</b>	1
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	29/09/2023
<b>Next Review Date</b>	29/09/2026
<b>NSQC Clearance Date</b>	29/09/2023



## Qualification Pack

### ASC/N9805: Interpret engineering drawing

#### Description

This NOS unit is about reading and interpreting all concepts, symbols, methods, views, etc. of engineering drawing.

#### Scope

The scope covers the following :

- Interpret information from various views, projection, 2D and 3D shapes
- Identify drawing standards and symbols
- Modification and storage of drawing

#### Elements and Performance Criteria

##### *Interpret information from various views, projection, 2D and 3D shapes*

To be competent, the user/individual on the job must be able to:

- PC1.** interpret engineering drawing's uniqueness, dimensions and important features in 2D and 3D shapes
- PC2.** identify the difference between 2D and 3D shapes
- PC3.** explain difference between first angle projection and third angle projection in mechanical engineering drawing
- PC4.** interpret all the 3 axes (x, y and z axis) and geometrical shapes (cones, cylinder, sphere, cuboid, etc) on to a 2D and 3D projection
- PC5.** identify details of the machine component which are not clearly visible by interpreting section views

##### *Identify drawing standards and symbols*

To be competent, the user/individual on the job must be able to:

- PC6.** interpret Geometric Dimensioning and Tolerancing (GD&T) symbols in the drawings
- PC7.** interpret symbols of Radius, controlled radius, spherical radius, diameter, spherical diameter, square, counterbore, spotface, depth, countersink, "by", maximum dimension, minimum dimension, reference, dimension origin etc
- PC8.** identify the sequence of operations which enables the selection and prioritization of the datums
- PC9.** read and interpret information from Tolerance Zone boundaries for part features in terms of shape and size

##### *Modification and storage of drawing*

To be competent, the user/individual on the job must be able to:

- PC10.** observe any modification, changes required in the drawing and communicate the same to the concerned team in the organization
- PC11.** store the drawings in an easily accessible place, avoiding damage from moisture, chemicals and fire

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### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant organisational standards such as work standard, Standard Operating Procedure, quality process, maintenance standards etc. followed in the company
- KU2.** importance of cycle-time and required output as per work order and work instructions
- KU3.** drawing standards used by the company
- KU4.** use of drawing tools such as scales, compass, types of pencils, CAD and CAM software etc.
- KU5.** the basics of engineering drawing, orthographic projection, isometric projection, GD&T etc.
- KU6.** importance of various projections, views, symbols and dimensions of drawing
- KU7.** use of geometric shapes like lines, angles, circles, etc for interpreting the drawing

### Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** read and interpret workplace related drawing
- GS2.** communicate the changes and requirements to supervisor by using relevant drawing terms and nomenclature
- GS3.** attentively listen and comprehend the information given by the supervisor/team members
- GS4.** write in English/regional language
- GS5.** recognise problem in drawing and take suitable action
- GS6.** analyse and apply the information gathered from observation, experience, reasoning or communication to act efficiently

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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Interpret information from various views, projection, 2D and 3D shapes</i>	<b>21</b>	<b>11</b>	-	<b>10</b>
<b>PC1.</b> interpret engineering drawing's uniqueness, dimensions and important features in 2D and 3D shapes	5	3	-	2
<b>PC2.</b> identify the difference between 2D and 3D shapes	4	2	-	2
<b>PC3.</b> explain difference between first angle projection and third angle projection in mechanical engineering drawing	4	-	-	2
<b>PC4.</b> interpret all the 3 axes (x, y and z axis) and geometrical shapes (cones, cylinder, sphere, cuboid, etc) on to a 2D and 3D projection	5	3	-	2
<b>PC5.</b> identify details of the machine component which are not clearly visible by interpreting section views	3	3	-	2
<i>Identify drawing standards and symbols</i>	<b>23</b>	<b>15</b>	-	<b>8</b>
<b>PC6.</b> interpret Geometric Dimensioning and Tolerancing (GD&T) symbols in the drawings	6	4	-	2
<b>PC7.</b> interpret symbols of Radius, controlled radius, spherical radius, diameter, spherical diameter, square, counterbore, spotface, depth, countersink, "by", maximum dimension, minimum dimension, reference, dimension origin etc	6	4	-	2
<b>PC8.</b> identify the sequence of operations which enables the selection and prioritization of the datums	5	3	-	2
<b>PC9.</b> read and interpret information from Tolerance Zone boundaries for part features in terms of shape and size	6	4	-	2
<i>Modification and storage of drawing</i>	<b>6</b>	<b>4</b>	-	<b>2</b>

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC10.</b> observe any modification, changes required in the drawing and communicate the same to the concerned team in the organization	3	2	-	1
<b>PC11.</b> store the drawings in an easily accessible place, avoiding damage from moisture, chemicals and fire	3	2	-	1
<b>NOS Total</b>	<b>50</b>	<b>30</b>	-	<b>20</b>

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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N9805
<b>NOS Name</b>	Interpret engineering drawing
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Generic
<b>Occupation</b>	Generic
<b>NSQF Level</b>	4
<b>Credits</b>	1
<b>Version</b>	2.0
<b>Last Reviewed Date</b>	31/08/2021
<b>Next Review Date</b>	31/08/2024
<b>NSQC Clearance Date</b>	31/08/2021

## Qualification Pack

### ASC/N3506: Support in machining and post machining activities

#### Description

This NOS is about supporting machining technician in various machining operations such as drilling, boring, turning etc. and post machining activities such as quality check, maintenance etc. on the CNC or conventional machine.

