

## QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR AUTOMOTIVE INDUSTRY

### What are Occupational Standards (OS)?

- OS describe what individuals need to do, know and understand in order to carry out a particular job role or function
- OS are performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding

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## Introduction

### Qualifications Pack- CNC Operator Machining Technician L3

**SECTOR:** AUTOMOTIVE

**SUB-SECTOR:** MANUFACTURING

**OCCUPATION:** MACHINING

**JOB ROLE:** MACHINING TECHNICIAN LEVEL 3

**REFERENCE ID:** ASC/Q3501

**ALIGNED TO:** NCO-2004/8211.90

**Machining Technician :** The role entails setting up and base level operations of different machine tools and same can be performed both manually and through automatic machines/ robots.

**Brief Job Description:** Machining Technician Level 3 is often called Assistant Machinist, Junior Machinist, Lathe Operator, Apprentice Machinist, Semi-Skilled Operator. This role primarily involves supporting the machine operator in all pre-machining activities, machining of the actual part, ad hoc repair work like in auto service stations, gauging, de-burring and inspection activities

**Personal Attributes:** The individual should have the ability of operation monitoring i.e., observing gauges, dials etc., maintaining arm steadiness, ability to quickly move hand to grasp and assemble objects (Dexterity), reading, writing and communication skills and sensitivity towards safety for self and equipment

Job Details	<b>Qualifications Pack Code</b>	ASC/Q3501		
	<b>Job Role</b>	CNC Operator /Machining Technician L3		
	<b>Credits(NSQF)</b>	TBD	<b>Version number</b>	1.1
	<b>Industry</b>	Automotive	<b>Drafted on</b>	10/07/13
	<b>Sub-sector</b>	Manufacturing	<b>Last reviewed on</b>	25/07/13
	<b>Occupation</b>	Machining	<b>Next review date</b>	30/07/15

<b>Job Role</b>	<b>CNC Operator /Machining Technician Level 3</b>
<b>Role Description</b>	<p>Responsible for understanding the component requirements, machining the part as per work instructions/ standard operating procedures</p> <p>As a CNC Operator, this role will select the required program from the list under the supervision of the supervisor/ operator in order to machine the parts as per the work instructions, support the machine setter in programming and setting of the tools and conduct process test as per requirement</p>
<b>NSQF level</b>	3
<b>Minimum Educational Qualifications</b>	Class X
<b>Maximum Educational Qualifications</b>	ITI Mechanical ( Turning, Grinding etc.)
<b>Training</b> (Suggested but not mandatory)	<ul style="list-style-type: none"> <li>Different types of simplemachining activities and usage of fixtures tools etc.</li> <li>5S and Safety</li> </ul>
<b>Experience</b>	2-3 years in different Machining activities
<b>Occupational Standards (OS)</b>	<p><a href="#">1.ASC/N 3504:Carrying out pre-machining activities</a></p> <p><a href="#">2.ASC/N 3505: Support the operator in performing machining operations</a></p> <p><a href="#">3.ASC/N 3506: Support the operator in conducting all post machining operations</a></p> <p><a href="#">4.ASC/N0006: Maintain a healthy, safe and secure working environment</a></p> <p><a href="#">5.ASC/N0021: Maintaining 5S activities at the work premises</a></p>

<b>Performance Criteria</b>	As described in the relevant NOS units
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Definitions

Keywords /Terms	Description
Core Skills/Generic Skills	Core Skills or Generic Skills are a group of skills that are key to learning and working in today's world. These skills are typically needed in any work environment. In the context of the NOS, these include communication related skills that are applicable to most job roles.
Function	Function is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of NOS.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
Knowledge and Understanding	Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to perform to the required standard.
National Occupational Standards (NOS)	NOS are Occupational Standards which apply uniquely in the Indian context
Occupation	Occupation is a set of job roles, which perform similar/related set of functions in an industry.
Organisational Context	Organisational Context includes the way the organization is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Performance Criteria	Performance Criteria are statements that together specify the standard of performance required when carrying out a task.
Qualifications Pack(QP)	Qualifications Pack comprises the set of NOS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification pack code.
Qualifications Pack Code	Qualifications Pack Code is a unique reference code that identifies a qualifications pack.
Scope	Scope is the 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 the quality of performance required.
Sector	Sector is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.

Sub-Sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Sub-functions	Sub-functions are sub-activities essential to fulfil the achieving the objectives of the function.
Technical Knowledge	Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Unit Code	Unit Code is a unique identifier for a NOS unit, which can be denoted with an 'N'
Unit Title	Unit Title gives a clear overall statement about what the incumbent should be able to do.
Vertical	Vertical may exist within a sub-sector representing different domain areas or the client industries served by the industry.
<b>Keywords /Terms</b>	<b>Description</b>
NOS	National Occupational Standard(s)
NVEQF	National Vocational Education Qualifications Framework
NVQF	National Vocational Qualifications Framework
NSQF	National Skills Qualifications Framework
OEM	Original Equipment Manufacturer
OS	Occupational Standard(s)
QP	Qualifications Pack
5 S	Technique of maintaining orderliness –Japanese terminology
CP	Control Plan
WI	Work Instructions

Acronyms

ASC/N3504: Carrying out pre-machining activities

# National Occupational Standards



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## Overview

This Occupational Standard describes the knowledge, understanding and skills required of an individual to carry out general machining activities of not very precision nature e.g. pre-machining activities.

**ASC/N3504: Carrying out pre-machining activities**

National Occupational Standard	<b>Unit Code</b>	ASC/ N3504
	<b>Unit Title (Task)</b>	Carrying out pre-machining activities
	<b>Description</b>	This NOS is about providing assistance in all pre-machining activities either manually or through specialized techniques as per the given work order and the standards specified by the organization.
	<b>Scope</b>	The Machining Technician will be responsible for <ul style="list-style-type: none"> <li>Understanding the component requirements and the equipment to be used</li> <li>Checking the dimensions of the components</li> <li>Escalations of any queries regarding the job</li> </ul>
	<b>Performance Criteria (PC) w.r.t. the Scope</b>	
	<b>Element</b>	<b>Performance Criteria</b>
	<b>Understanding the component requirements</b>	PC1. Understand the output product requirement by reading the engineering drawing specified in the work instructions/ work order PC2. Clearly understanding the does and don'ts of the manufacturing process as defined in SOPs/ Work Instructions or defined by supervisors PC3. Reading the control panel instructions/ job orders to determine the correct output product specifications PC4. Understanding the tooling instructions as specified in the Operating Manual/ Work Instructions or Standard Operating Procedures PC5. Selection of proper coolant and lubricant required for machining the required component
	<b>Checking the dimensions for the component</b>	PC6. Set the machine stops or guides as per the specified lengths indicated through scales or work instructions PC7. Measure and mark reference points/ cutting lines on the work pieces, using compasses, calipers, rulers and other measuring tools
	<b>Knowledge and Understanding (K) w.r.t. the scope</b>	
	<b>Element</b>	<b>Knowledge and Understanding</b>
<b>A. Organisational Context</b> (Knowledge of the Company/ Organisation and its processes)	The user/individual on the job needs to know and understand: KA1. relevant standards and procedures followed in the company KA2. different types of products manufactured by the company	
<b>B. Technical Knowledge</b>	The user/individual on the job needs to know and understand: KB1. different types of machining processes KB2. different types of tools used in the machining process with respect to type of process to be conducted KB3. basic principles of 5 S in manufacturing – Cleaning, sorting etc KB4. the application of coolant and lubricants KB5. basic Arithmetic and calculation methods	
<b>Skills (S) w.r.t. the scope</b>		
<b>Element</b>	<b>Skills</b>	

