

## Qualification Pack



# Machine Shop Master Technician/Setter

QP Code: ASC/Q3506

Version: 1.0

NSQF Level: 6

Automotive Skills Development Council || 153, Gr Floor, Okhla Industrial Area, Phase - III, Leela Building  
New Delhi - 110020

## Qualification Pack

### Contents

ASC/Q3506: Machine Shop Master Technician/Setter .....	3
<i>Brief Job Description</i> .....	3
Applicable National Occupational Standards (NOS) .....	3
<i>Compulsory NOS</i> .....	3
<i>Qualification Pack (QP) Parameters</i> .....	3
ASC/N0006: Maintain a safe and healthy working environment .....	5
ASC/N0016: Understanding process requirements, ensuring process implementation & suggesting process improvement initiatives .....	10
ASC/N0017: Manage the production related operations of the shift/line on a day to day basis .....	19
ASC/N0018: Managing the team on the line/shift on a day to day basis .....	28
ASC/N0022: Ensure implementation of 5S activities at the shop floor & the office area .....	36
ASC/N3511: Ensure compliance towards different stages of machining operations, CNC programming, and machine setting .....	44
Assessment Guidelines and Weightage .....	54
<i>Assessment Guidelines</i> .....	54
<i>Assessment Weightage</i> .....	54
Acronyms .....	56
Glossary .....	57

## Qualification Pack

### ASC/Q3506: Machine Shop Master Technician/Setter

#### Brief Job Description

The role covers setting parameters and programming of CNC and other machining equipments, supervision of operations for different machine tools performed both manually and through automatic/ CNC machines/ robots. This role primarily involves setting machine parameters, supervising all kinds of machining and in-line inspection activities for quality verification, resolving line operation issues, ensuring compliance to all super finishing, tool room operations etc.

#### Personal Attributes

The individual should have detailed orientation towards the requisite process for the line, ensure effective management of the team, sensitivity to problem solving, quick decision making, ability to motivate others, skills and sensitivity towards safety for self and equipment used, ERP processes etc.

#### Applicable National Occupational Standards (NOS)

##### Compulsory NOS:

1. [ASC/N0006: Maintain a safe and healthy working environment](#)
2. [ASC/N0016: Understanding process requirements, ensuring process implementation & suggesting process improvement initiatives](#)
3. [ASC/N0017: Manage the production related operations of the shift/line on a day to day basis](#)
4. [ASC/N0018: Managing the team on the line/shift on a day to day basis](#)
5. [ASC/N0022: Ensure implementation of 5S activities at the shop floor & the office area](#)
6. [ASC/N3511: Ensure compliance towards different stages of machining operations, CNC programming, and machine setting](#)

#### Qualification Pack (QP) Parameters

<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Manufacturing
<b>Occupation</b>	Machining
<b>Country</b>	India
<b>NSQF Level</b>	6
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/7223.0501

## Qualification Pack

<b>Minimum Educational Qualification &amp; Experience</b>	Diploma (Mechanical Engineering) with 3-5 Years of experience Various machining activities for diploma holders
<b>Minimum Level of Education for Training in School</b>	
<b>Pre-Requisite License or Training</b>	Different types of machining activities (like Turning, Milling, Grinding, Boring, Broaching, Honing, Facing, Shaping, Blanking, Shaving, Hobbing etc.) and usage of fixtures tools etc. 5S and Safety Process Documentation
<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	25/12/2013
<b>Next Review Date</b>	30/06/2020
<b>Deactivation Date</b>	30/06/2020
<b>NSQC Approval Date</b>	05/08/2015
<b>Version</b>	1.0

## Qualification Pack

### ASC/N0006: Maintain a safe and healthy working environment

#### Description

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 and training team members on health and safety related issues

#### Scope

The role holder will be responsible for

- identifying and reporting of risks
- creating and sustaining a safe, clean and environment friendly work place This NOS will be applicable to all Automotive sector manufacturing job roles

#### Elements and Performance Criteria

##### *Identify and report the risks identified*

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

- 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 the potential risks identified in the processes, workplace area/ layout, materials used etc
- PC3.** Inform the concerned authorities about machine breakdowns, damages which can potentially harm man/ machine during operations
- PC4.** Create awareness amongst other by sharing information on the identified risks

##### *Create and sustain a Safe, clean and environment friendly work place*

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

- PC5..** Follow the instructions given on the equipment manual describing the operating process of the equipments
- PC6..** Follow the Safety, Health and Environment related practices developed by the organization
- PC7.** Operate the machine using the recommended Personal Protective Equipments (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 employees illness of contagious nature so that preventive actions can be planned for others

#### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

## Qualification Pack

- KU1.** relevant standards, procedures and policies related to Health, Safety and Environment followed in the company
- KU2.** basic knowledge of Safety procedures( fire fighting, first aid) within the organization
- KU3.** knowledge of various types of PPEs and their usage
- KU4.** basic knowledge of risks/hazards associated with each occupation in the organization
- KU5.** how to safely operate various tools and machines and risks associated with the tools/ equipment
- KU6.** knowledge of personal hygiene and how an individual can contribute towards creating a highly safe and clean working environment

## Generic Skills (GS)

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

- GS1.** write basic level notes and observations
- GS2.** read safety instructions put up across the plant premises
- GS3.** read safety precautions mentioned in equipment manuals and panels to understand the potential risks associated
- GS4.** effectively communicate information to team members
- GS5.** inform employees in the plant and concerned functions about events, incidents & potential risks observed related to Safety, Health and Environment.
- GS6.** question operator/ supervisor in order to understand the safety related issues
- GS7.** attentively listen with full attention and comprehend the information given by the speaker during safety drills and training programs
- GS8.** use common sense and make judgments during day to day basis
- GS9.** use reasoning skills to identify and resolve basic problems
- GS10.** use common sense and make judgments during day to day basis
- GS11.** use reasoning skills to identify and resolve basic problems

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Identify and report the risks identified</i>	<b>8</b>	<b>23</b>	-	-
<b>PC1..</b> Identify activities which can cause potential injury through sharp objects, burns, fall, electricity, gas leakages, radiation, poisonous fumes, chemicals ,loud noise	3	6	-	-
<b>PC2.</b> Inform the concerned authorities about the potential risks identified in the processes, workplace area/ layout, materials used etc	2	6	-	-
<b>PC3.</b> Inform the concerned authorities about machine breakdowns, damages which can potentially harm man/ machine during operations	2	6	-	-
<b>PC4.</b> Create awareness amongst other by sharing information on the identified risks	1	5	-	-
<i>Create and sustain a Safe, clean and environment friendly work place</i>	<b>17</b>	<b>52</b>	-	-
<b>PC5..</b> Follow the instructions given on the equipment manual describing the operating process of the equipments	3	7	-	-
<b>PC6..</b> Follow the Safety, Health and Environment related practices developed by the organization	3	8	-	-
<b>PC7.</b> Operate the machine using the recommended Personal Protective Equipments (PPE)	3	8	-	-
<b>PC8. .</b> Maintain a clean and safe working environment near the work place and ensure there is no spillage of chemicals, production waste, oil, solvents etc	2	8	-	-
<b>PC9.</b> Maintain high standards of personal hygiene at the work place	2	7	-	-
<b>PC10.</b> Ensure that the waste disposal is done in the designated area and manner as per organization SOP.	3	8	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC11.</b> Inform appropriately the medical officer/ HR in case of self or an employees illness of contagious nature so that preventive actions can be planned for others	1	6	-	-
<b>NOS Total</b>	<b>25</b>	<b>75</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N0006
<b>NOS Name</b>	Maintain a safe and healthy working environment
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Manufacturing
<b>Occupation</b>	Maintenance
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	15/09/2013
<b>Next Review Date</b>	15/09/2015
<b>NSQC Clearance Date</b>	20/07/2015

