

## 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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## Contents

1. Introduction and Contacts.....P.1
2. Qualifications Pack.....P.2
3. Glossary of Key Terms .....P.4
4. NOS Units.....P.6
5. Assessment Criteria ..... P.40

## Introduction

### Qualifications Pack- Welding Technician Level 3

**SECTOR:** AUTOMOTIVE

**SUB-SECTOR:** MANUFACTURING

**OCCUPATION:** WELDING

**JOB ROLE:** WELDING TECHNICIAN L3

**REFERENCE ID:** ASC/Q3102

**ALIGNED TO:** NCO -2004/7212.10, 7212.20, 7212.30

**Welding Technician (L3) :** Also known as Assistant Welder , this role is similar for all types of joining techniques like Gas Discharge Arc Welding ( MIG, MAG, and TIG ), Resistance Welding (Spot Welding, Projection Welding, Butt Welding) and Automatic or Robotic Welding Process .

**Brief Job Description:** This role is responsible for supporting the Welder/ Operator in joining various types of metallic frames, structures, jigs, plates, sheets etc using heating and melting process created through electrical power and gaseous discharge.

**Personal Attributes:** Technical knowledge of welding and metallurgy, Reading, writing and communication skills, ability to plan and prioritize, quality consciousness, safety orientation, Dexterity, high precision and sensitivity to problem solving.

Job Details	<b>Qualifications Pack Code</b>	ASC/Q3102		
	<b>Job Role</b>	Welding Technician L3		
	<b>Credits(NSQF)</b>	TBD	<b>Version number</b>	1.0
	<b>Industry</b>	Automotive	<b>Drafted on</b>	15/7/2013
	<b>Sub-sector</b>	Manufacturing	<b>Last reviewed on</b>	24/7/2013
	<b>Occupation</b>	Welding	<b>Next review date</b>	Under revision expected date of revised version 31-Dec-15
	<b>NSQC Clearance on</b>	20/07/15		

<b>Job Role</b>	<b>Welding technician / Assistant Welder L3</b>
<b>Role Description</b>	Responsible for supporting the Operator/ welder in joining various types of metallic frames, structures, jigs, plates etc using heating and melting process created through electrical power and gaseous discharge, loading & unloading the welding assembly and complete documentation as required
<b>NSQF level</b>	3
<b>Minimum Educational Qualifications</b>	Class 10
<b>Maximum Educational Qualifications</b>	ITI
<b>Training</b> (Suggested but not mandatory)	<ul style="list-style-type: none"> <li>Different Welding techniques used in organization, Reading and writing skills</li> <li>5S &amp; Safety</li> </ul>
<b>Minimum Job Entry Age</b>	<p>1 ASDC recommends that candidates should seek full employment not before attaining an age of 18 years.</p> <p>2 However, as per Factories Act1948 :</p> <ul style="list-style-type: none"> <li>No one can be employed before attaining the age of 15</li> <li>A person between the age of 15 – 18 (both inclusive) could be employed only with employers who follow safety and security systems &amp; processes and also that the employee in this bracket will be working under supervision.</li> </ul> <p>3 Please note that under the Factories Act 1948, different States may have slightly varying provision, which need to be adhered to.</p>
<b>Experience</b>	2-3 years
<b>Occupational Standards (OS)</b>	<ol style="list-style-type: none"> <li><a href="#">ASC/N3103: Understand welding job requirements and related processes</a></li> <li><a href="#">ASC/N3104: Prepare the welding machine for the welding process</a></li> <li><a href="#">ASC/N3105: Support the welder in the welding process</a></li> <li><a href="#">ASC/N0007: Conduct quality checks and inspection of the finished metal cast products</a></li> <li><a href="#">ASC/N0008: Conduct regular cleaning and maintenance of the equipment</a></li> </ol>

	<ol style="list-style-type: none"><li>6. <a href="#">ASC/N3106: Remove the finished goods and store them in the designated place</a></li><li>7. <a href="#">ASC/N0006: Maintain a safe and healthy working environment</a></li><li>8. <a href="#">ASC/N0021: Maintaining 5S at the work premises</a></li></ol> <p><b>Optional:</b> N.A.</p>
<b>Performance Criteria</b>	As described in the relevant NOS units

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)
NSQF	National Standards Qualifications Framework
OEM	Original Equipment Manufacturer
OS	Occupational Standard(s)
QP	Qualifications Pack
MIG	Metal Inert Gas
TIG	Tungsten Inert Gas
MAG	Metal Active Gas

Acronyms

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# National Occupational Standards



## Overview

This unit is about understanding the job requirement and the activities & equipment associated with the process to complete the job requirement

ASC/ N 3103

Understand welding job requirements and related processes

National Occupational Standard	<b>Unit Code</b>	ASC/N3103
	<b>Unit Title (Task)</b>	Understand welding job requirements and related processes
	<b>Description</b>	This NOS is about understanding the job requirement, what processes need to be executed, what equipment will be used for the project and what is the required output considering the standards specified
	<b>Scope</b>	The Assistant Welder will be responsible for <ul style="list-style-type: none"> <li>Understand the engineering drawing, sketches and work order</li> <li>Escalations of any queries regarding the job</li> </ul>
	<b>Element</b>	<b>Performance Criteria</b>
	<b>Understand the engineering drawings, sketches and work order</b>	PC1. Understand the work order ( work output) required from the process and discuss the same with the operator PC2. Refer all engineering drawings and sketches related to the work output to understand the measurement and shape of the required work output PC3. Clearly understanding the does and don'ts of the manufacturing process as defined in SOPs/ Work Instructions or defined by supervisors
	<b>Escalations of queries on the given job</b>	PC4. Refer the queries to the Operator/ Welder if they cannot be resolved by the Assistant Welder on own PC5. Obtain help or advice from specialist if the problem is outside his/her area of competence or experience PC6. Confirm self - understanding to the Operator once the query is resolved so that all doubts & queries can be resolved before the actual process execution
	<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)	The user/individual on the job needs to know and understand: <ul style="list-style-type: none"> <li>KA1. relevant standards and procedures followed in the company</li> <li>KA2. different types of products manufactured by the company</li> <li>KA3. functional processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution</li> </ul>
<b>B. Technical Knowledge</b>	The user/individual on the job needs to know and understand: <ul style="list-style-type: none"> <li>KB1. different types of welding processes and associated equipments</li> <li>KB2. different types of joints</li> <li>KB3. The method of reading and interpreting sketches and engineering drawings</li> <li>KB4. how to visualize the final product output</li> <li>KB5. the impact of various physical parameters like temperature, pressure, electrode distance on the properties of final output product like durability, ductility, surface feel etc.</li> </ul>	