**ASC/N3504: Carrying out pre-machining activities**

<b>A. Core Skills/ Generic Skills</b>	<b>Writing skills</b>
	The user/ individual on the job needs to know and understand how to: SA1. write basic level notes and observations SA2. draw basic level drawings and charts
	<b>Reading skills</b>
	The user/individual on the job needs to know and understand how to: SA3. read and interpret workplace related documentation SA4. read and interpret engineering drawings and sketches
<b>B. Professional Skills</b>	<b>Oral Communication (Listening and Speaking skills)</b>
	The user/individual on the job needs to know and understand how to: SA5. discuss task lists and job requirements with co-workers SA6. effectively communicate information to team members SA7. question operator/ supervisor in order to understand the nature of the problem SA8. attentively listen with full attention and comprehend the information given by the speaker
	<b>Problem Solving and Decision making</b>
	The user/individual on the job needs to know and understand how to: SB1. judge when to ask for help from a supervisor SB2. suggest options to operators in case any issue is observed during operations
	<b>Plan and Organise</b>
	The user/individual on the job needs to know and understand how to: SB3. plan work assigned on a daily basis and provide estimates of time required for each piece of work SB4. prioritize actions to achieve required outcomes
<b>Analytical thinking</b>	
The user/individual on the job needs to know and understand how to: SB5. analyse the complexity of work to determine if it can be successfully carried out	
<b>Desire to learn and take initiatives</b>	
The user/individual on the job needs to know and understand how to: SB6. follow instructions and work on areas of improvement identified SB7. complete the assigned tasks with minimum supervision SB8. complete the job defined by the supervisor within the timelines and quality norms	



ASC/N3504: Carrying out pre-machining activities

**NOS Version Control**

<b>NOS Code</b>	ASC/N3504		
<b>Credits(NSQF)</b>	TBD	<b>Version number</b>	1
<b>Industry</b>	Automotive	<b>Drafted on</b>	10/07/13
<b>Industry Sub-sector</b>	Manufacturing	<b>Last reviewed on</b>	25/07/13
<b>Occupation</b>	Machining	<b>Next review date</b>	30/07/15



ASC/N3505: Support the operator in performing machining operations

# National Occupational Standards



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## Overview

This Occupational Standard describes the knowledge, understanding and skills required of an Assistant Machinist in performing different machining activities

**ASC/N3505: Support the operator in performing machining operations**

National Occupational Standard	<b>Unit Code</b>	ASC/N3505
	<b>Unit Title (Task)</b>	Support the operator in performing machining operations
	<b>Description</b>	This NOS is about supporting the operator and the manufacturing team in machining processes, or carry out the base level operations.
	<b>Scope</b>	<p>The Machining Technician will be responsible for</p> <ul style="list-style-type: none"> <li>• Setting up the machine as per the work instructions/ guidance from the machinist</li> <li>• Support the machinist/ operator in the various kinds of machining operations</li> <li>• Recording the observations during the process</li> <li>• Escalations of any queries regarding the job</li> </ul>
	<b>Performance Criteria (PC) w.r.t. the Scope</b>	
	<b>Element</b>	<b>Performance Criteria</b>
	<b>Setting up machine as per work instructions</b>	<p>PC1. Set-up, adjust machine tools in order to perform machining operations and keep dimension within the specified tolerance limit specified in the Standard Operating Procedures/ Operating manuals</p> <p>PC2. Support the operator in aligning and securely hold fixtures, cutting tools etc. onto the machine</p> <p>PC3. Position/ secure/ align cutting tools in tool holders of the machine, using hand tools and verify their positions with measuring instruments</p>
	<b>Support the machinist/ operator in performing machining on the component</b>	<p>PC4. Start lathe or turning/drilling/milling machine for operations</p> <p>PC5. Support in select cutting tools and tooling instructions as per the work instructions / supervisor 's instructions</p> <p>PC6. Operate hand wheels or valves in order to feed the component and allow cooling and lubricating of the same as per the instructions given by the machinist/supervisor</p> <p>PC7. Turn on the coolant valves and start their flow to maintain temperature in the lathe machine chamber</p> <p>PC8. Move tool holders manually or by turning the hand wheels in order to feed tools along the machined component/ piece</p>
	<b>Observe/ Record the machining operations</b>	<p>PC9. Observe machine operations to detect defects in the component manufactured</p> <p>PC10. Observe the machine operations for any malfunctions and immediately inform the supervisor of any malfunction observed to prevent damage to the machining equipment/ output product</p> <p>PC11. Support the operator in recording operational data such as pressure readings, length of strokes, feed rates, speed etc in the formats specified by the supervisors</p>
	<b>Knowledge and Understanding (K) w.r.t. the scope</b>	
	<b>Element</b>	<b>Knowledge and Understanding</b>
<b>A. Organisational Context</b> (Knowledge of the Company/ Organisation and	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. relevant standards and procedures followed in the company</p> <p>KA2. different types of products manufactured by the company</p>	

**ASC/N3505: Support the operator in performing machining operations**

its processes)		
<b>B. Technical Knowledge</b>	The user/individual on the job needs to know and understand: KB1. different types of machining processes KB2. different types of tools used in the machining process KB3. basic principles of 5 S in manufacturing – Cleaning, sorting KB4. the application of coolant KB5. basic Arithmetic and calculation methods	
<b>Skills (S) w.r.t. the scope</b>		
<b>Element</b>	<b>Skills</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Writing skills</b>	
	The user/ individual on the job needs to know and understand how to: SA1. write basic level notes and observations SA2. draw basic level drawings and charts	
	<b>Reading skills</b>	
	The user/individual on the job needs to know and understand how to: SA3. read documents and notes SA4. interpret/ Comprehend the information given in the documents and notes SA5. read and interpret symbols given on equipment's and work area	
	<b>Oral Communication (Listening and Speaking skills)</b>	
	The user/individual on the job needs to know and understand how to: SA6. discuss task lists and job requirements with co-workers SA7. effectively communicate information to team members SA8. question operator/ supervisor in order to understand the nature of the problem SA9. attentively listen with full attention and comprehend the information given by the speaker	
	<b>B. Professional Skills</b>	<b>Decision making</b>
	The user/individual on the job needs to know and understand how to: SB1. judge when to ask for help from a supervisor SB2. suggest options to operators in case any issue is observed during operations	
	<b>Plan and Organise</b>	
The user/individual on the job needs to know and understand how to: SB3. plan work assigned on a daily basis and provide estimates of time required for each piece of work		
<b>Customer centricity</b>		
The user/individual on the job needs to know and understand how to: SB4. ensure that customer needs are assessed and every effort is made to provide satisfactory service		
<b>Problem solving</b>		
The user/individual on the job needs to know and understand how to: SB5. recognise a workplace problem or a potential problem and take action SB6. determine problems needing priority action SB7. refer problems outside area of responsibility to appropriate person		