## Qualification Pack

# ASC/N0016: Understanding process requirements, ensuring process implementation & suggesting process improvement initiatives

## Description

This NOS unit is about understanding for the required processes, drafting first level process manuals, ensuring implementation of processes and providing inputs for process improvement through deploying different tools/ participating in problem analysis

## Scope

The role will be responsible for

- understanding the required processes and ensuring implementation
- first level design of process improvement initiatives
- implementation of initiatives on the shop floor The job holder will cover all types of manufacturing processes in the automobile industry. The role holder will interact with the different manufacturing process teams, maintenance team, material management team, industrial engineering team, Quality Control & Assurance team, Safety team and HR/IR team

## Elements and Performance Criteria

### *Understanding all the requisite processes in detail and ensuring implementation*

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

- PC1.** . display detailed understanding of all the requisite processes to be adopted for completing the work order through reading the process manuals/ work instructions/standard operating procedures for the production job
- PC2..** ensure first level drafting of process manuals, work instructions, control plans, process flow charts to enable the team to easily understand and implement the process
- PC3.** . ensure proper display of work instructions, control plans and flow charts at the correct places on the shop floor to enable timely and proper view of the documents
- PC4.** . share knowledge of processes , inputs and outputs with the operators and in order to enhance their skill levels
- PC5..** maintain work flow by monitoring steps of the processes, setting variables, observing control points and equipment
- PC6.** . monitor various process parameters on a regular basis and ensure compliance to agreed standards (e.g. ambient air quality, stack monitoring, water quality monitoring etc.)
- PC7.** . ensuring recording and reporting procedures and systems are in place
- PC8.** . facilitating corrections to malfunctions within process control points
- PC9.** . ensure that all the tools and measuring instruments used on the shop floor are inspected, tested and calibrated internally/ externally as per the schedule
- PC10.** . support the shop head/ process head in arranging for the requisite usage certificates for the tools and equipment as per the internal guidelines of the organization
- PC11..** ensure 5s implementation in the production line by analysing possible areas of systems and process improvements and ensure implementation of the recommended measures to address the gaps

## Qualification Pack

- PC12..** ensure successful implementation of the completed poka yoke and kaizen on the running line
- PC13..** support the shop head/ process manager in conducting first level audit of the manufacturing process on the shop floor

### *Process Improvement*

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

- PC14. .** ensure optimum resource utilization and wastage reduction through process improvements, kaizens, TQM, Poka Yoke etc. in the shift
- PC15. .** provide inputs for analysis of breakdown trends and current maintenance process to identify areas for improvement to achieve cost savings and reduce breakdown timing
- PC16..** identify areas of improvement in the existing processes/systems and take measures to adhere to the identified kaizen/ process improvement initiatives
- PC17. .** ensure inputs from the line operators are considered while designing for various poka yoke , kaizen initiatives
- PC18. .** encourage team members/ supervisor/ operators to suggest quality improvement measures through suggestion schemes, evaluate feasibility of the ideas and discuss their implementation with seniors
- PC19..** support in analysing internal & external rejection data, planning and ensuring implementation of the corrective measures
- PC20. .** ensure team has understanding of basic analytical tools like why why analysis, 7 QC tools, TQM principles to analyse various problems and design process improvement activities
- PC21. .** support the process engineering/ industrial engineering team in modifications of the process flow, process/ plant layout to improve the process TAT, operational ergonomics, work quality etc.

### *Implementation of various initiatives*

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

- PC22..** take overall responsibility to ensure adherence to safety standards by all employees and establish zero accident practice in the section
- PC23..** implement various business excellence techniques like kaizen, 5s initiatives, etc. to enhance productivity for the plant/ shift

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant manufacturing standards and procedures followed in the company in detail
- KU2.** different types of products manufactured by the company
- KU3.** knowledge of functional processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution
- KU4.** quality norms and standards prescribed in the Quality Manual by the organization for painting
- KU5.** 5S and Safety norms practiced in the organization
- KU6.** different types of manufacturing processes used
- KU7.** requirement of raw materials used in the process

## Qualification Pack

- KU8.** about tools, jigs and fixtures , their usage and maintenance methods
- KU9.** how to operate the machine in both, automatic and manual mode
- KU10.** basic understanding of robotics, CNC operations, data acquisitions systems, automatic recording instruments
- KU11.** using engineering drawings, sketches, control plan and work instructions in the plant
- KU12.** usage of various measurement tools like VernierCalipers, Micrometres, rulers, scales, weighing machines etc
- KU13.** basic arithmetic and calculation methods
- KU14.** how to handle electrical equipment and circuits, rectifiers and control panel etc.
- KU15.** different types of defects which may arise due to improper manufacturing and the impact of the defect on product performance
- KU16.** metallurgical and chemical properties of material involved
- KU17.** how to measure the correct specifications of the output in the terms of thickness, hardness, durability, tightness, finesse etc.
- KU18.** . various problems solving tools like 7QC, Why Why Analysis, Brain storming etc.
- KU19.** key areas of power consumption/ steam consumption, compressed air consumption etc
- KU20.** various data entry tools and formats used in the organization
- KU21.** ability to visualize the final product output and hence decide on the key steps and parameters to be followed
- KU22.** usage of various business correspondence tools like Email, MS Office tools ( Word, Excel, Power Point) etc.
- KU23.** about the various hazards related to various chemicals if used in the processes, the hazards involved in the process operations and usage of PPEs

## Generic Skills (GS)

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

- GS1.** create first level process manuals, Control Plans, Work Instructions in an manner that the operators can easily understand the process requirements and process steps
- GS2.** create small notes/ work documents/ diagrams for supervisors ,operators and helpers to help them understand the process
- GS3.** use emails and other business correspondence methods ( internal memos, circular etc. ) for communicating with other team members/ vendors/ suppliers etc.
- GS4.** read equipment manuals and process documents given by the equipment supplier to understand the equipment and processes better
- GS5.** discuss task lists, schedules, and work-loads with the operative team members
- GS6.** effectively explain supervisors, operators and helpers about equipment operations, process steps and other operational requirements
- GS7.** answer the queries raised by the operative team as well as intercompany departments
- GS8.** effectively communicate with the operators and helpers and make them aware of work expectations, targets, policies, processes etc.
- GS9.** attentively listen with full attention the queries and grievances raised by the operative team and comprehend the information given by the speaker

## Qualification Pack

- GS10.** communicate effectively to the team members
- GS11.** identify conflicts in the team and try to resolve them at the earliest
- GS12.** interact and engage with the team members on a day to day basis
- GS13.** counsel and coach the operators and help them resolve issues
- GS14.** timely highlight to the management about any good work/ achievement by the operators and helper
- GS15.** break the problem into smaller issues and tasks to arrive at a solution
- GS16.** understand inter process relationship and establish relationship between various parts of the problem
- GS17.** leverage experience to find effective solutions to problems
- GS18.** use basic analytical tools to arrive at solutions
- GS19.** plan, organize and prioritize the work order and jobs received from the production manager
- GS20.** manage the schedule plan for the operators and helpers on the line/shift
- GS21.** validate all process/ equipment manuals so that the final process selected is correct
- GS22.** organize information, tools, manuals etc. on the shop floor so that sorting becomes easy
- GS23.** reorganize resources on the line/ shift in case of change of plans
- GS24.** use common sense and make judgments during day to day basis
- GS25.** use reasoning skills to identify and resolve problems
- GS26.** use intuition to detect any potential problems which could arise during operations
- GS27.** critically analyse solutions/ recommendations shared by operatives and supervisors for implementation
- GS28.** accept additional responsibility for self and the team
- GS29.** encourage self and other to take greater responsibilities
- GS30.** ensure that the work allocated to the team is completed as per timelines and quality norms
- GS31.** identify obstacles and bottlenecks in the process and on own find basic level solutions for removing these obstacles
- GS32.** motivate and provide support for the team on the shop floor
- GS33.** encourage collaboration between team members
- GS34.** resolve team issues and grievances to manage conflicts within the team
- GS35.** create an environment of approachability, trust and openness within the team
- GS36.** ensure role clarity for all operators and helpers on the line/ shift
- GS37.** escalate any team related issues to the concerned person at the right time
- GS38.** identify defective parts in the manufacturing line by comparing manufactured pieces with the work standard
- GS39.** link the defect observed with the overall impact on the performance of the component/ automobile
- GS40.** support and contribute in monitoring and delivering high quality output from self and others
- GS41.** train team members on maintaining quality standards set by the organization
- GS42.** use previous experience in resolving problems and taking decisions
- GS43.** make timely and independent decisions on the line/ shift within the boundaries of the delegation matrix of the organization