ASC/ N 3103

**Understand welding job requirements and related processes**

	KB6. basic principles of geometric and drawing
<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. prepare draft drawings for the final output product and share the same with the Welder/ operator SA2. note down observations (if any) related to the welding process and share the same with welder and supervisor
	<b>Reading skills</b>
	The user/individual on the job needs to know and understand how to: SA3. read and interpret engineering drawing and sketches SA4. read equipment manuals and process documents to understand the equipments and processes better SA5. read internal information documents send by internal customers ( other functions within the organization)
	<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, schedules and activities with the operator and supervisor SA7. effectively communicate with the team members SA8. question the operator/ Welding shop supervisor in order to understand the nature of the problem and to clarify queries SA9. attentively listen with full attention and comprehend the information given by the speaker
<b>B. Professional Skills</b>	<b>Plan and Organize</b>
	The user/individual on the job needs to know and understand how to: SB1. plan and organize the work order and jobs received from the Operator SB2. organize all process/ equipment manuals so that sorting/ accessing information is easy
	<b>Analytical Thinking</b>
	The user/individual on the job needs to know and understand how to: SB3. ability to visualize the final job product after understanding the given drawing/ sketches SB4. co relate the type of job output required with the welding methodology to be used SB5. ability to identify the strengths and weakness of various welding process
	<b>Judgment and Critical Thinking</b>
	The user/individual on the job needs to know and understand how to: SB6. use common sense and make judgments during day to day basis SB7. use reasoning skills to identify and resolve basic problems
	<b>Desire to learn and take initiatives</b>
	The user/individual on the job needs to know and understand how to:



ASC/ N 3103

**Understand welding job requirements and related processes**

	<p>SB8. follow instructions and work on areas of improvement identified</p> <p>SB9. complete the assigned tasks with minimum supervision</p> <p>SB10. complete the job defined by the welder/operator/supervisor within the timelines and quality norms</p>
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**NOS Version Control**

<b>NOS Code</b>	ASC/N3103		
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<b>Industry</b>	Automotive	<b>Drafted on</b>	15/7/2013
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ASC/ N 3104

Prepare the welding machine for the welding process

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# National Occupational Standards



## Overview

This unit is about preparing the welding machine, auxiliary apparatus and metalwork pieces for the welding process.

ASC/ N 3104

**Prepare the welding machine for the welding process**

National Occupational Standard

<b>Unit Code</b>	<b>ASC/N3104</b>
<b>Unit Title (Task)</b>	<b>Prepare the welding machine for the welding process</b>
<b>Description</b>	This NOS is about selecting the type of electrodes and the filler material for the welding process basis the work order received, preparing the surface of the metal parts by removing dust, moistures, rough edges etc, cleaning the welding apparatus and the electrodes and installing the metal parts and electrodes on the welding machine/ assembly block
<b>Scope</b>	<p>The Assistant Welder will be responsible for</p> <ul style="list-style-type: none"> <li>Understand the engineering drawing, sketches and work order</li> <li>Arranging the electrodes and other material required for the welding process in the correct place</li> <li>Cleaning and maintaining the welding apparatus</li> </ul>
<b>Performance Criteria (PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Arrange for the electrodes, flux, filler material as per the requirement of the welding process</b>	<p>PC1. Understand the right welding methodology and process to be adopted for completing the work order from the supervisor</p> <p>PC2. Understand the various welding parameters like temperature, pressure, electrode type, electrode distance (gap), Welding current, voltage, process time etc. before starting the welding process</p> <p>PC3. Understand the material required and the equipment availability for executing the activity</p> <p>PC4. Correctly understand the type of electrode in terms of electrode material and thickness, filler material and flux which will be required for the selected welding process before the initiation of the welding process</p> <p>PC5. Ensure that the required material is procured from the store before starting the welding process</p>
<b>Clean the welding equipment before executing the welding process and setup the equipment</b>	<p>PC7. Along with the helper, clean the surface of the electrodes and the welding gun to remove dust and any other impurities</p> <p>PC8. Clean other welding machine auxiliaries(Welding Transformer, Gas Discharge unit, Flux wire) before the initiation of the welding process</p> <p>PC9. Setup the welding apparatus as per the selected welding process and the internal Operating procedures and the setting standards for the machine</p>
<b>Prepare the surface of the part ( work pieces) on which welding needs to be conducted</b>	<p>PC10. Clean the surface to the metal parts ( work pieces) which need to be joint</p> <p>PC11. Remove any extra material, sharp edges etc. which might impact the final welded product</p> <p>PC12. Correctly compare the dimensions of the work pieces available on the welding line with the product drawing/ sketches available with the operator</p> <p>PC13. In case the parts are not as per the given measurements, remove extra material by using chippers, grinders etc.</p>
<b>Escalations of queries for the given job</b>	<p>PC14. Immediately refer the queries to a operator and the supervisor</p> <p>PC15. Confirm self-understanding to the operator once the query is resolved so that all doubts &amp; queries can be resolved before the actual process execution</p>
<b>Knowledge and Understanding (K) w.r.t. the scope</b>	

ASC/ N 3104

### Prepare the welding machine for the welding process

Element	Knowledge and Understanding
<b>B. 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 and procedures followed in the company KA2. different types of products manufactured by the company KA3. functional processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution
<b>B. Technical Knowledge</b>	The user/individual on the job needs to know and understand: KB1. different types of welding processes and associated equipment KB2. Different cleaning methods for electrodes, metal surfaces etc. KB3. how to use measuring instruments like vernier, calipers, micrometer KB4. different types of joints KB5. how to read and interpret sketches and engineering drawings KB6. basic principles of geometric and drawing KB7. materials used in welding & key properties
Skills (S) w.r.t. the scope	
Element	Skills
<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. prepare draft drawings for the final output product and share the same with the Welder/ operator SA2. note down observations (if any) related to the welding process and share the same with welder and supervisor
	<b>Reading Skills</b>
	The user/individual on the job needs to know and understand how to: SA3. read and interpret engineering drawing and sketches SA4. read equipment manuals and process documents to understand the equipment and processes better SA5. read internal information documents send by internal customers ( other functions within the organization)
<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: SA6. discuss task lists, schedules and activities with the operator and supervisor SA7. effectively communicate with the team members SA8. question the operator/ Welding shop supervisor in order to understand the nature of the problem and to clarify queries SA9. attentively listen with full attention and comprehend the information given by the speaker
<b>B. Professional Skills</b>	<b>Plan and Organize</b>
	The user/individual on the job needs to know and understand how to: SB1. plan and organize the work order and jobs received from the Operator SB2. organize all process/ equipment manuals so that sorting/ accessing

ASC/ N 3104

**Prepare the welding machine for the welding process**

	information is easy
	<b>Analytical Thinking</b>
	The user/individual on the job needs to know and understand how to: SB3. visualize the final job product after understanding the given drawing/ sketches SB4. co relate the type of job output required with the welding methodology to be used SB5. identify the strengths and weakness of various welding process
	<b>Judgment and Critical Thinking</b>
	The user/individual on the job needs to know and understand how to: SB6. use common sense and make judgments during day to day basis SB7. use reasoning skills to identify and resolve basic problems
	<b>Desire to learn and take initiatives</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 minimum supervision SB10. complete the job defined by the welder/operator/supervisor within the timelines and quality norms