#### Scope

The scope covers the following :

- Identify work requirements
- Preparing for machining activities
- Support in machining operations
- Support in post-machining operations

#### Elements and Performance Criteria

##### *Identify work requirements*

To be competent, the user/individual on the job must be able to:

- PC1.** take inputs from the immediate supervisor regarding production planning
- PC2.** identify the input and output product based on engineering drawing and job orders
- PC3.** identify the tools, measuring instruments and input materials required for the job
- PC4.** identify the tooling instructions for fixtures, cutting tools, jigs, gauges etc. as specified in the Operating Manual/Work Instructions (WI) or Standard Operating Procedures (SOP)

##### *Preparing for machining activities*

To be competent, the user/individual on the job must be able to:

- PC5.** support the machining technician in setting of the machine and its parameters as per SOP
- PC6.** select appropriate coolant and lubricant required for machining component as per SOP/WI
- PC7.** ensure that all the items required for production and inspection are available as per SOP
- PC8.** check the tools and equipments for any defects before use
- PC9.** check the input material as per the control plan/check sheet and the required quality standard

##### *Support in machining operations*

To be competent, the user/individual on the job must be able to:

- PC10.** start the machine for machining operations
- PC11.** support in selecting the right CNC programme in the CNC machine as defined in the SOP
- PC12.** support in production process of component, measure the final machine piece and compare with the dimensions as prescribed in the work order and engineering drawing
- PC13.** escalate the problems faced during machining to the supervisor

##### *Support in post-machining operations*

To be competent, the user/individual on the job must be able to:

- PC14.** check the component as per the control plan, WI for product quality

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- PC15.** support in inspection process and check the work pieces as per the work instructions for product quality
- PC16.** support in segregating the completed pieces in to Ok pieces, defective pieces which can be repaired/reworked and pieces which are beyond repair and maintain records of each category
- PC17.** check the machine operations for any malfunctions/defects in the component and immediately inform the supervisor/maintenance team for correction
- PC18.** support in removing chips, burrs and sharp edges from different machine areas and disposing scrap or waste material in accordance with the company policies and environmental regulations

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** fundamentals of the CNC/conventional machine
- KU2.** various types of machining processes such as drilling, boring, turning etc.
- KU3.** SOP recommended by the manufacturer for using tools, jigs, fixtures, measuring instruments etc., during the machining processes
- KU4.** how to select right CNC machining program
- KU5.** SOP recommended by the organisation for operating CNC and conventional machine
- KU6.** the impact of various machining parameters on the final product
- KU7.** the use of various cutting tools for different machining operations
- KU8.** SOP recommended by the organisation for checking irregularities in the product/work piece
- KU9.** safety requirements for CNC and conventional machine during the machining work
- KU10.** about the various inspection methods for inspecting the quality of machined product
- KU11.** the impact of presence of burrs, edges, chips on the final product quality

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1.** read and interpret drawings, work instructions, equipment manuals and process documents
- GS2.** communicate the machining process requirements to the technician and co-workers
- GS3.** comprehend the information given by the technician/team members
- GS4.** write work related information in English/regional language
- GS5.** recognise a workplace problem and take suitable action
- GS6.** analyse and apply the information gathered from observation, experience, reasoning or communication to act efficiently
- GS7.** plan and organise work according to the principles of 5S
- GS8.** complete the assigned tasks as per schedule