## Qualification Pack

- GS44.** familiarise with leading practices available in the market
- GS45.** think independently on new approaches to manufacturing process, material management, data management and team management
- GS46.** represent any new ideas/ approaches on process improvement and productivity improvement to the seniors in the team

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Understanding all the requisite processes in detail and ensuring implementation</i>	<b>18</b>	<b>43</b>	-	-
<b>PC1.</b> . display detailed understanding of all the requisite processes to be adopted for completing the work order through reading the process manuals/ work instructions/standard operating procedures for the production job	2	3	-	-
<b>PC2..</b> ensure first level drafting of process manuals, work instructions, control plans, process flow charts to enable the team to easily understand and implement the process	2	3	-	-
<b>PC3.</b> . ensure proper display of work instructions, control plans and flow charts at the correct places on the shop floor to enable timely and proper view of the documents	1	3	-	-
<b>PC4.</b> . share knowledge of processes , inputs and outputs with the operators and in order to enhance their skill levels	2	3	-	-
<b>PC5..</b> maintain work flow by monitoring steps of the processes, setting variables, observing control points and equipment	2	4	-	-
<b>PC6.</b> . monitor various process parameters on a regular basis and ensure compliance to agreed standards (e.g. ambient air quality, stack monitoring, water quality monitoring etc.)	2	4	-	-
<b>PC7.</b> . ensuring recording and reporting procedures and systems are in place	1	3	-	-
<b>PC8.</b> . facilitating corrections to malfunctions within process control points	1	4	-	-
<b>PC9.</b> . ensure that all the tools and measuring instruments used on the shop floor are inspected, tested and calibrated internally/ externally as per the schedule	1	4	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC10.</b> . support the shop head/ process head in arranging for the requisite usage certificates for the tools and equipment as per the internal guidelines of the organization	1	3	-	-
<b>PC11..</b> ensure 5s implementation in the production line by analysing possible areas of systems and process improvements and ensure implementation of the recommended measures to address the gaps	1	3	-	-
<b>PC12..</b> ensure successful implementation of the completed poka yoke and kaizen on the running line	1	3	-	-
<b>PC13..</b> support the shop head/ process manager in conducting first level audit of the manufacturing process on the shop floor	1	3	-	-
<i>Process Improvement</i>	<b>10</b>	<b>21</b>	-	-
<b>PC14.</b> . ensure optimum resource utilization and wastage reduction through process improvements, kaizens, TQM, Poka Yoke etc. in the shift	1	3	-	-
<b>PC15.</b> . provide inputs for analysis of breakdown trends and current maintenance process to identify areas for improvement to achieve cost savings and reduce breakdown timing	2	3	-	-
<b>PC16..</b> identify areas of improvement in the existing processes/systems and take measures to adhere to the identified kaizen/ process improvement initiatives	1	3	-	-
<b>PC17.</b> . ensure inputs from the line operators are considered while designing for various poka yoke , kaizen initiatives	1	2	-	-
<b>PC18.</b> . encourage team members/ supervisor/ operators to suggest quality improvement measures through suggestion schemes, evaluate feasibility of the ideas and discuss their implementation with seniors	1	2	-	-
<b>PC19..</b> support in analysing internal & external rejection data, planning and ensuring implementation of the corrective measures	1	3	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC20.</b> . ensure team has understanding of basic analytical tools like why why analysis, 7 QC tools, TQM principles to analyse various problems and design process improvement activities	2	3	-	-
<b>PC21.</b> . support the process engineering/ industrial engineering team in modifications of the process flow, process/ plant layout to improve the process TAT, operational ergonomics, work quality etc.	1	2	-	-
<i>Implementation of various initiatives</i>	<b>2</b>	<b>6</b>	-	-
<b>PC22..</b> take overall responsibility to ensure adherence to safety standards by all employees and establish zero accident practice in the section	1	3	-	-
<b>PC23..</b> implement various business excellence techniques like kaizen, 5s initiatives, etc. to enhance productivity for the plant/ shift	1	3	-	-
<b>NOS Total</b>	<b>30</b>	<b>70</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N0016
<b>NOS Name</b>	Understanding process requirements, ensuring process implementation & suggesting process improvement initiatives
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Manufacturing
<b>Occupation</b>	Welding
<b>NSQF Level</b>	6
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	28/12/2013
<b>Next Review Date</b>	28/12/2015
<b>NSQC Clearance Date</b>	

## Qualification Pack

# ASC/N0017: Manage the production related operations of the shift/line on a day to day basis

## Description

This NOS is about ensuring Operational Productivity

## Scope

The role will be responsible for

- managing operations in the shift/ Process
- manpower and material management in the shift/ process
- ensure conformance to quality parameters and norms
- analyse data on production, maintenance, quality, manpower deployment etc. The job holder will cover all types of manufacturing processes in the automobile industry. The role holder will interact with the different manufacturing process teams, maintenance team, material management team, industrial engineering team, Quality Control & Assurance team, Safety team and HR/IR team

## Elements and Performance Criteria

### *Manpower Management*

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

- PC1..** undertake effective shift planning based on manpower allocation and shift handling of place right manpower on the right workstation in coordination with production in-charge to achieve production targets
- PC2..** support the shop head/ process head in finalizing the shift rosters for the week and month based on the production plan available

### *Material Management*

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

- PC3..** send inventory requirements to stores and purchase department and follow up with stores and purchase to ensure timely receipt of material (spares, consumables)
- PC4..** ensure that the incoming raw material quality is inspected and meets the production requirement
- PC5. .** ensure that the material and work piece movement on the shop floor conforms to the TAT time prescribed in the SOP/ work plans so that production targets are met for the line/ shift

### *Supervise Production Operations*

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

- PC6. .** ensure that the production plan shared by the ppc team is fulfilled during the shift/ across lines
- PC7. .** coordinate with various functions like material management, stores, paint shop, assembly line, quality, safety, production planning etc. to ensure communication of required information and resolution of queries
- PC8..** responsible for end of line inspection under supervision

## Qualification Pack

- PC9..** ensure that the operators and helpers have the required tools and equipment at the start of the process
- PC10..** identify & implement action steps to reduce losses and wastages during shift operation and ensure minimum rejection of components
- PC11..** observe and note the consumption of energy, fuel, steam on the production line and utilize these inputs for optimization of various factors of production
- PC12..** support the maintenance team in finalizing the preventive maintenance schedule for the shop
- PC13..** ensure that the operator and helper are using the required personal protective equipment like goggles, masks, gloves and other ppes at the time of conducting the painting operation

### *Conformance to Product and Process Quality*

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

- PC14..** conduct random incoming quality inspection of material and provide the relevant feedback on the same to the store
- PC15..** conduct quality inspection of the process parameters, lab parameters and wip products and provide necessary feedback to the line leaders
- PC16..** conduct quality inspection of the first sample/batch to ensure that the quality of the product produced meet customer requirements
- PC17..** conduct inspection and analysis of the defects observed in the process and products