ASC/ N 3104

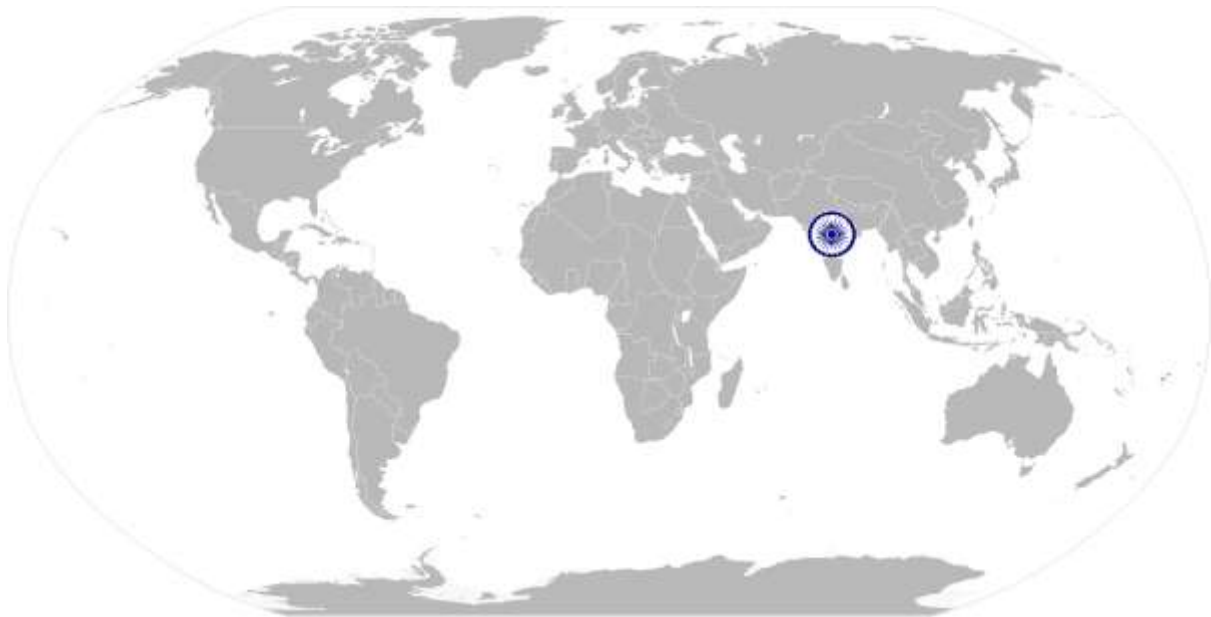
Prepare the welding machine for the welding process

### NOS Version Control

<b>NOS Code</b>	ASC/N3104		
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# National Occupational Standards



## Overview

This unit is about support the welder is conducting the actual welding process for the selected metal pieces as per the given work order and the standards specified by the organization

**ASC/N3105**

**Support the welder in the welding process**

National Occupational Standard	<b>Unit Code</b>	<b>ASC/ N3105</b>
	<b>Unit Title (Task)</b>	<b>Support the welder in the welding process</b>
	<b>Description</b>	This NOS is about supporting the Welder in conducting Welding Operation as per the methodology selected for welding and the Standard Operating Principles followed
	<b>Scope</b>	The Assistant Welder will be responsible for <ul style="list-style-type: none"> <li>Installing the welding work pieces on the apparatus</li> <li>Check the operations of the machine and conduct the actual welding process</li> <li>Check the measurement instruments for monitoring the welding 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>Installing the welding work pieces on the welding apparatus</b>	<p>PC1. Hold the parts which need to be welded together using a clamp and align them with the electrodes as per the job requirement so that the work pieces do not fall down/ turn</p> <p>PC2. Install the work pieces on the Welding apparatus keeping in mind the electrodes distance, contact area, pressure, temperature application etc. as specified in the Welding SOP/ Control plan Documents/Work Instructions and instructed by the operator/ welder and the supervisor</p>
	<b>Check the operations of the welding machines and auxiliaries and conduct a test process</b>	<p>PC3. Check for operation of core welding equipment like welding gun, welding transformer, gas cylinders, gas discharge units as per setup documentation</p> <p>PC4. Support the operator in conducting destructive and non destructive test activity</p>
	<b>Conduct the actual welding process</b>	PC5. Support the operator in the Gas Discharge welding by holding the Welding Gun and the Filler material/ Gas discharge
	<b>Check measurement instruments for monitoring welding process parameters</b>	PC6. Help the welder in monitoring the welding process ( Pressure, Temperature, gas discharge flow, electrode force, electrode distance etc.) by observing and communicating the readings on various panels/ meters at the right time to prevent any harm to the work pieces due to overheating, burning, over melting
<b>Measure the two parts (work pieces) welded and remove welding inconsistency</b>	<p>PC7. Measure the final welded piece and compare the dimensions as prescribed in the work order engineering drawing</p> <p>PC8. In case the parts are not as per the given measurements, remove extra material by using chippers, grinders etc.</p> <p>PC9. If there are any bulges, then hammer the bulges and give the work pieces the desired shape</p> <p>PC10. Keep the operator informed of any inconsistency in the welding</p>	



**ASC/N3105**

**Support the welder in the welding process**

	process, quality issues etc. so that the same can be dealt immediately
<b>Knowledge and Understanding (K)w.r.t. the scope</b>	
<b>Element</b>	<b>Knowledge and Understanding</b>
<b>C. 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 and procedures followed in the company KA2. different types of products manufactured by the company KA3. knowledge of functional processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution KA4. quality norms prescribed by the organization for welding jobs
<b>B. Technical Knowledge</b>	The user/individual on the job needs to know and understand: KB1. different types of welding processes and associated equipment KB2. different cleaning methods for electrodes, metal surfaces etc. KB3. measuring instruments like Vernier calipers, micrometer KB4. different types of joints used in welding KB5. how to read and interpret sketches and engineering drawings KB6. how to visualize the final product output and hence decide on the key steps to be followed for welding KB7. safety precautions to be taken for welding activities
<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. document information from the sketches and engineering drawings SA2. note measurements, equipment panel readings for various process parameters in the required reporting formats
	<b>Reading Skills</b>
	The user/individual on the job needs to know and understand how to: SA3. read and interpret engineering drawing and sketches SA4. read equipment manuals and process documents to understand the equipment and processes better SA5. read internal information documents send by internal customers (other functions within the organization)the equipment in the plant area SA6. read parameter reading on various types of monitoring panels
	<b>Oral Communication (Listening and Speaking skills)</b>
	The user/individual on the job needs to know and understand how to: SA7. discuss task lists, schedules and activities with the operator and supervisor SA8. effectively communicate with the team members Question the operator/ Welding shop supervisor in order to understand the nature of the problem and to clarify queries

**ASC/N3105**

**Support the welder in the welding process**

	SA9. attentively listen with full attention and comprehend the information given by the speaker
<b>B. Professional Skills</b>	<b>Plan and Organize</b>
	The user/individual on the job needs to know and understand how to: SB1. plan and organize the jobs received from the Operator SB2. organize all process/ equipment manuals so that sorting/ accessing information is easy
	<b>Analytical Thinking</b>
	The user/individual on the job needs to know and understand how to: SB3. visualize the final job product after understanding the given drawing/ sketches SB4. co relate the type of job output required with the welding methodology to be used
	<b>Critical Thinking and Judgment</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

**NOS Version Control**

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ASC/N0007

Conduct quality checks and inspection of the finished metal cast products

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# National Occupational Standards