**ASC/N3505: Support the operator in performing machining operations**

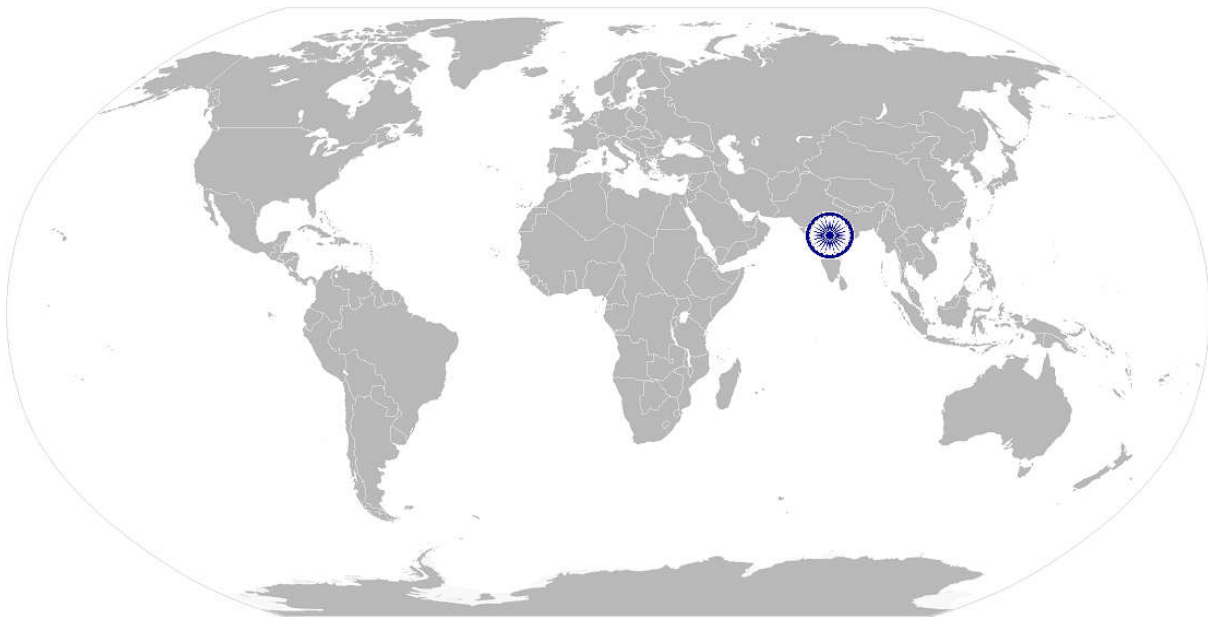
	SB8. gather information and provide assistance as required to solve problems
	<b>Judgemental thinking</b>
	The user/individual on the job needs to know and understand how to: SB9. use common sense and make judgments during day to day basis SB10. use reasoning skills to identify and resolve basic problems
	<b>Desire to learn and take initiative</b>
	The user/individual on the job needs to know and understand how to: SB11. follow instructions and work on areas of improvement identified SB12. complete the assigned tasks with some supervision SB13. complete the job defined by the supervisor within the timelines and quality norms
	<b>Critical thinking</b>
The user/individual on the job needs to know and understand how to: SB14. analyse, evaluate and apply the information gathered from observation, experience, reasoning, or communication to act efficiently	

**NOS Version Control**

<b>NOS Code</b>	ASC/N3505		
<b>Credits(NSQF)</b>	TBD	<b>Version number</b>	1
<b>Industry</b>	Automotive	<b>Drafted on</b>	10/07/13
<b>Industry Sub-sector</b>	Manufacturing	<b>Last reviewed on</b>	25/07/13
<b>Occupation</b>	Machining	<b>Next review date</b>	30/07/15

ASC/N3506: Support the operator in conducting all post machining activities

# National Occupational Standards



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## Overview

This unit is about supporting the machine operator in completing all post machining activities

**ASC/N3506: Support the operator in conducting all post machining activities**

National Occupational Standard	<b>Unit Code</b>	<b>ASC/N3506</b>
	<b>Unit Title (Task)</b>	<b>Support the operator in conducting all post machining operations</b>
	<b>Description</b>	This NOS is about conducting all post machining operations such performing minor maintenance, assisting in tool change operations, de-burring and gauging activities
	<b>Scope</b>	The Machining Technician will be responsible for <ul style="list-style-type: none"> <li>Performing the minor machine maintenance activities</li> <li>Performing de-burring and grinding activity</li> <li>Inspection of completed work pieces</li> <li>Escalations of any queries regarding the job</li> </ul>
	<b>Performance Criteria (PC) w.r.t. the Scope</b>	
	<b>Element</b>	<b>Performance Criteria</b>
	<b>Perform minor machine maintenance activities</b>	<p>PC1. Maintain the machine as per proper operational condition</p> <p>PC2. Perform minor machine maintenance activities such as oiling or cleaning machine and its components</p> <p>PC3. Oiling or cleaning machines as per the schedules given in the maintenance plan</p> <p>PC4. Adding coolant and lubricant in machine reservoir</p>
	<b>Perform de- burring activity on the machined components</b>	<p>PC5. With the help of the correct tool remove the extra burrs, sharp edges, rust and chips from the metal surface</p> <p>PC6. Use files, hand grinders, wire brushes, or power tools for performing de-burring operations. Ensure usage of Personal Protective equipment like eye glasses and hand gloves.</p> <p>PC7. For automated processes perform shot blasting/ vibro processes for completing de-burring operations</p>
	<b>Check quality of machined component (Gauging)</b>	<p>PC8. Support the operator in measuring the specifications of the finished component and verify conformance as per CP/ WI</p> <p>PC9. Use devices like micrometers, vernier calipers, gauges, rulers and any other inspection equipment for measuring specifications with valid calibration status.</p> <p>PC10. Support the operator in noting down the observations of the basic inspection process and identify pieces which comply with the specified standards</p> <p>PC11. Separate the defective pieces into two categories – pieces which can be repaired/ modified and pieces which are beyond repair and maintain records of each category</p>
	<b>A. Assist the operator in the tool change process</b>	<p>PC12. Assist the operator in changing different worn machine accessories, such as cutting tools( as per tool life listed, recommended) and brushes, other hand tools</p> <p>PC13. Replace machine part as per work instructions, using hand tools or notify supervisor/ engineering personnel for taking corrective actions</p> <p>PC14. For automated process observe the tool change cycle in order to ensure that the selected tool is transferred to the spindle from magazine after the previous tool is transferred to the magazine</p>