### *Data Collation and Analysis*

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

- PC18..** prepare daily and monthly production mis reports to match actual performance vis--vis the targets and report the same to production in-chart
- PC19..** verify the production and material movement related data entries in the system ( manual/ erp) for the shift and ensure correctness of the data
- PC20..** ensure compilation of data of breakdown maintenance and reporting the same to the maintenance team
- PC21..** collaborate with the maintenance team in conducting detailed breakdown analysis to understand problems, look out for process/ machine modifications and resolve the issues
- PC22..** conduct random sampling of the process parameters, finished goods and WIP products and provide necessary feedback to the line leaders
- PC23..** collaborate with the quality management and inspection team in conducting detailed analysis to resolve issues
- PC24..** collaborate with various supervisors to capture process data points as mentioned in the internal operating guidelines for data analytics
- PC25..** support the shop head/ process head in analysing the various data points related to production, maintenance, manpower deployment, material management, costs etc.
- PC26..** support the shop head/ process head in creating various analytical presentations required for process/ shop/ plant review

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant manufacturing standards and procedures followed in the company in detail

## Qualification Pack

- KU2.** different types of products manufactured by the company
- KU3.** knowledge of functional processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution
- KU4.** quality norms and standards prescribed in the Quality Manual by the organization for painting
- KU5.** 5S and Safety norms practiced in the organization
- KU6.** different types of manufacturing processes
- KU7.** requirement of raw materials used in the process
- KU8.** about tools, jigs and fixtures , their usage and maintenance
- KU9.** how to operate both in automatic and manual mode
- KU10.** basic understanding of robotics, CNC operations, data acquisitions systems, automatic recording instruments
- KU11.** different types of defects which may arise due to improper manufacturing
- KU12.** basic Arithmetic and calculation methods
- KU13.** ability to visualize the final product output and hence decide on the key steps to be followe
- KU14.** about handling of electrical equipment and circuits, rectifiers and control panel etc
- KU15.** metallurgical and chemical properties of the material under usage
- KU16.** how to measure the correct specifications of the output in the terms of thickness, hardness, durability, tightness etc
- KU17.** how to visualize the final product output and hence decide on the parameters of temperature, pressure, current and voltage
- KU18.** various problems solving tools like 7QC, Why Why Analysis, Brain storming
- KU19.** usage of various business correspondence tools like Email, MS Office tools ( Word, Excel, Power Point) etc.
- KU20.** about the various hazards related to various chemicals if used in the processes, the hazards involved in the process operations and usage of PPEs

## Generic Skills (GS)

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

- GS1.** create first level process manuals, Control Plans, Work Instructions in an manner that the operators can easily understand the process requirements and process steps
- GS2.** create small notes/ work documents/ diagrams for supervisors ,operators and helpers to help them understand the process
- GS3.** use emails and other business correspondence methods ( internal memos, circular etc. ) for communicating with other team members/ vendors/ suppliers etc.
- GS4.** read equipment manuals and process documents given by the equipment supplier to understand the equipment and processes better
- GS5.** discuss task lists, schedules, and work-loads with the operative team members
- GS6.** effectively explain supervisors, operators and helpers about equipment operations, process steps and other operational requirements
- GS7.** answer the queries raised by the operative team as well as intercompany departments

## Qualification Pack

- GS8.** effectively communicate with the operators and helpers and make them aware of work expectations, targets, policies, processes etc.
- GS9.** attentively listen with full attention the queries and grievances raised by the operative team and comprehend the information given by the speaker
- GS10.** communicate effectively to the team members
- GS11.** identify conflicts in the team and try to resolve them at the earliest
- GS12.** interact and engage with the team members on a day to day basis
- GS13.** counsel and coach the operators and help them resolve issues
- GS14.** timely highlight to the management about any good work/ achievement by the operators and helpers
- GS15.** identify problems occurring on the shop floor
- GS16.** break the problem into smaller issues and tasks to arrive at a solution
- GS17.** understand inter process relationship and establish relationship between various parts of the problem
- GS18.** leverage experience and technical expertise to find effective solutions to problems
- GS19.** use basic analytical tools to arrive at solutions
- GS20.** collaborate with cross functional teams to resolve problems
- GS21.** plan, organize and prioritize the work order and jobs received from the production manager
- GS22.** manage the schedule plan for the operators and helpers on the line/shift
- GS23.** validate all process/ equipment manuals so that the final process selected is correct
- GS24.** organize information, tools, manuals etc. on the shop floor so that sorting becomes easy
- GS25.** reorganize resources on the line/ shift in case of change of plans
- GS26.** use common sense and make judgments during day to day basis
- GS27.** use reasoning skills to identify and resolve problems
- GS28.** use intuition to detect any potential problems which could arise during operations
- GS29.** critically analyse solutions/ recommendations shared by operatives and supervisors for implementation
- GS30.** accept additional responsibility for self and the team
- GS31.** encourage self and other to take greater responsibilities
- GS32.** ensure that the work allocated to the team is completed as per timelines and quality norms
- GS33.** identify obstacles and bottlenecks in the process and on own find basic level solutions for removing these obstacles
- GS34.** motivate and provide support for the team on the shop floor
- GS35.** encourage collaboration between team members
- GS36.** resolve team issues and grievances to manage conflicts within the team
- GS37.** create an environment of approachability, trust and openness within the team
- GS38.** ensure role clarity for all operators and helpers on the line/ shift
- GS39.** escalate any team related issues to the concerned person at the right time
- GS40.** identify defective parts in the manufacturing line by comparing
- GS41.** manufactured pieces with the work standard

## Qualification Pack

- GS42.** link the defect observed with the overall impact on the performance of the component/ automobile
- GS43.** support and contribute in monitoring and delivering high quality output from self and others
- GS44.** train team members on maintaining quality standards set by the organization
- GS45.** use previous experience in resolving problems and taking decisions
- GS46.** make timely and independent decisions on the line/ shift within the boundaries of the delegation matrix of the organization
- GS47.** familiarise with leading practices available in the market
- GS48.** think independently on new approaches to manufacturing process, material management, data management and team management
- GS49.** represent any new ideas/ approaches on process improvement and productivity improvement to the seniors in the team