## Overview

This unit is about conducting Quality Checks and inspection of the finished products produced and repair the bad quality items produced in the manufacturing process

ASC/N0007

### Conduct quality checks and inspection of the finished metal cast products

National Occupational Standard	<b>Unit Code</b>	ASC/N0007
	<b>Unit Title (Task)</b>	<b>Conduct quality checks and inspection of the finished metal cast products</b>
	<b>Description</b>	This NOS is about inspecting the finished goods produced for any damages, deformities and Further repairing the parts produced so that the damaged/ defective pieces can be corrected and right quality components are supplied to 1. The customer/ end user 2. Internal manufacturing team
	<b>Scope</b>	The Assistant Welder will be responsible for <ul style="list-style-type: none"> <li>• Inspection of finished goods</li> <li>• Recording log of defective pieces and repairing minor defects</li> </ul>
	<b>Performance Criteria (PC) w.r.t. the Scope</b>	
	<b>Element</b>	<b>Performance Criteria</b>
	<b>Inspection of finished goods to detect any deviations from the product design</b>	PC1. Measure the specifications of the finished product using devices like micrometers, vernier calipers, gauges, rulers, weighing scales and any other inspection equipment and compare with the parameters given in the work order PC2. Compare texture, color, surface properties, hardness and strength with the given product specifications
	<b>Record log of defective products and discard defective pieces</b>	PC3. Note down the observations of the basic inspection process and identify pieces which are OK and also not meeting the specified standards PC4. Separate the defective pieces into two categories – pieces which can be repaired/ modified and pieces which are beyond repair PC5. Discard the pieces which are beyond repair and repair the ones which need minor modifications/ rework PC6. Maintain records of each category of work outputs
	<b>Repair the pieces with minor defects</b>	PC7. Rectify minor defects like excess slag, shape deformation, sharp edges, rough surfaces, grooves, holes etc. by Fettling, chipping, Cutting, sawing, filling, shearing, hammering etc. PC8. Escalate all issues related to change in colour, surface properties, hardness etc. so that the manufacturing equipment can be reset to achieve the specified output
	<b>Knowledge and Understanding (K)w.r.t. the scope</b>	
<b>Element</b>	<b>Knowledge and Understanding</b>	
<b>D. Organizational Context</b> (Knowledge of the company / organization and its	The user/individual on the job needs to know and understand: KA1. relevant standards specified for the manufacturing process KA2. basic process followed for inspection of the pieces KA3. basic knowledge about the Quality Management policy and manual of the organization	

**ASC/N0007**

**Conduct quality checks and inspection of the finished metal cast products**

processes)	
<b>B. Technical Knowledge</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. techniques of using measurement instruments like rulers, Vernier calipers, micrometer, weighing scale, gauges and other inspection equipment</p> <p>KB2. guidelines to identify quality defects in work pieces</p> <p>KB3. methods used for cutting, shearing, hammering, drilling which can repair pieces with minor defects</p>
<b>Skills (S)w.r.t. the scope</b>	
<b>Element</b>	<b>Skills</b>
<b>A. Core Skills/ Generic Skills</b>	<p style="background-color: #e6f2ff;"><b>Writing Skills</b></p> <p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. note the number of pieces with defects which can be repaired to number of pieces which will be discarded</p> <p style="background-color: #e6f2ff;"><b>Reading Skills</b></p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA2. read process and equipment manuals to understand the working of the equipment</p> <p>SA3. read measuring instruments reading to identify any deviations from the dimensions given in the product engineering drawing</p> <p style="background-color: #e6f2ff;"><b>Oral Communication (Listening and Speaking skills)</b></p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SA4. discuss task lists and job requirements with co-workers</p> <p>SA5. effectively communicate information to team members</p> <p>SA6. question operator/ supervisor in order to understand the nature of the problem</p> <p>SA7. attentively listen with full attention and comprehend the information given by the speaker</p>
<b>B. Professional Skills</b>	<p style="background-color: #e6f2ff;"><b>Plan and Organize</b></p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. plan and organize the work order and jobs received from the operator</p> <p>SB2. organize all process/ equipment manuals so that sorting/ accessing information is easy</p> <p style="background-color: #e6f2ff;"><b>Analytical Thinking</b></p> <p>The user/individual on the job needs to know and understand how to:</p> <p>SB3. visualize the final job product after understanding the given drawing/ sketches</p> <p>SB4. correlate the type of job output required with the welding methodology to be used</p>

**ASC/N0007**

**Conduct quality checks and inspection of the finished metal cast products**

	<b>Critical Thinking and Judgment</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

## NOS Version Control

<b>NOS Code</b>	ASC/N0007		
<b>Credits(NSQF)</b>	TBD	<b>Version number</b>	1.0
<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>	Welding	<b>Next review date</b>	Under revision expected date of revised version 31-Dec-15

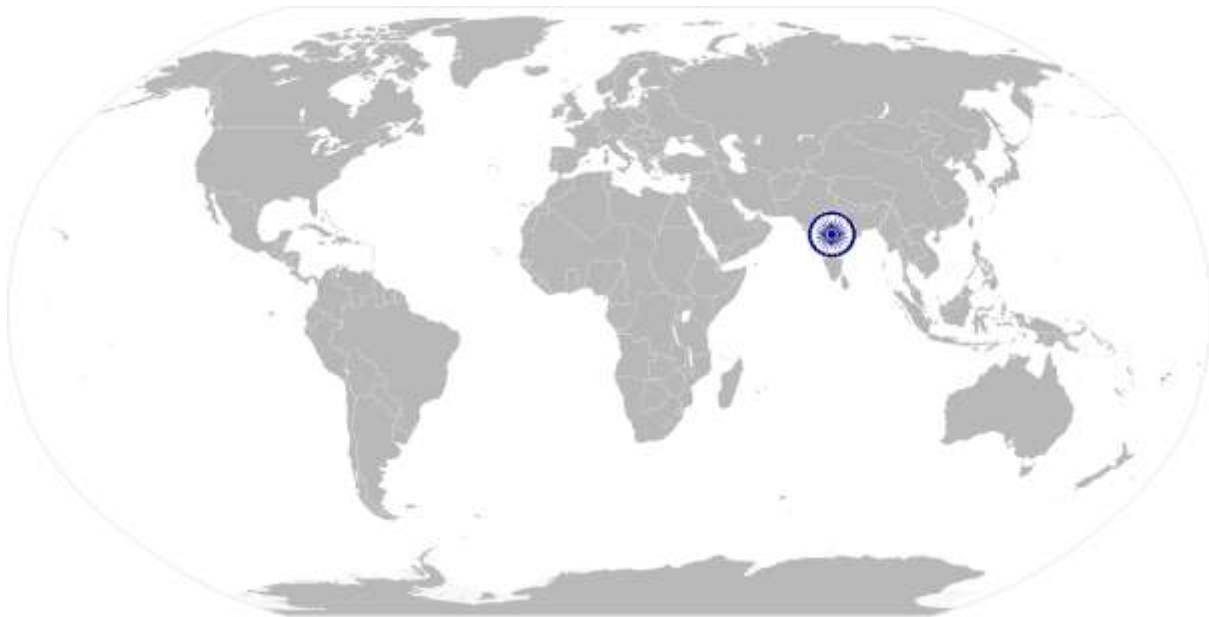


ASC/ N0008

Conduct regular cleaning and maintenance of the equipment

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# National Occupational Standards



## Overview

This unit is about cleaning and maintaining the equipment on a regular basis to prevent any breakdown or improper quality of work output.