**ASC/N3506: Support the operator in conducting all post machining activities**

	from the spindle
<b>Knowledge and Understanding (K)w.r.t. the scope</b>	
<b>Element</b>	<b>Knowledge and Understanding</b>
<b>A. Organisational Context</b> (Knowledge of the Company/Organisation and its processes)	The user/individual on the job needs to know and understand: KA1. relevant standards and procedures followed in the company KA2. different types of products manufactured by the company
<b>B. Technical Knowledge</b>	The user/individual on the job needs to know and understand: KB1. different types of machining processes KB2. different types of tools used in the machining process and de-burring process KB3. basic principles of 5 S in manufacturing – Cleaning, sorting KB4. the application of coolant and lubricants KB5. basic Arithmetic and calculation methods
<b>Skills (S)w.r.t. the scope</b>	
<b>Element</b>	<b>Skills</b>
<b>A. Core Skills/ Generic Skills</b>	<b>Writing skills</b>
	The user/ individual on the job needs to know and understand how to: SA1. write basic level notes and observations SA2. draw basic level drawings and charts
	<b>Reading skills</b>
	The user/individual on the job needs to know and understand how to: SA3. read documents and notes SA4. interpret/ Comprehend the information given in the documents and notes SA5. read and interpret symbols given on equipment's and work area
	<b>Oral Communication (Listening and Speaking skills)</b>
	The user/individual on the job needs to know and understand how to: SA6. discuss task lists and job requirements with co-workers SA7. effectively communicate information to team members SA8. question operator/ supervisor in order to understand the nature of the problem SA9. attentively listen with full attention and comprehend the information given by the speaker
<b>B. Professional Skills</b>	<b>Decision making</b>
	The user/individual on the job needs to know and understand how to: SB1. analyse information and evaluate results to discuss the best solution with the operator to solve problemse.g. inspection results, rework status
	<b>Plan and Organise</b>
	The user/individual on the job needs to know and understand how to: SB2. plan work assigned on a daily basis and provide estimates of time required for each piece of work
	<b>Problem solving</b>
	The user/individual on the job needs to know and understand how to: SB3. recognise a workplace problem or a potential problem and take



**ASC/N3506: Support the operator in conducting all post machining activities**

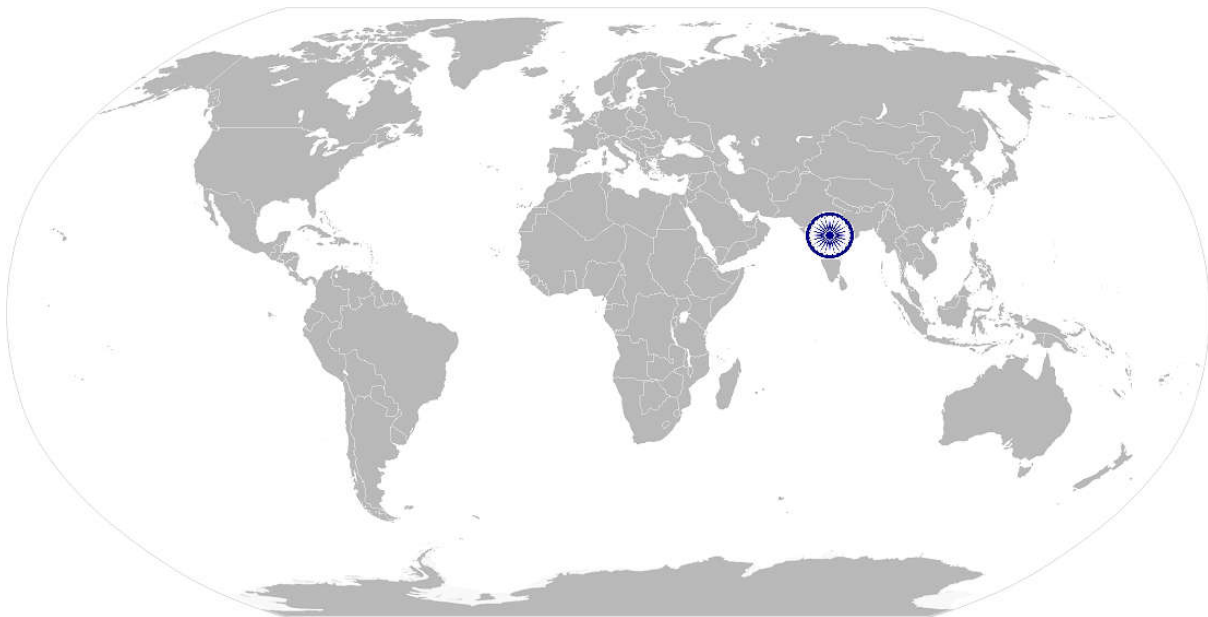
	action by referring problems to the machinist/ operator SB4. gather information and provide assistance as required to solve problems
	<b>Judgemental thinking</b>
	The user/individual on the job needs to know and understand how to: SB5. use common sense and make judgments during day to day basis SB6. use reasoning skills to identify and resolve basic problems SB7. escalate problem beyond individual's scope
	<b>Desire to learn and take initiative</b>
	The user/individual on the job needs to know and understand how to: SB8. follow instructions and work on areas of improvement identified SB9. complete the assigned tasks with some supervision SB10. complete the job defined by the supervisor within the timelines and quality norms

**NOS Version Control**

<b>NOS Code</b>	ASC/N3506		
<b>Credits(NSQF)</b>	TBD	<b>Version number</b>	1
<b>Industry</b>	Automotive	<b>Drafted on</b>	10/07/13
<b>Industry Sub-sector</b>	Manufacturing	<b>Last reviewed on</b>	25/07/13
<b>Occupation</b>	Machining	<b>Next review date</b>	30/07/15

ASC/N0006: maintain a healthy and safe working environment

# National Occupational Standards



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## Overview

This unit is about establishing a Safe, Healthy and Environment friendly workplace

**ASC/N0006: maintain a healthy and safe working environment**

National Occupational Standard	<b>Unit Code</b>	ASC/N0006
	<b>Unit Title (Task)</b>	<b>Creating a Safe, Healthy and Environment friendly workplace in the plant area</b>
	<b>Description</b>	This NOS is about creating a Safe and Healthy work place, adhering to the safety guidelines in the working area, following practices which are not impacting the environment in a negative manner
	<b>Scope</b>	The role holder will be responsible for <ul style="list-style-type: none"> <li>identifying and reporting of risks</li> <li>creating and sustaining a safe, clean and environment friendly work place</li> </ul> This NOS will be applicable to all Automotive sector manufacturing job roles
	<b>Performance Criteria (PC) w.r.t. the Scope</b>	
	<b>Element</b>	<b>Performance Criteria</b>
	<b>Identify and report the risks identified</b>	<p>PC1. Identify activities which can cause potential injury through sharp objects, burns, fall, electricity, gas leakages, radiation, poisonous fumes, chemicals ,loud noise</p> <p>PC2. Inform the concerned authorities about the potential risks identified in the processes, workplace area/ layout, materials used etc.</p> <p>PC3. Inform the concerned authorities about machine breakdowns, damages which can potentially harm man/ machine during operations</p> <p>PC4. Create awareness amongst other by sharing information on the identified risks</p>
	<b>Create and sustain a Safe, clean and environment friendly work place</b>	<p>PC5. Follow the instructions given on the equipment manual describing the operating process of the equipment</p> <p>PC6. Follow the Safety, Health and Environment related practices developed by the organization</p> <p>PC7. Operate the machine using the recommended Personal Protective Equipment (PPE)</p> <p>PC8. Maintain a clean and safe working environment near the work place and ensure there is no spillage of chemicals, production waste, oil, solvents etc.</p> <p>PC9. Maintain high standards of personal hygiene at the work place</p> <p>PC10. Ensure that the waste disposal is done in the designated area and manner as per organization SOP.</p> <p>PC11. Inform appropriately the medical officer/ HR in case of self or an employee's illness of contagious nature so that preventive actions can be planned for others</p>
	<b>Knowledge and Understanding (K)w.r.t. the scope</b>	
	<b>Element</b>	<b>Knowledge and Understanding</b>