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Manpower Management</i>	<b>2</b>	<b>4</b>	-	-
<b>PC1..</b> undertake effective shift planning based on manpower allocation and shift handling of place right manpower on the right workstation in coordination with production in-charge to achieve production targets	1	2	-	-
<b>PC2..</b> support the shop head/ process head in finalizing the shift rosters for the week and month based on the production plan available	1	2	-	-
<i>Material Management</i>	<b>3</b>	<b>8</b>	-	-
<b>PC3..</b> send inventory requirements to stores and purchase department and follow up with stores and purchase to ensure timely receipt of material (spares, consumables)	1	2	-	-
<b>PC4..</b> ensure that the incoming raw material quality is inspected and meets the production requirement	1	3	-	-
<b>PC5. .</b> ensure that the material and work piece movement on the shop floor conforms to the TAT time prescribed in the SOP/ work plans so that production targets are met for the line/ shift	1	3	-	-
<i>Supervise Production Operations</i>	<b>10</b>	<b>24</b>	-	-
<b>PC6. .</b> ensure that the production plan shared by the ppc team is fulfilled during the shift/ across lines	1	3	-	-
<b>PC7. .</b> coordinate with various functions like material management, stores, paint shop, assembly line, quality, safety, production planning etc. to ensure communication of required information and resolution of queries	1	3	-	-
<b>PC8..</b> responsible for end of line inspection under supervision	1	3	-	-
<b>PC9..</b> ensure that the operators and helpers have the required tools and equipment at the start of the process	1	3	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC10..</b> identify & implement action steps to reduce losses and wastages during shift operation and ensure minimum rejection of components	2	3	-	-
<b>PC11. .</b> observe and note the consumption of energy, fuel, steam on the production line and utilize these inputs for optimization of various factors of production	2	3	-	-
<b>PC12. .</b> support the maintenance team in finalizing the preventive maintenance schedule for the shop	1	3	-	-
<b>PC13..</b> ensure that the operator and helper are using the required personal protective equipment like goggles, masks, gloves and other ppes at the time of conducting the painting operation	1	3	-	-
<i>Conformance to Product and Process Quality</i>	<b>6</b>	<b>12</b>	-	-
<b>PC14..</b> conduct random incoming quality inspection of material and provide the relevant feedback on the same to the store	2	3	-	-
<b>PC15..</b> conduct quality inspection of the process parameters, lab parameters and wip products and provide necessary feedback to the line leaders	2	3	-	-
<b>PC16..</b> conduct quality inspection of the first sample/batch to ensure that the quality of the product produced meet customer requirements	1	3	-	-
<b>PC17..</b> conduct inspection and analysis of the defects observed in the process and products	1	3	-	-
<i>Data Collation and Analysis</i>	<b>9</b>	<b>22</b>	-	-
<b>PC18..</b> prepare daily and monthly production mis reports to match actual performance vis--vis the targets and report the same to production in-chart	1	3	-	-
<b>PC19..</b> verify the production and material movement related data entries in the system ( manual/ erp) for the shift and ensure correctness of the data	1	3	-	-
<b>PC20..</b> ensure compilation of data of breakdown maintenance and reporting the same to the maintenance team	1	3	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC21..</b> collaborate with the maintenance team in conducting detailed breakdown analysis to understand problems, look out for process/ machine modifications and resolve the issues	1	2	-	-
<b>PC22..</b> conduct random sampling of the process parameters, finished goods and WIP products and provide necessary feedback to the line leaders	1	3	-	-
<b>PC23..</b> collaborate with the quality management and inspection team in conducting detailed analysis to resolve issues	1	2	-	-
<b>PC24..</b> collaborate with various supervisors to capture process data points as mentioned in the internal operating guidelines for data analytics	1	2	-	-
<b>PC25..</b> support the shop head/ process head in analysing the various data points related to production, maintenance, manpower deployment, material management, costs etc.	1	2	-	-
<b>PC26..</b> support the shop head/ process head in creating various analytical presentations required for process/ shop/ plant review	1	2	-	-
<b>NOS Total</b>	<b>30</b>	<b>70</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N0017
<b>NOS Name</b>	Manage the production related operations of the shift/line on a day to day basis
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Manufacturing
<b>Occupation</b>	Welding
<b>NSQF Level</b>	6
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	28/12/2013
<b>Next Review Date</b>	28/12/2015
<b>NSQC Clearance Date</b>	

## Qualification Pack

### ASC/N0018: Managing the team on the line/shift on a day to day basis

#### Description

This NOS unit is about managing the team of operatives and helpers on day to day basis, ensuring their shift deployment, motivating them by involving them in various engagement initiatives at the shop floor, helping them improve the skills levels and managing their grievances in the best possible manner in order to maximize the people productivity at the shop floor

#### Scope

The role will be responsible for

- engaging the workforce through employee engagement and communication
- finalizing manpower deployment
- measuring operator performance, sharing feedback and training of helpers and operators
- managing grievances of the team members The job holder will cover all types of manufacturing processes in the automobile industry. The role holder will interact with the different manufacturing process teams, maintenance team, material management team, industrial engineering team, Quality Control & Assurance team, Safety team and HR/IR team

#### Elements and Performance Criteria

##### *Engaging the shop floor work force through employee communication and employee engagement*

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

- PC1.** . ensure operators and helpers on the production line/ shift are aware of the job expectations on a daily basis
- PC2.** . ensure that the operators are aware of the production targets and the timelines required to process a work order as finalized in the production plan
- PC3..** involve operators and helpers for the daily floor meeting/ morning meetings/ staff meetings to communicate information intended for them
- PC4.** . ensure communication to line operators/ helpers on any changes in policies/ processes by the organization through required verbal/ written mechanisms
- PC5.** . ensure participation of employees in various engagement initiatives organized at the plant and other place by the organization
- PC6.** . involve operators and helpers in Quality Circles, TQM & kaizen meets, brainstorming sessions, safety drills etc. to increase their involvement in manufacturing operations
- PC7.** . ensure availability of tea, snacks, drinking water and basic hygiene facilities at the shop floor for the operative workforce.
- PC8..** escalate issues to concerned staff in case of any issue related to operative deployment and engagement
- PC9.** . ensure employees at the shop floor are motivated and their concerns are resolved

##### *Finalizing manpower deployment*

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

- PC10.** . finalize along with the process manager, the shift planning and manpower deployment for the shift/ line as per the proposed production plan

## Qualification Pack

- PC11.** . support the process manager in creating week wise shift rosters for the shift/ line manpower and ensure rotation of manpower as per the organizational norms and guidelines
- PC12.** . maintain the information on leaves/ IN Out time keeping and shift/ line overtime for the operatives and helpers and share the information with the concerned as and when required
- PC13..** identify skilled manpower for the process and ensure periodic up - dation of Skill Matrix/ skill chart for the shift/ line/ process area
- PC14..** ensure identification and deployment of right skilled people at the right places on the line/ process area

### *Employee Performance Measurement and Employee Development*

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

- PC15.** . ensure that all the operative manpower is aware of the production targets, production plan and daily productivity targets
- PC16.** . track the daily performance of the operators and helpers during the shift and note the achievement levels in a manual register/ online it enabled system
- PC17..** provide feedback to the operators and helper in case of any process deviation observed
- PC18..** provide feedback to managers pertaining to performance appraisals of operators and helpers
- PC19..** ensure that the operatives are trained and are aware of the processes which need to be followed on the shop floor during the production process
- PC20.** . support the manager and the training team in training of entry level operators and helpers in the plant
- PC21.** . share knowledge of processes , inputs and outputs with the operators to enhance their skill levels
- PC22.** . other than technical trainings, support the team by delivering trainings related to quality and safety for the operators and helpers
- PC23.** . drive a culture of creativity and innovation in the team by given the team members opportunity to think out of box and express their thoughts

### *Grievance Management for Operators and Helpers*

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

- PC24.** . in case the operating staff has any queries, ensure that the queries are resolved either by self or escalated to the concerned person
- PC25.** . listen to issues related to workmen problems/ work men grievances/ complaints/ personal problems etc. for the operators and helpers
- PC26..** resolve issues which are under the purview of the supervisor and escalate the ones which need higher intervention to the concerned team

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant HR Policies and Processes followed by the organization
- KU2.** different types of products manufactured by the company
- KU3.** knowledge of functional processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution

## Qualification Pack

- KU4.** 5S and Safety norms practiced in the organization
- KU5.** different types of manufacturing processes
- KU6.** various grievance management tools available in the organization
- KU7.** various problems solving tools like 7QC, Why Why Analysis, Brain storming
- KU8.** different types of communication channels practiced by the organization
- KU9.** the method of noting observations, maintaining records and sharing them with the concerned in the required format
- KU10.** knowledge of shift roster norms and guidelines
- KU11.** how and when to measure performance of the operators
- KU12.** how to share feedback with team members