ASC/ N0008

Conduct regular cleaning and maintenance of the equipment

National Occupational Standard

<b>Unit Code</b>	<b>ASC/N0008</b>
<b>Unit Title (Task)</b>	<b>Conduct regular cleaning and maintenance of the equipment</b>
<b>Description</b>	This NOS is about systematically arranging the equipment in proper area, cleaning the process equipment & auxiliaries on a regular basis and doing basic level maintenance of the equipment, recording any problems related to equipment working
<b>Scope</b>	The Assistant Welder will be responsible for <ul style="list-style-type: none"> <li>Storing of equipment in the proper location and cleaning and maintaining the same</li> <li>Recording logs and MIS</li> </ul>
<b>Performance Criteria (PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Storing equipment in proper condition</b>	<p>PC1. Arrange all equipment in a proper order as indicated in the equipment manual</p> <p>PC2. Store equipment auxiliaries and spare parts in proper designated areas</p> <p>PC3. Clearly tag process related equipment parts/ spare parts as per part number or serial number so that sorting of equipment becomes easy</p> <p>PC4. Cover equipment so that there is limited dust collection and moisture contact</p>
<b>Regular cleaning of the equipment and work area</b>	<p>PC5. Regularly clean the equipment and process auxiliaries to remove any dust, moisture, waste material which would have got collected on the equipment</p> <p>PC6. Regularly open the equipment and clean the internal parts of the equipment</p> <p>PC7. Regularly clean the working area under the process and create a healthy, clean and safe working environment</p>
<b>Conduct regular preventive maintenance of equipment</b>	<p>PC8. Check the working of all bearing, rollers, shafts etc. and oil all moving parts of the equipment on a periodic basis</p> <p>PC9. Check the working of non-moving parts and periodically conduct preventive maintenance to prevent machine failure</p> <p>PC10. Periodically check the equipment calibration and report any errors to the maintenance teams for rectification</p>
<b>Recording observations and preparing MIS</b>	PC11. Prepare periodic log sheets of equipment maintenance dates, maintenance schedules and maintenance activity conducted on the equipment
<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	The user/individual on the job needs to know and understand: <p>KA1. relevant standards and procedures followed in the company for the process of maintenance and equipment storage</p>



**ASC/ N0008**

**Conduct regular cleaning and maintenance of the equipment**

company / organization and its processes)	KA2. functional processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution
<b>B. Technical Knowledge</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. basic level maintenance and cleaning techniques</p> <p>KB2. various solvents, chemicals, lubricants etc. used during the maintenance processes</p> <p>KB3. procedure for arranging the equipment and spare parts in the prescribed manner including tagging and numbering of machine parts &amp; spares</p> <p>KB4. Safety precautions to be taken during cleaning and maintenance activities</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>
	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. note equipment part codes, name tags etc. in the prescribed formats and records for the same</p> <p>SA2. note observations related to equipment performance, breakdown, cleaning and maintenance schedules etc. in the prescribed MIS format</p>
	<b>Reading Skills</b>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA3. read equipment manuals and process documents to understand the equipment and processes better</p> <p>SA4. read instructions especially safety instructions related to equipment cleaning and maintenance</p>
	<b>Oral Communication (Listening and Speaking skills)</b>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA5. discuss task lists and job requirements with co-workers</p> <p>SA6. effectively communicate information to team members</p> <p>SA7. listen and analyse any noise and vibrations in the equipment and report the same to the maintenance team for preventive action</p> <p>SA8. attentively listen with full attention and comprehend the information given by the speaker</p>
<b>B. Professional Skills</b>	<b>Plan and Organize</b>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. plan and organize the work order and jobs received from the Operator</p> <p>SB2. organize all process/ equipment manuals so that sorting/ accessing information is easy as per the part/ machine number in</p>

**ASC/ N0008**

**Conduct regular cleaning and maintenance of the equipment**

	the specified format in the designated area
	<b>Critical Thinking and Judgment</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

### NOS Version Control

<b>NOS Code</b>	ASC/N0008		
<b>Credits(NSQF)</b>	TBD	<b>Version number</b>	1.0
<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>	Welding	<b>Next review date</b>	Under revision expected date of revised version 31-Dec-15

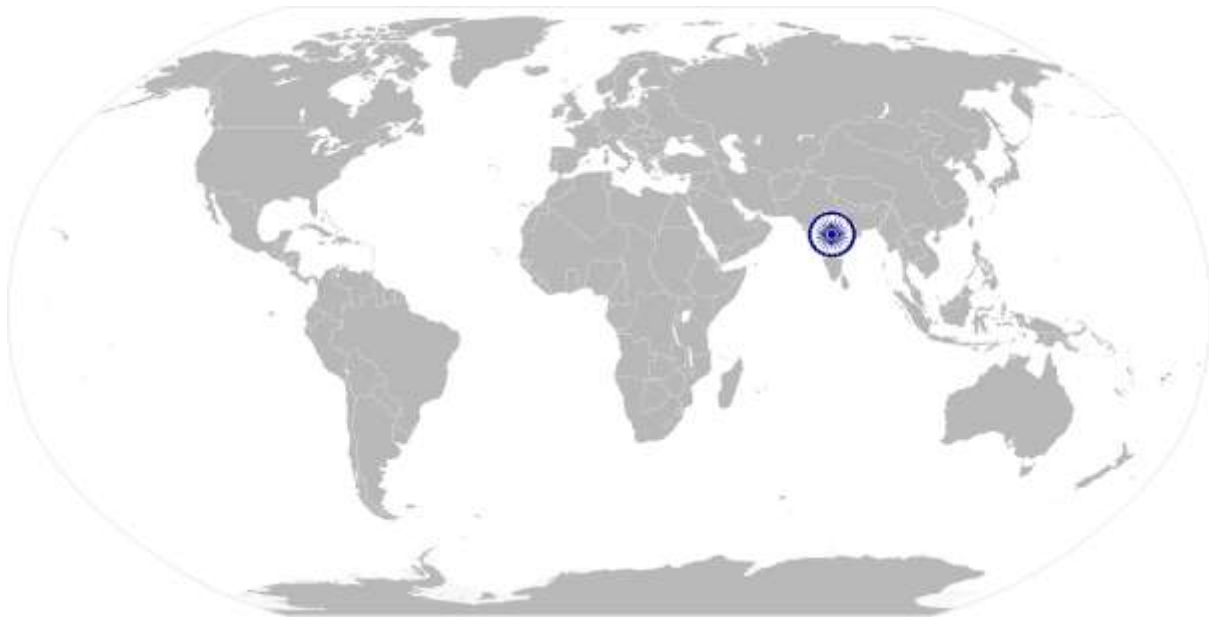


ASC/ N3106

Remove the finished goods and store them in the designated place

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# National Occupational Standards