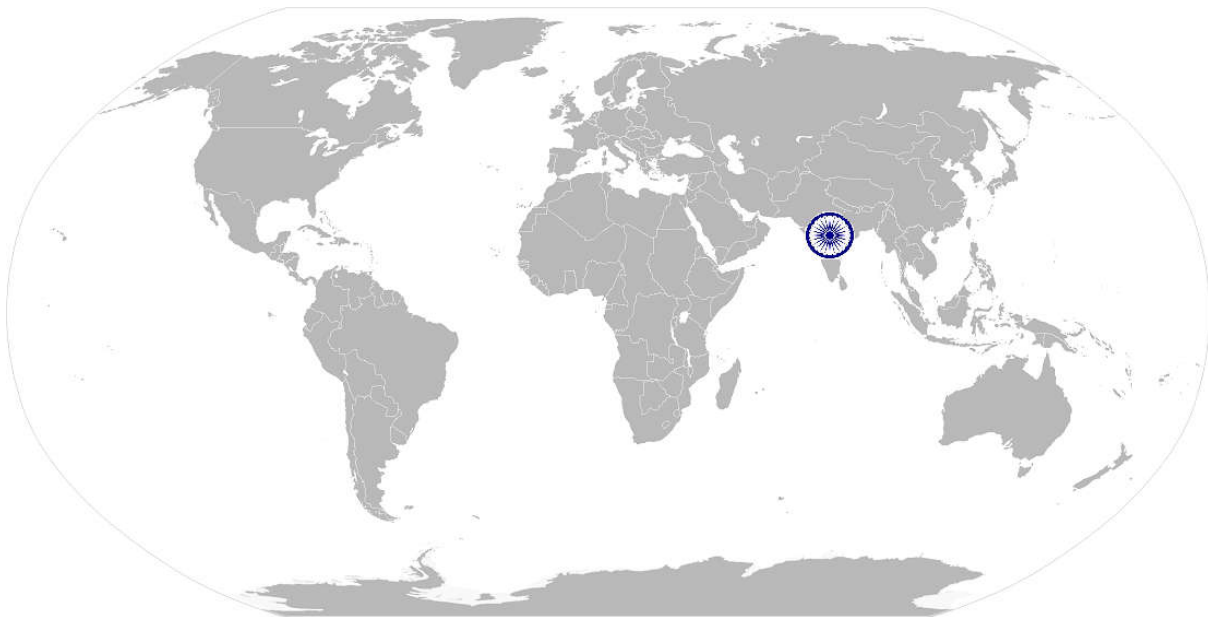
**ASC/N0006: maintain a healthy and safe working environment**

<b>A. Organizational Context</b> (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: KA1. relevant standards, procedures and policies related to Health, Safety and Environment followed in the company KA2. emergency handling procedures & hierarchy for escalation
<b>C. Technical Knowledge</b>	The user/individual on the job needs to know and understand: KB1. basic knowledge of Safety procedures( fire fighting, first aid) within the organization KB2. basic knowledge of various types of PPEs and their usage KB3. basic knowledge of risks associated with each occupation in the organization KB4. personal hygiene and how an individual can contribute towards creating a highly safe and clean working environment
<b>Skills (S)w.r.t. the scope</b>	
<b>Element</b>	<b>Skills</b>
<b>C. Core Skills/ Generic Skills</b>	<b>Writing Skills</b> The user/ individual on the job needs to know and understand how to: SA1. write basic level notes and observations <b>Reading Skills</b> The user/individual on the job needs to know and understand how to: SA2. read safety instructions put up across the plant premises SA3. read safety precautions mentioned in equipment manuals and panels to understand the potential risks associated <b>Oral Communication (Listening and Speaking skills)</b> The user/individual on the job needs to know and understand how to: SA4. effectively communicate information to team members and effectively communicate information to team members SA5. inform employees in the plant and concerned functions about events, incidents & potential risks observed related to Safety, Health and Environment. SA6. question operator/ supervisor in order to understand the safety related issues SA7. attentively listen with full attention and comprehend the information given by the speaker during safety drills and training programs
<b>D. Professional Skills</b>	<b>Judgmental Thinking</b> The user/individual on the job needs to know and understand how to: SB1. use common sense and make judgments during day to day basis SB2. use reasoning skills to identify and resolve basic problems

**ASC/N0006: maintain a healthy and safe working environment**

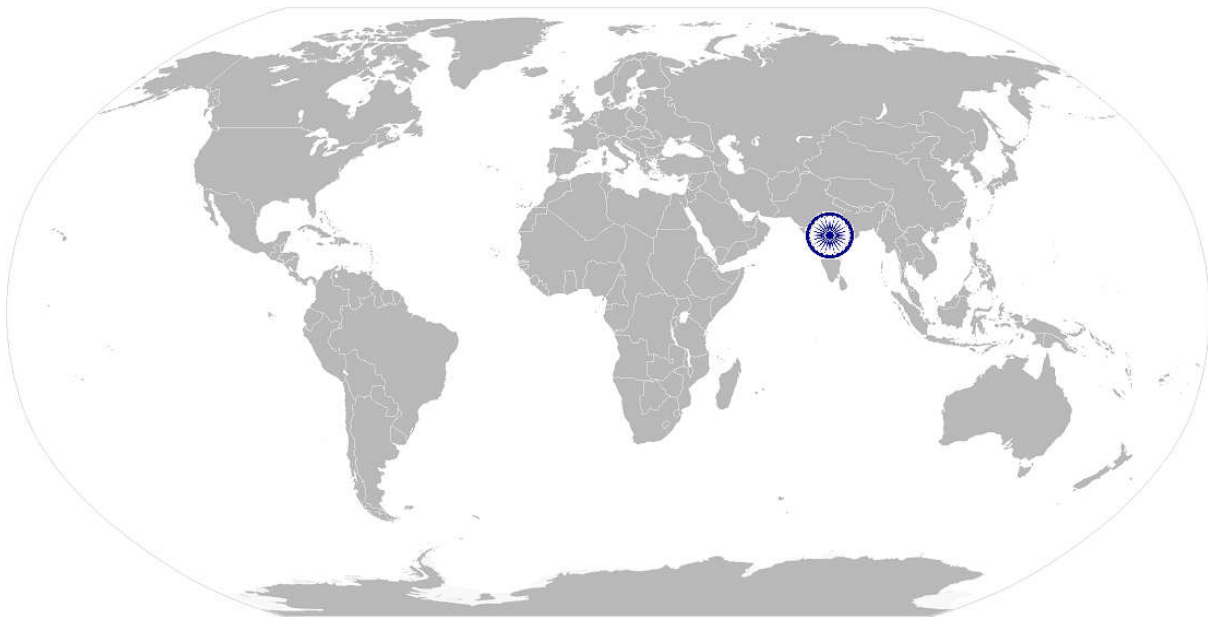
**NOS Version Control**

<b>NOS Code</b>	ASC/N0006		
<b>Credits(NSQF)</b>	TBD	<b>Version number</b>	1
<b>Industry</b>	Automotive	<b>Drafted on</b>	15/7/2013
<b>Industry Sub-sector</b>	Manufacturing	<b>Last reviewed on</b>	24/7/2013
<b>Occupation</b>	All	<b>Next review date</b>	30/07/2015