## Generic Skills (GS)

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

- GS1.** document information from the manuals, discussion notes, process charts etc.
- GS2.** create small notes/ work documents/ diagrams for operators and helpers to help them understand the process
- GS3.** use emails and other business correspondence methods ( internal memos, circular etc. ) for communicating with other team members/ vendors/ suppliers etc
- GS4.** read internal information memos send by internal customers ( other functions within the organization)
- GS5.** discuss task lists, schedules, and work-loads with the operative team members
- GS6.** answer the queries raised by the operative team as well as intercompany departments
- GS7.** effectively communicate with the operators and helpers and make them aware of work expectations, targets, policies, processes etc.
- GS8.** attentively listen with full attention the queries and grievances raised by the operative team and comprehend the information given by the speaker
- GS9.** identify the strengths and weaknesses of the subordinate team members ( operators and helpers)
- GS10.** provide constructive and genuine feedback
- GS11.** motivate the team to take independently responsibilities in their work areas
- GS12.** provide training to the operators and helpers for technical and behavioural areas
- GS13.** communicate effectively to the team members
- GS14.** identify conflicts in the team and try to resolve them at the earliest
- GS15.** interact and engage with the team members on a day to day basis
- GS16.** counsel and coach the operators and help them resolve issues
- GS17.** timely highlight to the management about any good work/ achievement by the operators and helpers
- GS18.** display empathy for the problems faced by the team and act on the concerns
- GS19.** break the problem into smaller issues and tasks to arrive at a solution
- GS20.** understand inter process relationship and establish relationship between various parts of the problem

## Qualification Pack

- GS21.** leverage experience to find effective solutions to problems
- GS22.** use basic analytical tools to arrive at solutions
- GS23.** collaborate with cross functional teams to resolve problems
- GS24.** use common sense and make judgments during day to day basis
- GS25.** use reasoning skills to identify and resolve problems
- GS26.** use intuition to detect any potential problems which could arise during operations
- GS27.** critically analyse solutions/ recommendations shared by operatives and supervisors for implementation
- GS28.** accept additional responsibility for self and the team
- GS29.** encourage self and other to take greater responsibilities
- GS30.** ensure that the work allocated to the team is completed as per timelines and quality norms
- GS31.** identify obstacles and bottlenecks in the process and on own find basic level solutions for removing these obstacles
- GS32.** motivate and provide support for the team on the shop floor
- GS33.** encourage collaboration between team members
- GS34.** resolve team issues and grievances to manage conflicts within the team
- GS35.** create an environment of approachability, trust and openness within the team
- GS36.** ensure role clarity for all operators and helpers on the line/ shift
- GS37.** escalate any team related issues to the concerned person at the right time
- GS38.** use previous experience in resolving problems and taking decisions
- GS39.** make timely and independent decisions on the line/ shift within the boundaries of the delegation matrix of the organization

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Engaging the shop floor work force through employee communication and employee engagement</i>	<b>13</b>	<b>25</b>	-	-
<b>PC1.</b> . ensure operators and helpers on the production line/ shift are aware of the job expectations on a daily basis	2	3	-	-
<b>PC2.</b> . ensure that the operators are aware of the production targets and the timelines required to process a work order as finalized in the production plan	2	3	-	-
<b>PC3..</b> involve operators and helpers for the daily floor meeting/ morning meetings/ staff meetings to communicate information intended for them	1	2	-	-
<b>PC4.</b> . ensure communication to line operators/ helpers on any changes in policies/ processes by the organization through required verbal/ written mechanisms	1	3	-	-
<b>PC5.</b> . ensure participation of employees in various engagement initiatives organized at the plant and other place by the organization	1	2	-	-
<b>PC6.</b> . involve operators and helpers in Quality Circles, TQM & kaizen meets, brainstorming sessions, safety drills etc. to increase their involvement in manufacturing operations	2	3	-	-
<b>PC7.</b> . ensure availability of tea, snacks, drinking water and basic hygiene facilities at the shop floor for the operative workforce.	1	3	-	-
<b>PC8..</b> escalate issues to concerned staff in case of any issue related to operative deployment and engagement	1	3	-	-
<b>PC9.</b> . ensure employees at the shop floor are motivated and their concerns are resolved	2	3	-	-
<i>Finalizing manpower deployment</i>	<b>5</b>	<b>15</b>	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC10.</b> . finalize along with the process manager, the shift planning and manpower deployment for the shift/ line as per the proposed production plan	1	3	-	-
<b>PC11.</b> . support the process manager in creating week wise shift rosters for the shift/ line manpower and ensure rotation of manpower as per the organizational norms and guidelines	1	3	-	-
<b>PC12.</b> . maintain the information on leaves/ IN Out time keeping and shift/ line overtime for the operatives and helpers and share the information with the concerned as and when required	1	3	-	-
<b>PC13..</b> identify skilled manpower for the process and ensure periodic up - dation of Skill Matrix/ skill chart for the shift/ line/ process area	1	3	-	-
<b>PC14..</b> ensure identification and deployment of right skilled people at the right places on the line/ process area	1	3	-	-
<i>Employee Performance Measurement and Employee Development</i>	<b>9</b>	<b>23</b>	-	-
<b>PC15.</b> . ensure that all the operative manpower is aware of the production targets, production plan and daily productivity targets	1	3	-	-
<b>PC16.</b> . track the daily performance of the operators and helpers during the shift and note the achievement levels in a manual register/ online it enabled system	1	3	-	-
<b>PC17..</b> provide feedback to the operators and helper in case of any process deviation observed	1	3	-	-
<b>PC18..</b> provide feedback to managers pertaining to performance appraisals of operators and helpers	1	3	-	-
<b>PC19..</b> ensure that the operatives are trained and are aware of the processes which need to be followed on the shop floor during the production process	1	2	-	-
<b>PC20.</b> . support the manager and the training team in training of entry level operators and helpers in the plant	1	2	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC21.</b> . share knowledge of processes , inputs and outputs with the operators to enhance their skill levels	1	2	-	-
<b>PC22.</b> . other than technical trainings, support the team by delivering trainings related to quality and safety for the operators and helpers	1	2	-	-
<b>PC23.</b> . drive a culture of creativity and innovation in the team by given the team members opportunity to think out of box and express their thoughts	1	3	-	-
<i>Grievance Management for Operators and Helpers</i>	<b>3</b>	<b>7</b>	-	-
<b>PC24.</b> . in case the operating staff has any queries, ensure that the queries are resolved either by self or escalated to the concerned person	1	2	-	-
<b>PC25.</b> . listen to issues related to workmen problems/ work men grievances/ complaints/ personal problems etc. for the operators and helpers	1	3	-	-
<b>PC26.</b> .. resolve issues which are under the purview of the supervisor and escalate the ones which need higher intervention to the concerned team	1	2	-	-
<b>NOS Total</b>	<b>30</b>	<b>70</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N0018
<b>NOS Name</b>	Managing the team on the line/shift on a day to day basis
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Manufacturing
<b>Occupation</b>	Welding
<b>NSQF Level</b>	6
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	28/12/2013
<b>Next Review Date</b>	28/12/2015
<b>NSQC Clearance Date</b>	

## Qualification Pack

# ASC/N0022: Ensure implementation of 5S activities at the shop floor & the office area

## Description

This NOS is about overseeing the implementation of all 5 S activities both at the shop floor and the office area by the team members and training the team in implementation of the 5S principles

## Scope

The individual needs to

- Ensure sorting, streamlining/ organizing, storage and documentation, systematic cleaning, standardization and sustenance across the plant and office premises of the organization as given in the organization guidelines

## Elements and Performance Criteria

### *Ensure proper sorting of items at the work place*

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

- PC1..** ensure all recyclable materials are put in designated containers
- PC2.** ensure no tools, fixtures & jigs are lying on workstations unless in use and no un-necessary items is lying on workbenches or work surfaces unless in use
- PC3.** ensure that the operators and other team members are segregating the waste in hazardous/ non hazardous waste as per the sorting work instructions
- PC4.** ensure that all the operators are following the technique of waste disposal and waste storage in the designated bins
- PC5..** segregate the items which are labelled at red tag items for the process area and keep them in the correct places
- PC6..** ensure that all the tools/ equipment/ fasteners/ spare parts are arranged as per specifications/ utility into proper trays, cabinets, lockers as mentioned in the 5s guidelines/ work instructions
- PC7.** check for return of any type of extra material and tools to the designated sections and make sure that no additional material/ tool is lying near the work area
- PC8. .** oversee removal of unnecessary equipment, storage, furniture, unneeded inventory, supplies, parts and material
- PC9.** ensure that areas of material storage areas are not overflowing
- PC10.** ensure proper stacking and storage of 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

### *Ensure proper documentation and storage - streamlining & organizing the workplace*

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

- PC11.** ensure that the team follows the given instructions and checks for labelling of fluids, oils lubricants, solvents, chemicals etc and proper storage of the same to avoid spillage, leakage, fire etc

## Qualification Pack

- PC12.** make sure that all material and tools are stored in the designated places and in the manner indicated in the 5s instructions
- PC13.** ensure that organizing the workplace takes place with due considerations to the principles of wasted motions, ergonomics, work & method study .