## Overview

This unit is about unloading the finished goods from the production line and store them properly in the designated area/ move the finished goods on subsequent platform on the assembly line

ASC/ N3106

Remove the finished goods and store them in the designated place

National Occupational Standard

<b>Unit Code</b>	<b>ASC/N3106</b>
<b>Unit Title (Task)</b>	<b>Remove the finished goods and store them in the designated place</b>
<b>Description</b>	This unit is about unloading the finished goods from the production line and store them properly in the designated area/ move the finished goods on subsequent platform on the assembly line
<b>Scope</b>	The Assistant Welder will be responsible for <ul style="list-style-type: none"> <li>• Unloading the finished goods from the apparatus</li> <li>• Storing the finished goods in the proper designated location</li> </ul>
<b>Performance Criteria (PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Unload the Finished Goods</b>	<p>PC1. Understand the output product shape and decide the mechanism to lift the output</p> <p>PC2. Clamp the product and lift the output object using suitable equipment like hoist, lifts, crane etc.</p> <p>PC3. Ensure that there is no damage to the lifted work pieces</p> <p>PC4. Carry the output product to the designated area using hangars, conveyor belts, cranes, forklifts etc.</p>
<b>Store the finished goods</b>	<p>PC5. Post inspection process, tag the right quality pieces for future identification</p> <p>PC6. Carry the tagged pieces to the storage areas using manual/ automatic means</p> <p>PC7. Keep a record of the finished goods along with the storage identification numbers for easy sorting</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)	The user/individual on the job needs to know and understand: <p>KA1. relevant standards and procedures followed in the company</p> <p>KA2. functional processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution</p>
<b>B. Technical Knowledge</b>	The user/individual on the job needs to know and understand: <p>KB1. basic level operations of lifting equipment like hoists, cranes, Pulley etc.</p> <p>KB2. methods of storage and tagging of final product</p>
<b>Skills (S)w.r.t. the scope</b>	
<b>Element</b>	<b>Skills</b>
<b>A. Core Skills/ Generic</b>	<b>Writing Skills</b>

**ASC/ N3106**

**Remove the finished goods and store them in the designated place**

<b>Skills</b>	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. Note equipment part codes, name tags etc. in the prescribed formats and records for the same</p> <p>SA2. note observations related to movement and storage of final product</p>
	<b>Reading Skills</b>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA3. read equipment manuals and process documents to understand the equipment and processes better</p> <p>SA4. read instructions especially safety instructions related to movement of goods</p>
	<b>Oral Communication (Listening and Speaking skills)</b>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA5. discuss task lists and job requirements with co-workers</p> <p>SA6. effectively communicate information to team members</p> <p>SA7. listen and analyse any noise and vibrations in the equipment and report the same to the maintenance team for preventive action</p> <p>SA8. attentively listen with full attention and comprehend the information given by the speaker</p>
<b>B. Professional Skills</b>	<b>Plan and Organize</b>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. plan and organize the work order and jobs received from the operator</p> <p>SB2. organize all process/ equipment manuals so that sorting/ accessing information is easy as per the part/ machine number in the specified format in the designated area</p>
	<b>Critical Thinking and Judgment</b>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB5. use common sense and make judgments during day to day basis</p> <p>SB6. use reasoning skills to identify and resolve basic problems</p>

ASC/ N3106

Remove the finished goods and store them in the designated place

## NOS Version Control

<b>NOS Code</b>	ASC/N3106		
<b>Credits(NSQF)</b>	TBD	<b>Version number</b>	1.0
<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>	Welding	<b>Next review date</b>	Under revision expected date of revised version 31-Dec-15

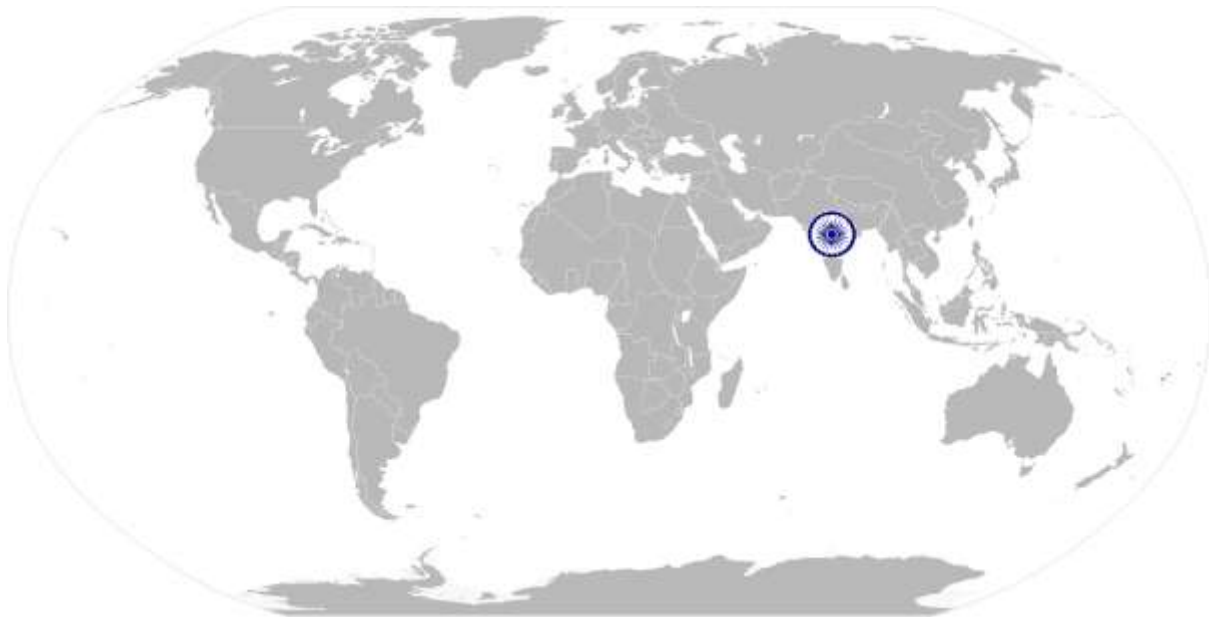


ASC/ N0006

Maintain a safe and healthy working environment

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# National Occupational Standards



## Overview

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

ASC/ N0006

**Maintain a safe and healthy working environment**

National Occupational Standard	<b>Unit Code</b>	ASC/N0006
	<b>Unit Title (Task)</b>	<b>Maintain a safe and healthy working environment</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> <p>This NOS will be applicable to all Automotive sector manufacturing job roles</p>
	<b>Performance Criteria (PC) w.r.t. the Scope</b>	
	<b>Element</b>	<b>Performance Criteria</b>
	<b>A. 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>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 safe and healthy working environment**