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Identify work requirements</i>	<b>5</b>	<b>9</b>	-	<b>6</b>
<b>PC1.</b> take inputs from the immediate supervisor regarding production planning	1	1	-	1
<b>PC2.</b> identify the input and output product based on engineering drawing and job orders	1	2	-	1
<b>PC3.</b> identify the tools, measuring instruments and input materials required for the job	1	3	-	2
<b>PC4.</b> identify the tooling instructions for fixtures, cutting tools, jigs, gauges etc. as specified in the Operating Manual/Work Instructions (WI) or Standard Operating Procedures (SOP)	2	3	-	2
<i>Preparing for machining activities</i>	<b>8</b>	<b>14</b>	-	<b>6</b>
<b>PC5.</b> support the machining technician in setting of the machine and its parameters as per SOP	2	3	-	2
<b>PC6.</b> select appropriate coolant and lubricant required for machining component as per SOP/WI	2	2	-	1
<b>PC7.</b> ensure that all the items required for production and inspection are available as per SOP	-	2	-	-
<b>PC8.</b> check the tools and equipments for any defects before use	2	4	-	2
<b>PC9.</b> check the input material as per the control plan/check sheet and the required quality standard	2	3	-	1
<i>Support in machining operations</i>	<b>8</b>	<b>13</b>	-	<b>4</b>
<b>PC10.</b> start the machine for machining operations	2	3	-	1
<b>PC11.</b> support in selecting the right CNC programme in the CNC machine as defined in the SOP	2	2	-	1
<b>PC12.</b> support in production process of component, measure the final machine piece and compare with the dimensions as prescribed in the work order and engineering drawing	3	6	-	2



### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC13.</b> escalate the problems faced during machining to the supervisor	1	2	-	-
<i>Support in post-machining operations</i>	<b>9</b>	<b>14</b>	-	<b>4</b>
<b>PC14.</b> check the component as per the control plan, WI for product quality	2	3	-	-
<b>PC15.</b> support in inspection process and check the work pieces as per the work instructions for product quality	2	3	-	1
<b>PC16.</b> support in segregating the completed pieces in to Ok pieces, defective pieces which can be repaired/reworked and pieces which are beyond repair and maintain records of each category	2	2	-	1
<b>PC17.</b> check the machine operations for any malfunctions/defects in the component and immediately inform the supervisor/maintenance team for correction	2	3	-	1
<b>PC18.</b> support in removing chips, burrs and sharp edges from different machine areas and disposing scrap or waste material in accordance with the company policies and environmental regulations	1	3	-	1
<b>NOS Total</b>	<b>30</b>	<b>50</b>	-	<b>20</b>

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N3506
<b>NOS Name</b>	Support in machining and post machining activities
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Manufacturing
<b>Occupation</b>	Machining Operation
<b>NSQF Level</b>	3
<b>Credits</b>	8
<b>Version</b>	3.0
<b>Last Reviewed Date</b>	NA
<b>Next Review Date</b>	17/11/2025
<b>NSQC Clearance Date</b>	17/11/2022

## Assessment Guidelines and Assessment Weightage

### Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre (as per assessment criteria below).
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training centre based on these criteria.
5. In case of successfully passing only certain number of NOSs, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.
6. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack

### Minimum Aggregate Passing % at QP Level : 65

## Qualification Pack

**(Please note:** Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

### Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ASC/N9803.Organize work and resources (Manufacturing)	50	30	0	20	100	10
DGT/VSQ/N0101.Employability Skills (30 Hours)	20	30	0	0	50	5
ASC/N9805.Interpret engineering drawing	50	30	0	20	100	10
ASC/N3506.Support in machining and post machining activities	30	50	0	20	100	75
<b>Total</b>	<b>150</b>	<b>140</b>	<b>0</b>	<b>0</b>	<b>350</b>	<b>100</b>

## Qualification Pack

### Acronyms

<b>NOS</b>	National Occupational Standard(s)
<b>NSQF</b>	National Skills Qualifications Framework
<b>QP</b>	Qualifications Pack
<b>TVET</b>	Technical and Vocational Education and Training
<b>PPE</b>	Personal Protective Equipment
<b>PwD</b>	Person with Disability
<b>SOP</b>	Standard Operating Practices
<b>SOP</b>	Standard Operating Procedure
<b>GD&amp;T</b>	Geometric Dimensioning & Tolerancing
<b>CAD</b>	Computer-Aided Drafting
<b>CAM</b>	Computer-Aided Manufacturing
<b>SOP</b>	Standard Operating Procedure
<b>CNC</b>	Computerized Numerical Control
<b>WI</b>	Work Instructions
<b>CLIT</b>	Cleaning, Lubrication Inspection and Tightening
<b>PPE</b>	Personal Protective Equipment

## Qualification Pack

### Glossary

<b>Sector</b>	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
<b>Sub-sector</b>	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
<b>Occupation</b>	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
<b>Job role</b>	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
<b>Occupational Standards (OS)</b>	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
<b>Performance Criteria (PC)</b>	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
<b>National Occupational Standards (NOS)</b>	NOS are occupational standards which apply uniquely in the Indian context.
<b>Qualifications Pack (QP)</b>	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
<b>Unit Code</b>	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
<b>Unit Title</b>	Unit title gives a clear overall statement about what the incumbent should be able to do.
<b>Description</b>	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
<b>Scope</b>	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.

## Qualification Pack

<b>Knowledge and Understanding (KU)</b>	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
<b>Organisational Context</b>	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
<b>Technical Knowledge</b>	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
<b>Core Skills/ Generic Skills (GS)</b>	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
<b>Electives</b>	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
<b>Options</b>	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.