### *Ensure cleaning of self and the work place*

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

- PC14.** ensure that the area has floors swept, machinery clean and is generally neat and tidy in case of cleaning, ensure that correct displays are maintained on the floor which indicate potential safety hazards
- PC15..** ensure workbenches and work surfaces are clean and in good condition
- PC16..** ensure adherence to the cleaning schedule for the lighting system to ensure proper illumination
- PC17..** ensure all recyclable materials are put in designated containers

### *Ensure standardization*

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

- PC18.** ensure that daily cleaning standards and schedules to create a clean working environment are followed across the plant
- PC19..** ensure all recyclable materials are put in designated containers
- PC20. .** ensure logical and user friendly documentation and file management for all activities across the plant and create guidelines around standardization of processes
- PC21.** ensure timely creation and sharing of the 5s checklists
- PC22.** ensure that the 5s manual are available as per the timelines

### *Ensure sustenance*

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

- PC23.** ensure team cooperation during the audit of 5 s activities
- PC24.** ensure that workmen are periodically trained to address challenges related to 5s
- PC25..** participate actively in employee work groups on 5s and encourage team members for active participation
- PC26..** oversee that the staff/operators are trained and fully understand 5s procedures
- PC27. .** ensure that all the guidelines for what to do and what not to do to build sustainability in 5s are mentioned in the 5s check lists/ work instructions and are easily searchable
- PC28.** ensure continuous training of the team members on 5s in order to increase their awareness and support implementation
- PC29.** ensure that all visual controls, notice boards, symbols etc at the manufacturing place are created, working and are put up as per the requirement

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant standards, procedures and policies related to 5S followed in the company
- KU2.** have basic knowledge of 5S procedures
- KU3.** know various types 5s practices followed in various areas

## Qualification Pack

- KU4.** understand the 5S checklists provided in the department/ team
- KU5.** have skills to identify useful & non useful items
- KU6.** have knowledge of labels , signs & colours used as indicators
- KU7.** Have knowledge on how to sort and store various types of tools,equipment, material etc
- KU8.** know , how to identify various types of waste products
- KU9.** understand the impact of waste/ dirt/ dust/unwantedsubstances on the process/ environment/ machinery/ humanbody
- KU10.** have knowledge of best and environment protective ways ofcleaning & waste disposal
- KU11.** understand the importance of standardization in processes
- KU12.** understand the importance of sustainability in 5S
- KU13.** have knowledge of TQM process
- KU14.** have knowledge of various materials and storage norms
- KU15.** understand visual controls, symbols, graphs etc

## Generic Skills (GS)

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

- GS1.** write basic level notes and observations
- GS2.** note down observations (if any) related to the process
- GS3.** write information documents to internal departments/ internal teams
- GS4.** read 5S instructions put up across the plant premises
- GS5.** effectively communicate information to team members inform employees in the plant and concerned functions about 5S
- GS6.** question the process head in order to understand the 5S related issues
- GS7.** attentively listen with full attention and comprehend the information given by the speaker during 5S training programs
- GS8.** use common sense and make judgments during day to day basis
- GS9.** use reasoning skills to identify and resolve basic problems using 5S
- GS10.** persuade team members to follow 5 S
- GS11.** ensure that the team members understand the importance of using 5 S tool
- GS12.** use innovative skills to perform and manage 5 S activities at the work desk and the shop floor
- GS13.** exhibit inquisitive behaviour to seek feedback and question on the existing set patterns of work emerge, techniques in CA/CI around 5 S work practices
- GS14.** do what is right, not what is a popular practice
- GS15.** follow shop floor rules& regulations and avoid deviations
- GS16.** lead by example in the plant premises while performing activities related to 5S
- GS17.** ensure self-cleanliness on a daily basis
- GS18.** demonstrate the will to keep the work area in a clean and orderly manner
- GS19.** accept additional responsibility for self and the team
- GS20.** encourage self and other to take greater responsibilities for managing 5S

## Qualification Pack

- GS21.** identify obstacles and bottlenecks in the process and find basic level solutions for removing these obstacles
- GS22.** use previous experience in resolving problems and taking decisions
- GS23.** make timely and independent decisions on the line/ shift within the boundaries of the delegation matrix of the organization

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Ensure proper sorting of items at the work place</i>	<b>10</b>	<b>25</b>	-	-
<b>PC1..</b> ensure all recyclable materials are put in designated containers	1	2.5	-	-
<b>PC2.</b> ensure no tools, fixtures & jigs are lying on workstations unless in use and no un-necessary items is lying on workbenches or work surfaces unless in use	1	2.5	-	-
<b>PC3.</b> ensure that the operators and other team members are segregating the waste in hazardous/ non hazardous waste as per the sorting work instructions	1	2.5	-	-
<b>PC4.</b> ensure that all the operators are following the technique of waste disposal and waste storage in the designated bins	1	2.5	-	-
<b>PC5..</b> segregate the items which are labelled at red tag items for the process area and keep them in the correct places	1	2.5	-	-
<b>PC6..</b> ensure that all the tools/ equipment/ fasteners/ spare parts are arranged as per specifications/ utility into proper trays, cabinets, lockers as mentioned in the 5s guidelines/ work instructions	1	2.5	-	-
<b>PC7.</b> check for return of any type of extra material and tools to the designated sections and make sure that no additional material/ tool is lying near the work area	1	2.5	-	-
<b>PC8. .</b> oversee removal of unnecessary equipment, storage, furniture, unneeded inventory, supplies, parts and material	1	2.5	-	-
<b>PC9.</b> ensure that areas of material storage areas are not overflowing	1	2.5	-	-
<b>PC10.</b> ensure proper stacking and storage of 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	1	2.5	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Ensure proper documentation and storage - streamlining &amp; organizing the workplace</i>	<b>3</b>	<b>7.5</b>	-	-
<b>PC11.</b> ensure that the team follows the given instructions and checks for labelling of fluids, oils lubricants, solvents, chemicals etc and proper storage of the same to avoid spillage, leakage, fire etc	1	2.5	-	-
<b>PC12.</b> make sure that all material and tools are stored in the designated places and in the manner indicated in the 5s instructions	1	2.5	-	-
<b>PC13.</b> ensure that organizing the workplace takes place with due considerations to the principles of wasted motions, ergonomics, work & method study .	1	2.5	-	-
<i>Ensure cleaning of self and the work place</i>	<b>4</b>	<b>10</b>	-	-
<b>PC14.</b> ensure that the area has floors swept, machinery clean and is generally neat and tidy in case of cleaning, ensure that correct displays are maintained on the floor which indicate potential safety hazards	1	2.5	-	-
<b>PC15..</b> ensure workbenches and work surfaces are clean and in good condition	1	2.5	-	-
<b>PC16..</b> ensure adherence to the cleaning schedule for the lighting system to ensure proper illumination	1	2.5	-	-
<b>PC17..</b> ensure all recyclable materials are put in designated containers	1	2.5	-	-
<i>Ensure standardization</i>	<b>5</b>	<b>12.5</b>	-	-
<b>PC18.</b> ensure that daily cleaning standards and schedules to create a clean working environment are followed across the plant	1	2.5	-	-
<b>PC19..</b> ensure all recyclable materials are put in designated containers	1	2.5	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC20.</b> . ensure logical and user friendly documentation and file management for all activities across the plant and create guidelines around standardization of processes	1	2.5	-	-
<b>PC21.</b> ensure timely creation and sharing of the 5s checklists	1	2.5	-	-
<b>PC22.</b> ensure that the 5s manual are available as per the timelines	1	2.5	-	-
<i>Ensure sustenance</i>	<b>7</b>	<b>16</b>	-	-
<b>PC23.</b> ensure team cooperation during the audit of 5 s activities	1	2.5	-	-
<b>PC24.</b> ensure that workmen are periodically trained to address challenges related to 5s	1	2.5	-	-
<b>PC25..</b> participate actively in employee work groups on 5s and encourage team members for active participation	1	2	-	-
<b>PC26..</b> oversee that the staff/operators are trained and fully understand 5s procedures	1	2	-	-
<b>PC27.</b> . ensure that all the guidelines for what to do and what not to do to build sustainability in 5s are mentioned in the 5s check lists/ work instructions and are easily searchable	1	2.5	-	-
<b>PC28.</b> ensure continuous training of the team members on 5s in order to increase their awareness and support implementation	1	2	-	-
<b>PC29.</b> ensure that all visual controls, notice boards, symbols etc at the manufacturing place are created, working and are put up as per the requirement	1	2.5	-	-
<b>NOS Total</b>	<b>29</b>	<b>71</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N0022
<b>NOS Name</b>	Ensure implementation of 5S activities at the shop floor & the office area
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Generic
<b>Occupation</b>	Generic
<b>NSQF Level</b>	6
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	15/03/2014
<b>Next Review Date</b>	15/03/2016
<b>NSQC Clearance Date</b>	