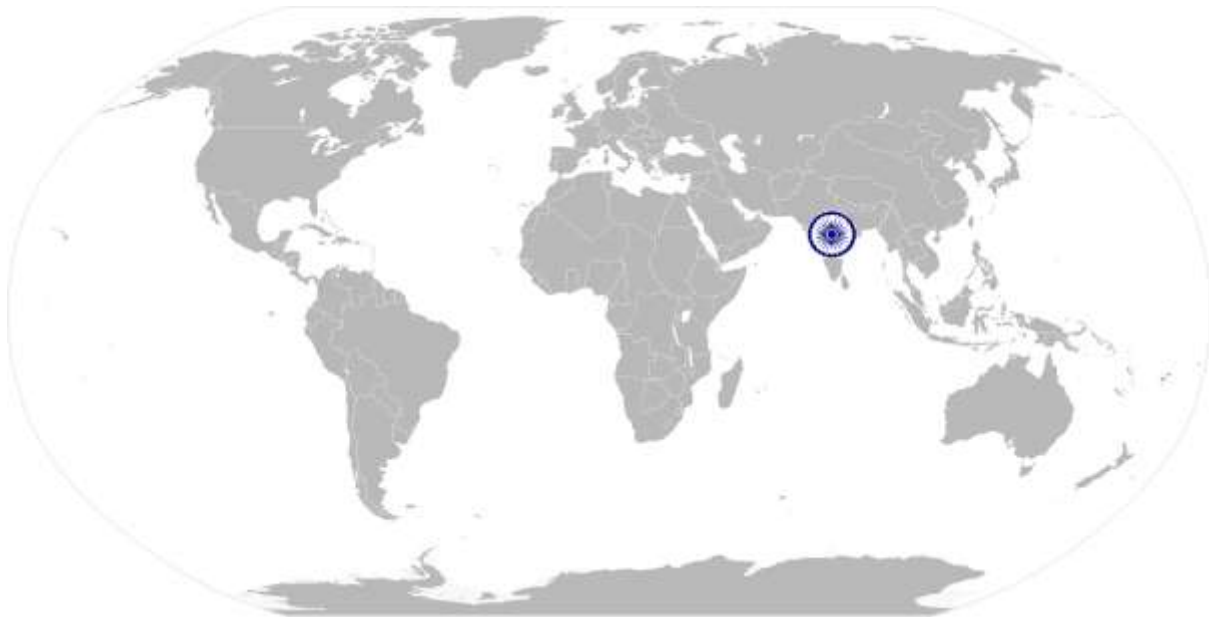
<p><b>A. Organizational</b></p> <p><b>B. Context</b> (Knowledge of the company / organization and its processes)</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. relevant standards, procedures and policies related to Health, Safety and Environment followed in the company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

ASC/ N0006

Maintain a safe and healthy working environment

### NOS Version Control

<b>NOS Code</b>	ASC/N0006		
<b>Credits(NSQF)</b>	TBD	<b>Version number</b>	1.0
<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>	Welding	<b>Next review date</b>	Under revision expected date of revised version 31-Dec-15



ASC/N0021

Maintaining 5S at the work premises

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# National Occupational Standard



## 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 at the work premises

National Occupational Standard

<b>Unit Code</b>	<b>ASC/N0021</b>
<b>Unit Title (Task)</b>	<b>Maintaining 5S in the work premises</b>
<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 un-necessary 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 labeled 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 labeling 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>

**ASC/N0021**

**Maintaining 5S at the work premises**

<p><b>Ensure cleaning of self and the work place</b></p>	<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>
<p><b>Ensure sustenance</b></p>	<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>
<b>Knowledge and Understanding (K) w.r.t. the scope</b>	
<b>Element</b>	<b>Knowledge and Understanding</b>
<p><b>A. Organizational Context</b> (Knowledge of the company / organization and its processes)</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KA3. relevant standards, procedures and policies related to 5S followed in the company</p>
<p><b>B. Technical Knowledge</b></p>	<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 at the work premises**

	KB13. have knowledge of best ways of cleaning & 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.
<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: SB1. use common sense and make judgments during day to day basis SB2. 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: SB3. persuade co team members to follow 5 S SB4. 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 : SB5. use innovative skills to perform and manage 5 S activities at the work desk and the shop floor SB6. exhibit inquisitive behaviour to seek feedback and question on the existing set patterns of work	

**ASC/N0021**

**Maintaining 5S at the work premises**

	<b>Self –Discipline</b>
	The user/individual on the job needs to know and understand how to: SB7. do what is right, not what is a popular practices SB8. follow shop floor rules& regulations and avoid deviations; make 5S an integral way of life SB9. ensure self-cleanliness on a daily basis SB10. demonstrate the will to keep the work area in a clean and orderly manner

**NOS Version Control**

<b>NOS Code</b>	ASC/N0021		
<b>Credits(NSQF)</b>	TBD	<b>Version number</b>	1.0
<b>Industry</b>	Automotive	<b>Drafted on</b>	1/03/2014
<b>Industry Sub-sector</b>	Manufacturing	<b>Last reviewed on</b>	15/03/2014
<b>Occupation</b>	Welding	<b>Next review date</b>	Under revision expected date of revised version 31-Dec-15

### Qualification Pack for Welding Technician Level 3

Criteria for assessment of Trainees				
JOB ROLE		Welding Technician L3		
Qualification Pack		ASC/Q 3102		
No. Of NOS		4 Role specific ,4 generic		
NOS Title/ NOS Elements	NOS & Performance Criterion Description	Marks allocation		
ASC/N3103	<b>Understand welding job requirements and related processes</b>	Theory	Viva	Practical
<b>Understand the engineering drawings, sketches and work order</b>	PC1. Understand the work order ( work output) required from the process and discuss the same with the operator PC2. Refer all engineering drawings and sketches related to the work output to understand the measurement and shape of the required work output PC3. Clearly understanding the does and don'ts of the manufacturing process as defined in SOPs/ Work Instructions or defined by supervisors		10	30
<b>Escalations of queries on the given job</b>	PC4. Refer the queries to the Operator/ Welder if they cannot be resolved by the Assistant Welder on own PC5. Obtain help or advice from specialist if the problem is outside his/her area of competence or experience PC6. Confirm self - understanding to the Operator once the query is resolved so that all doubts & queries can be resolved before the actual process execution		10	10
	Sub total		20	40
ASC/N3104	<b>Prepare the welding machine for the welding process</b>	Theory	Viva	Practical
<b>Arrange for the electrodes, flux, filler material as per the requirement of the welding process</b>	PC1. Understand the right welding methodology and process to be adopted for completing the work order from the supervisor PC2. Understand the various welding parameters like temperature, pressure, electrode type, electrode distance (gap), Welding current, voltage, process time etc. before starting the welding process PC3. Understand the material required and		30	20