ASC/N0021: Maintaining 5S activities at the work premises

# National Occupational Standard



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## Overview

This unit is about the understanding all principles of 5S and follow the given guidelines to ensure a clean and efficient working environment in the organization

**ASC/N0021: Maintaining 5S activities at the work premises**

National Occupational Standard	<b>Unit Code</b>	ASC/N0021
	<b>Unit Title (Task)</b>	Maintaining 5S activities at the work premises
	<b>Description</b>	This NOS is about ensuring all 5 S activities both at the shop floor and the office area to facilitate increase in work productivity
	<b>Scope</b>	The individual needs to <ul style="list-style-type: none"> <li>Ensure sorting, streamlining &amp; organizing, storage and documentation, cleaning, standardization and sustenance across the plant and office premises of the organization</li> </ul>
	<b>Performance Criteria (PC) w.r.t. the Scope</b>	
	<b>Element</b>	<b>Performance Criteria</b>
	<b>Ensure sorting</b>	<p>PC1. Follow the sorting process and check that the tools, fixtures &amp; jigs that are lying on workstations are the ones in use and unnecessary items are not cluttering the workbenches or work surfaces.</p> <p>PC2. Ensure segregation of waste in hazardous/ non Hazardous waste as per the sorting work instructions</p> <p>PC3. Follow the technique of waste disposal and waste storage in the proper bins as per SOP</p> <p>PC4. Segregate the items which are labelled as red tag items for the process area and keep them in the correct places</p> <p>PC5. Sort the tools/ equipment/ fasteners/ spare parts as per specifications/ utility into proper trays, cabinets, lockers as mentioned in the 5S guidelines/ work instructions</p> <p>PC6. Ensure that areas of material storage areas are not overflowing</p> <p>PC7. Properly stack the various types of boxes and containers as per the size/ utility to avoid any fall of items/ breakage and also enable easy sorting when required</p> <p>PC8. Return the extra material and tools to the designated sections and make sure that no additional material/ tool is lying near the work area</p> <p>PC9. Follow the floor markings/ area markings used for demarcating the various sections in the plant as per the prescribed instructions and standards</p>
	<b>Ensure proper documentation and storage (organizing, streamlining)</b>	<p>PC10. Follow the proper labeling mechanism of instruments/ boxes/ containers and maintaining reference files/ documents with the codes and the lists</p> <p>PC11. Check that the items in the respective areas have been identified as broken or damaged</p> <p>PC12. Follow the given instructions and check for labelling of fluids, oils, lubricants, solvents, chemicals etc. and proper storage of the same to avoid spillage, leakage, fire etc.</p> <p>PC13. Make sure that all material and tools are stored in the designated</p>

**ASC/N0021: Maintaining 5S activities at the work premises**

	places and in the manner indicated in the 5S instructions
<b>Ensure cleaning of self and the work place</b>	<p>PC14. Check whether safety glasses are clean and in good condition</p> <p>PC15. Keep all outside surfaces of recycling containers are clean</p> <p>PC16. Ensure that the area has floors swept, machinery clean and generally clean. In case of cleaning, ensure that proper displays are maintained on the floor which indicate potential safety hazards</p> <p>PC17. Check whether all hoses, cabling &amp; wires are clean, in good condition and clamped to avoid any mishap or mix up</p> <p>PC18. Ensure workbenches and work surfaces are clean and in good condition</p> <p>PC19. Follow the cleaning schedule for the lighting system to ensure proper illumination</p> <p>PC20. Store the cleaning material and equipment in the correct location and in good condition</p> <p>PC21. Ensure self-cleanliness - clean uniform, clean shoes, clean gloves, clean helmets, personal hygiene</p>
<b>Ensure sustenance</b>	<p>PC1. Follow the daily cleaning standards and schedules to create a clean working environment</p> <p>PC2. Attend all training programs for employees on 5 S</p> <p>PC3. Support the team during the audit of 5 S</p> <p>PC4. Participate actively in employee work groups on 5S and encourage team members for active participation</p> <p>PC5. Follow the guidelines for What to do and What not to do to build sustainability in 5S as mentioned in the 5S check lists/ work instructions</p>
<b>Knowledge and Understanding (K) w.r.t. the scope</b>	
<b>Element</b>	<b>Knowledge and Understanding</b>
<b>A. Organizational Context</b> (Knowledge of the company / organization and its processes)	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. relevant standards, procedures and policies related to 5S followed in the company</p>
<b>B. Technical Knowledge</b>	<p>The user/individual on the job needs to :</p> <p>KB5. have basic knowledge of 5S procedures</p> <p>KB6. know various types 5s practices followed in various areas</p> <p>KB7. understand the 5S checklists provided in the department/ team</p> <p>KB8. have skills to identify useful &amp; non useful items</p> <p>KB9. have knowledge of labels , signs &amp; colours used as indicators</p> <p>KB10. Have knowledge on how to sort and store various types of tools, equipment, material etc.</p> <p>KB11. know , how to identify various types of waste products</p> <p>KB12. understand the impact of waste/ dirt/ dust/unwanted substances on the process/ environment/ machinery/ human body</p>