**Qualification Pack for Welding Technician Level 3**

	<p>the equipment availability for executing the activity</p> <p>PC4. Correctly understand the type of electrode in terms of electrode material and thickness, filler material and flux which will be required for the selected welding process before the initiation of the welding process</p> <p>PC5. Ensure that the required material is procured from the store before starting the welding process</p>			
<b>Clean the welding equipment before executing the welding process and setup the equipment</b>	<p>PC6. Along with the helper, clean the surface of the electrodes and the welding gun to remove dust and any other impurities</p> <p>PC7. Clean other welding machine auxiliaries(Welding Transformer, Gas Discharge unit, Flux wire) before the initiation of the welding process</p> <p>PC8. Setup the welding apparatus as per the selected welding process and the internal Operating procedures and the setting standards for the machine</p>		10	55
<b>Prepare the surface of the part ( work pieces) on which welding needs to be conducted</b>	<p>PC9. Clean the surface to the metal parts ( work pieces) which need to be joint</p> <p>PC10. Remove any extra material, sharp edges etc. which might impact the final welded product</p> <p>PC11. Correctly compare the dimensions of the work pieces available on the welding line with the product drawing/ sketches available with the operator</p> <p>PC12. In case the parts are not as per the given measurements, remove extra material by using chippers, grinders etc.</p>		10	30
	<b>Subtotal</b>		<b>50</b>	<b>105</b>
<b>ASC/N3105</b>	<b>Support the welder in the welding process</b>	<b>Theory</b>	<b>Viva</b>	<b>Practical</b>
<b>Installing the welding work pieces on the welding apparatus</b>	<p>PC1. Hold the parts which need to be welded together using a clamp and align them with the electrodes as per the job requirement so that the work pieces do not fall down/ turn</p> <p>PC2. Install the work pieces on the Welding apparatus keeping in mind the electrodes distance, contact area, pressure, temperature application etc. as specified in the Welding SOP/ Control plan</p>		10	30

### Qualification Pack for Welding Technician Level 3

	Documents/Work Instructions and instructed by the operator/ welder and the supervisor			
<b>Check the operations of the welding machines and auxiliaries and conduct a test process</b>	PC3. Check for operation of core welding equipment like welding gun, welding transformer, gas cylinders, gas discharge units as per setup documentation PC4. Support the operator in conducting destructive and non destructive test activity		20	30
<b>Conduct the actual welding process</b>	PC5. Support the operator in the Gas Discharge welding by holding the Welding Gun and the Filler material/ Gas discharge		5	10
<b>Check measurement instruments for monitoring welding process parameters</b>	PC6. Help the welder in monitoring the welding process ( Pressure, Temperature, gas discharge flow, electrode force, electrode distance etc.) by observing and communicating the readings on various panels/ meters at the right time to prevent any harm to the work pieces due to overheating, burning, over melting		0	10
<b>Measure the two parts (work pieces) welded and remove welding inconsistency</b>	PC7. Measure the final welded piece and compare the dimensions as prescribed in the work order engineering drawing PC8. In case the parts are not as per the given measurements, remove extra material by using chippers, grinders etc. PC9. If there are any bulges, then hammer the bulges and give the work pieces the desired shape PC10. Keep the operator informed of any inconsistency in the welding process, quality issues etc. so that the same can be dealt immediately		20	60
	Subtotal		55	140
<b>ASC/N3106</b>	<b>Remove the finished goods and store them in the designated place</b>	<b>Theory</b>	<b>Viva</b>	<b>Practical</b>
<b>Unload the Finished Goods</b>	PC1. Understand the output product shape and decide the mechanism to lift the output PC2. Clamp the product and lift the output object using suitable equipment like hoist, lifts, crane etc. PC3. Ensure that there is no damage to the lifted work pieces PC4. Carry the output product to the		0	25

### Qualification Pack for Welding Technician Level 3

	designated area using hangars, conveyor belts, cranes, forklifts etc.			
<b>Store the finished goods</b>	<p>PC5. Post inspection process, tag the right quality pieces for future identification</p> <p>PC6. Carry the tagged pieces to the storage areas using manual/ automatic means</p> <p>PC7. Keep a record of the finished goods along with the storage identification numbers for easy sorting</p>		10	15
	<b>subtotal</b>		10	40
<b>ASC/N0007</b>	<b>Conduct quality checks and inspection of the finished metal cast products</b>	Theory	Viva	Practical
<b>Inspection of finished goods to detect any deviations from the product design</b>	<p>PC1. Measure the specifications of the finished product using devices like micrometers, Vernier calipers, gauges, rulers, weighing scales and any other inspection equipment and compare with the parameters given in the work order</p> <p>PC2. Compare texture, color, surface properties, hardness and strength with the given product specifications</p>		15	30
<b>Record log of defective products and discard defective pieces</b>	<p>PC3. Note down the observations of the basic inspection process and identify pieces which are OK and also not meeting the specified standards</p> <p>PC4. Separate the defective pieces into two categories – pieces which can be repaired/ modified and pieces which are beyond repair</p> <p>PC5. Discard the pieces which are beyond repair and repair the ones which need minor modifications/ rework</p> <p>PC6. Maintain records of each category of work outputs</p>		15	40
<b>Repair the pieces with minor defects</b>	<p>PC7. Rectify minor defects like excess slag, shape deformation, sharp edges, rough surfaces, grooves, holes etc. by Fettling, chipping, cutting, sawing, filling, shearing, hammering etc.</p> <p>PC8. Escalate all issues related to change in colour, surface properties, hardness etc. so that the manufacturing equipment can be reset to achieve the specified output</p>		15	50

**Qualification Pack for Welding Technician Level 3**

	subtotal		45	120
<b>ASC/N0008</b>	Carry out routine cleaning and maintenance activity	Theory	Viva	Practical
<b>Storing equipment in proper condition</b>	PC1. Arrange all equipment in a proper order as indicated in the equipment manual PC2. Store equipment auxiliaries and spare parts in proper designated areas PC3. Clearly tag process related equipment parts/ spare parts as per part number or serial number so that sorting of equipment becomes easy PC4. Cover equipment so that there is limited dust collection and moisture contact		15	25
<b>Regular cleaning of the equipment and work area</b>	PC5. Regularly clean the equipment and process auxiliaries to remove any dust, moisture, waste material which would have got collected on the equipment PC6. Regularly open the equipment and clean the internal parts of the equipment PC7. Regularly clean the working area under the process and create a healthy, clean and safe working environment		0	25
<b>Conduct regular preventive maintenance of equipment</b>	PC8. Check the working of all bearing, rollers, shafts etc. and oil all moving parts of the equipment on a periodic basis PC9. Check the working of non-moving parts and periodically conduct preventive maintenance to prevent machine failure PC10. Periodically check the equipment calibration and report any errors to the maintenance teams for rectification		15	20
<b>Recording observations and preparing MIS</b>	PC11. Prepare periodic log sheets of equipment maintenance dates, maintenance schedules and maintenance activity conducted on the equipment		10	10
	<b>Subtotal</b>		<b>40</b>	<b>80</b>
<b>ASC/N 0006</b>	<b>Maintain a safe and healthy working environment</b>		<b>Viva</b>	<b>Practical</b>
<b>Identify and report the risks identified</b>	PC1. Identify activities which can cause potential injury through sharp objects, burns, fall, electricity, gas leakages, radiation, poisonous fumes, chemicals ,loud noise PC2. Inform the concerned authorities about			

**Qualification Pack for Welding Technician Level 3**

	<p>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>		20	40
<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>		50	40
	subtotal		70	80
<b>ASC / N 0021</b>	<b>Maintain 5S at the work premises</b>		<b>Viva</b>	<b>practical</b>
<b>Ensure sorting</b>	<p>C1. 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 labeled as</p>		10	20

**Qualification Pack for Welding Technician Level 3**

	<p>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>		10	20
<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 labeling 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
<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</p>		10	40

**Qualification Pack for Welding Technician Level 3**

	<p>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>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>340</b>	<b>725</b>