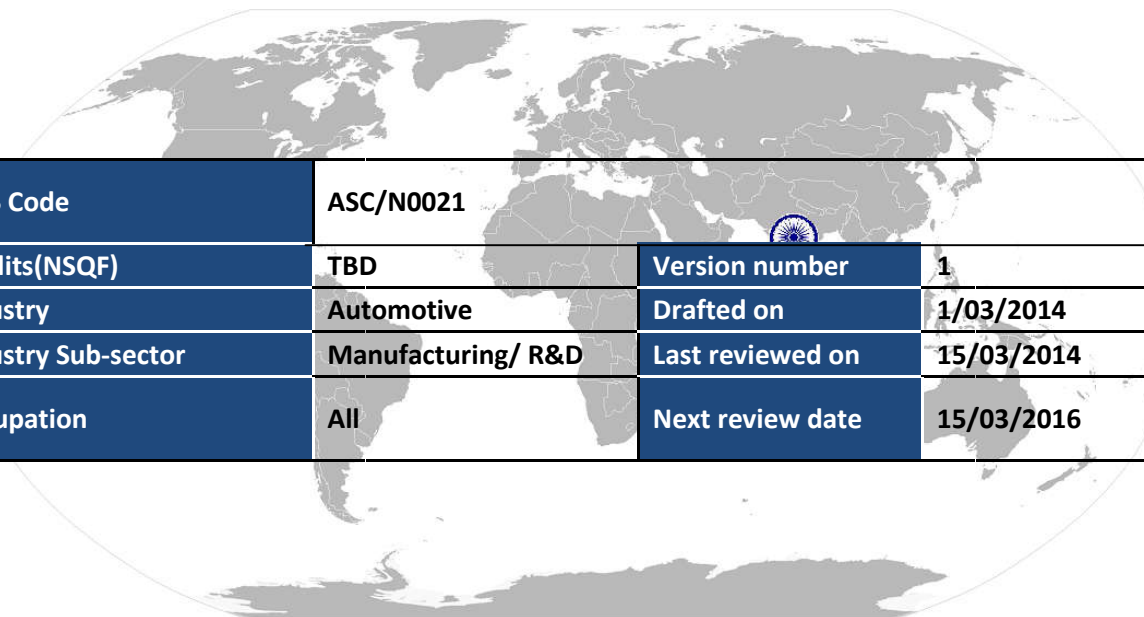
**ASC/N0021: Maintaining 5S activities at the work premises**

	<p>KB13. have knowledge of best ways of cleaning &amp; waste disposal          KB14. understand the importance of standardization in processes          KB15. understand the importance of sustainability in 5S          KB16. have knowledge of TQM process          KB17. have knowledge of various materials and storage norms          KB18. understand visual controls, symbols, graphs etc.</p>
<b>Skills (S)w.r.t. the scope</b>	
<b>Element</b>	<b>Skills</b>
<b>A. Core Skills/ Generic Skills</b>	<b>Writing Skills</b>
	The user/ individual on the job needs to know and understand how to: SA8. write basic level notes and observations SA9. note down observations (if any) related to the process SA10. write information documents to internal departments/ internal teams
	<b>Reading Skills</b>
	The user/individual on the job needs to know and understand how to: SA11. read 5S instructions put up across the plant premises
	<b>Oral Communication (Listening and Speaking skills)</b>
The user/individual on the job needs to know and understand how to: SA12. effectively communicate information to team members inform employees in the plant and concerned functions about 5S SA13. question the process head in order to understand the 5S related issues SA14. attentively listen with full attention and comprehend the information given by the speaker during 5S training programs	
<b>B. Professional Skills</b>	<b>Judgmental Thinking</b>
	The user/individual on the job needs to know and understand how to: SB3. use common sense and make judgments during day to day basis SB4. use reasoning skills to identify and resolve basic problems using 5S
	<b>Persuasion</b>
	The user/ individual on the jobs needs to know and understand how to: SB5. persuade co team members to follow 5 S SB6. ensure that the co team members understand the importance of using 5 S tool
	<b>Creativity</b>
The user/individual on the job needs to know and understand how to : SB7. use innovative skills to perform and manage 5 S activities at the work desk and the shop floor SB8. exhibit inquisitive behaviour to seek feedback and question on the existing set patterns of work	
	<b>Self –Discipline</b>

**ASC/N0021: Maintaining 5S activities at the work premises**

	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB9. do what is right, not what is a popular practices</p> <p>SB10. follow shop floor rules&amp; regulations and avoid deviations; make 5S an integral way of life</p> <p>SB11. ensure self-cleanliness on a daily basis</p> <p>SB12. demonstrate the will to keep the work area in a clean and orderly manner</p>
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**NOS Version Control**



<b>NOS Code</b>	ASC/N0021		
<b>Credits(NSQF)</b>	TBD	<b>Version number</b>	1
<b>Industry</b>	Automotive	<b>Drafted on</b>	1/03/2014
<b>Industry Sub-sector</b>	Manufacturing/ R&D	<b>Last reviewed on</b>	15/03/2014
<b>Occupation</b>	All	<b>Next review date</b>	15/03/2016

### Qualifications Pack for CNC Operator /Machining Technician L3

#### Criteria for assessment of Trainees

JOB ROLE	CNC OPERATOR / Machining Technician L3
Qualification Pack	ASC/Q 3501
No. Of NOS	3 Role specific , 2 generic

NOS Title/ NOS Elements	NOS & Performance Criterion Description	Marks allocation		
		Theory	Viva	Practical
ASC/N3504	Carrying Out the Pre- Machining Activities			
<b>Understanding the component requirements</b>	PC1. Understand the output product requirement by reading the engineering drawing specified in the work instructions/ work order PC2. Clearly understanding the does and don'ts of the manufacturing process as defined in SOPs/ Work Instructions or defined by supervisors PC3. Reading the control panel instructions/ job orders to determine the correct output product specifications PC4. Understanding the tooling instructions as specified in the Operating Manual/ Work Instructions or Standard Operating Procedures PC5. Selection of proper coolant and lubricant required for machining the required component		25	25
<b>Checking the dimensions for the component</b>	PC6. Set the machine stops or guides as per the specified lengths indicated through scales or work instructions PC7. Measure and mark reference points/ cutting lines on the work pieces, using compasses, calipers, rulers and other measuring tools		10	10
	Sub total		<b>35</b>	<b>35</b>
ASC/N3505	<b>Support the operator in performing Machining Operations</b>	Theory	Viva	Practical
<b>Setting up machine as per work instructions</b>	PC1. Set-up, adjust machine tools in order to perform machining operations and keep dimension within the specified tolerance limit specified in the Standard Operating Procedures/ Operating manuals PC2. Support the operator in aligning and securely hold fixtures, cutting tools etc. onto the machine PC3. Position/ secure/ align cutting tools in tool holders of the machine, using hand tools and verify their positions with measuring instruments		10	25
<b>Support the machinist/ operator in performing machining on the</b>	PC4. Start lathe or turning/drilling/milling machine for operations PC5. Support in select cutting tools and tooling			

**Qualifications Pack for CNC Operator /Machining Technician L3**

<b>component</b>	<p>instructions as per the work instructions / supervisor 's instructions</p> <p>PC6. Operate hand wheels or valves in order to feed the component and allow cooling and lubricating of the same as per the instructions given by the machinist/supervisor</p> <p>PC7. Turn on the coolant valves and start their flow to maintain temperature in the lathe machine chamber</p> <p>PC8. Move tool holders manually or by turning the hand wheels in order to feed tools along the machined component/ piece</p>		10	40
<b>Observe/ Record the machining operations</b>	<p>PC9. Observe machine operations to detect defects in the component manufactured</p> <p>PC10. Observe the machine operations for any malfunctions and immediately inform the supervisor of any malfunction observed to prevent damage to the machining equipment/ output product</p> <p>PC11. Support the operator in recording operational data such as pressure readings, length of strokes, feed rates, speed etc in the formats specified by the supervisors</p>		5	10
	<b>subtotal</b>		<b>25</b>	<b>75</b>
<b>ASC/N 3506</b>	<b>Support the operator in conducting all post machining operations</b>	<b>Theory</b>	<b>viva</b>	<b>Practical</b>
<b>Perform minor machine maintenance activities</b>	<p>PC1. Maintain the machine as per proper operational condition</p> <p>PC2. Perform minor machine maintenance activities such as oiling or cleaning machine and its components</p> <p>PC3. Oiling or cleaning machines as per the schedules given in the maintenance plan</p> <p>PC4. Adding coolant and lubricant in machine reservoir</p>		10	20
<b>Perform de- burring activity on the machined components</b>	<p>PC5. With the help of the correct tool remove the extra burrs, sharp edges, rust and chips from the metal surface</p> <p>PC6. Use files, hand grinders, wire brushes, or power tools for performing de burring operations. Ensure usage of Personal Protective equipment like eye glasses and hand gloves.</p> <p>PC7. For automated processes perform shot blasting/ vibro processes for completing de-burring operations</p>		10	30
<b>Check quality of machined</b>	PC8. Support the operator in measuring the			

**Qualifications Pack for CNC Operator /Machining Technician L3**

<p><b>component (Gauging)</b></p>	<p>specifications of the finished component and verify conformance as per CP/ WI</p> <p>PC9. Use devices like micrometers, vernier calipers, gauges, rulers and any other inspection equipment for measuring specifications with valid calibration status.</p> <p>PC10. Support the operator in noting down the observations of the basic inspection process and identify pieces which comply with the specified standards</p> <p>PC11. Separate the defective pieces into two categories – pieces which can be repaired/ modified and pieces which are beyond repair and maintain records of each category</p>		15	50
<p><b>Assist the operator in the tool change process</b></p>	<p>PC12. Assist the operator in changing different worn machine accessories, such as cutting tools( as per tool life listed, recommended) and brushes, other hand tools</p> <p>PC13. Replace machine part as per work instructions, using hand tools or notify supervisor/ engineering personnel for taking corrective actions</p> <p>PC14. For automated process observe the tool change cycle in order to ensure that the selected tool is transferred to the spindle from magazine after the previous tool is transferred to the magazine from the spindle</p>		15	50
	<b>Subtotal</b>		<b>50</b>	<b>150</b>
<b>ASC/N 0006</b>	<b>Maintain safe , healthy environment friendly workplace</b>	<b>Theory</b>	<b>viva</b>	<b>Practical</b>
<p><b>Identify and report the risks identified</b></p>	<p>PC1. Identify activities which can cause potential injury through sharp objects, burns, fall, electricity, gas leakages, radiation, poisonous fumes, chemicals ,loud noise</p> <p>PC2. Inform the concerned authorities about the potential risks identified in the processes, workplace area/ layout, materials used etc.</p> <p>PC3. Inform the concerned authorities about machine breakdowns, damages which can potentially harm man/ machine during operations</p> <p>PC4. Create awareness amongst other by sharing information on the identified risks</p>			
<p><b>Create and sustain a Safe, clean and environment friendly work place</b></p>	<p>PC5. Follow the instructions given on the equipment manual describing the operating process of the equipment</p> <p>PC6. Follow the Safety, Health and Environment related practices developed by the organization</p> <p>PC7. Operate the machine using the recommended</p>			

**Qualifications Pack for CNC Operator /Machining Technician L3**

	Personal Protective Equipment (PPE) PC8. Maintain a clean and safe working environment near the work place and ensure there is no spillage of chemicals, production waste, oil, solvents etc. PC9. Maintain high standards of personal hygiene at the work place PC10. Ensure that the waste disposal is done in the designated area and manner as per organization SOP. PC11. Inform appropriately the medical officer/ HR in case of self or an employee's illness of contagious nature so that preventive actions can be planned for others		70	80
	subtotal		70	80
<b>ASC / N 0021</b>	<b>Maintain 5 S activities at the workplace</b>	<b>Theory</b>	<b>Viva</b>	<b>practical</b>
<b>Ensure sorting</b>	C1. Follow the sorting process and check that the tools, fixtures & jigs that are lying on workstations are the ones in use and un-necessary items are not cluttering the workbenches or work surfaces. PC2. Ensure segregation of waste in hazardous/ non Hazardous waste as per the sorting work instructions PC3. Follow the technique of waste disposal and waste storage in the proper bins as per SOP PC4. Segregate the items which are labelled as red tag items for the process area and keep them in the correct places PC5. Sort the tools/ equipment/ fasteners/ spare parts as per specifications/ utility into proper trays, cabinets, lockers as mentioned in the 5S guidelines/ work instructions PC6. Ensure that areas of material storage areas are not overflowing PC7. Properly stack the various types of boxes and containers as per the size/ utility to avoid any fall of items/ breakage and also enable easy sorting when required PC8. Return the extra material and tools to the designated sections and make sure that no additional material/ tool is lying near the work area PC9. Follow the floor markings/ area markings used for demarcating the various sections in the plant as per the prescribed instructions and standards		10	20
			10	20
<b>Ensure proper documentation and</b>	PC10. Follow the proper labeling mechanism of instruments/ boxes/ containers and maintaining			

**Qualifications Pack for CNC Operator /Machining Technician L3**

storage ( organizing , streamlining)	<p>reference files/ documents with the codes and the lists</p> <p>PC11. Check that the items in the respective areas have been identified as broken or damaged</p> <p>PC12. Follow the given instructions and check for labelling of fluids, oils. lubricants, solvents, chemicals etc. and proper storage of the same to avoid spillage, leakage, fire etc.</p> <p>PC13. Make sure that all material and tools are stored in the designated places and in the manner indicated in the 5S instructions</p>		10	20
Ensure cleaning of self and the work place	<p>PC14. Check whether safety glasses are clean and in good condition</p> <p>PC15. Keep all outside surfaces of recycling containers are clean</p> <p>PC16. Ensure that the area has floors swept, machinery clean and generally clean. In case of cleaning, ensure that proper displays are maintained on the floor which indicate potential safety hazards</p> <p>PC17. Check whether all hoses, cabling &amp; wires are clean, in good condition and clamped to avoid any mishap or mix up</p> <p>PC18. Ensure workbenches and work surfaces are clean and in good condition</p> <p>PC19. Follow the cleaning schedule for the lighting system to ensure proper illumination</p> <p>PC20. Store the cleaning material and equipment in the correct location and in good condition</p> <p>PC21. Ensure self-cleanliness - clean uniform, clean shoes, clean gloves, clean helmets, personal hygiene</p>		10	40
Ensure sustenance	<p>PC22. Follow the daily cleaning standards and schedules to create a clean working environment</p> <p>PC23. Attend all training programs for employees on 5 S</p> <p>PC24. Support the team during the audit of 5 S</p> <p>PC25. Participate actively in employee work groups on 5S and encourage team members for active participation</p> <p>PC26. Follow the guidelines for What to do and What not to do to build sustainability in 5S as mentioned in the 5S check lists/ work instructions</p>		10	20
	<b>Sub total</b>		<b>50</b>	<b>120</b>
	<b>Total</b>		<b>30</b>	<b>230</b>
			<b>460</b>	