## Qualification Pack

# ASC/N3511: Ensure compliance towards different stages of machining operations, CNC programming, and machine setting

## Description

This NOS is about ensuring compliance towards different stages of machining operations, CNC Programming & Machine Setting

## Scope

The Machine Setter is responsible to:

- Ensure compliance towards stages of machining operations
- Ensure setting up of the CNC machine parameters
- Ensure compliance to machine setting operations The role holder will be responsible for interacting with assembly line, Heat Treatment, Materials Management, Maintenance, Quality Control and Assurance teams

## Elements and Performance Criteria

### *Ensure compliance towards all stages of machining operations*

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

- PC1.** . ensure that the machining operator understands the task at hand
- PC2.** . ensure that the team members understand and follow all the does and donts of the manufacturing process as defined in sops/ work instructions or defined by supervisors/ master technicians
- PC3.** . ensure that the operator understands the machining and tooling requirements -fixtures, etc. and the type of coolants
- PC4.** . observe the machine operations for any malfunctions to detect defects in the component manufactured inform the maintenance team of any malfunction observed to prevent damage to the machining equipment/output product
- PC5.** . ensure recording operational data is being done such as pressure readings, length of strokes, feed rates, speed etc. in the formats specified
- PC6..** ensure tool replacement as per recommended tool life in no. of pieces and that the machine is maintained as per proper operational condition/daily maintenance check
- PC7.** . perform minor repairs and adjustments to the machine and notify maintenance team when major service/repair is required .
- PC8.** . ensure all de-burring processes are complete through the use of the correct tool to remove the extra burrs, sharp edges, rust and chips from the metal surface
- PC9..** ensure that the operator is using devices like micrometers, vernier calipers, gauges, rulers and any other inspection equipment for measuring specifications with valid calibration status
- PC10..** ensure that calibration points are sent to the in-house agencies/ external as applicable
- PC11..** ensure changing different worn machine accessories, such as cutting/ grinding/ broaching/hobbing tools (as per tool life listed, recommended) other hand tools

## Qualification Pack

- PC12..** ensure removal of chips is completed by the operator from different machine areas and dispose of scrap or waste material into the disposal area in accordance with the company policies and environmental regulations
- PC13..** ensure changing different worn machine accessories, such as burnishing, lapping, buffing tools (as per tool life listed, recommended) other hand tools
- PC14..** verify the production and material movement related data entries in the system ( manual/ erp) for the line/ shift and ensure correctness of the data
- PC15..** ensure that the material and work piece movement on the shop floor conforms to the tat time prescribed in the sop/ work plans so that production targets are met for the line/ shift
- PC16..** ensure that suitable precautions are taken by the team while operating machining tools, edm and wire cutting tool , various tools for cutting and grinding operations, assembly tools and lifting equipment etc.

### *Ensure setting up of the CNC machine parameters*

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

- PC17..** analyse in detail the 3d cad drawings and other engineering drawings, sketches, work orders, circuit diagrams etc. to determine the type of product output including shape, geometric dimensions and tolerance and product surface
- PC18..** determine the overall process and process parameters like tool type, tool speed, feed rate as required to execute the work order
- PC19..** define the sequence of operations of the various machine tools as determined in the overall process
- PC20..** determine reference points, zero point, radial distance, angular distance, curvatures, path of movement of tools etc. by applying basic rules of geometry and trigonometry
- PC21..** ensure accurate calculation of hole distances, hole coordinates and dimensions as per the work orders/ sops
- PC22..** ensure geometrical configurations , alignments for fixture/ machine axes as given in the setting instructions.
- PC23..** load the program into the relevant machine and set the machine parameters based on the program settings
- PC24..** conduct trial tests or simulations to validate the results of the fed program on the machine operations and the overall product output
- PC25..** revise the program settings as per the test result and feed the revised program in the CNC operated machine
- PC26..** retest the machine observation and ensure conformance with the desired outcome as given in sop, first piece inspection etc.

### *Ensure compliance to machine setting operations*

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

- PC27..** ensure correct calculation of machine operating parameters which will be entered in the machine controllers
- PC28..** using cnc programming techniques, machine controller programming techniques, ensure that the correct program is written and selected for machine operations
- PC29..** ensure that the programming covers all machine parameters like temperature, pressure, part movement, cycle time, required current & voltage, raw material feed rate, coolant flow, lubricant flow etc. as per the equipment operating guidelines

## Qualification Pack

- PC30..** ensure that the program entered the machine is as per the loading criteria for the machine and that the machine is able to carry the operations at 100 % effectiveness
- PC31..** ensure conducting a test process after every change in the machine setting to ensure that the setting is in line with the final process outcomes

### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant manufacturing standards and procedures followed in the company
- KU2.** different types of products manufactured by the company
- KU3.** functional processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution
- KU4.** quality norms and standards prescribed in the Quality Manual by the organization for welding
- KU5.** 5S and Safety norms practiced in the organization
- KU6.** different types of machining processes
- KU7.** basic fundamentals of machines and mechanics
- KU8.** different types of tools used in the machining process with respect to type of process to be conducted
- KU9.** basic principles of 5 S in manufacturing Cleaning, sorting, etc.
- KU10.** the application of coolant and lubricants and their properties
- KU11.** Impact of various machining processes on the final product outcome
- KU12.** basic Arithmetic and calculation methods for tolerance limits
- KU13.** metallurgical properties of metals used for machining
- KU14.** the methods of using instruments like Verniercallipers, Micrometres, rulers and other inspection tools
- KU15.** various National and International machining standards used in automotive sector in India
- KU16.** how to read and interpret sketches and engineering drawings
- KU17.** how to visually represent the final product output and hence decide on the key steps to be followed for machining
- KU18.** safety guidelines related to different machines

### Generic Skills (GS)

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

- GS1.** create first level process manuals, Control Plans, Work Instructions in a manner that the operators can easily understand the process requirements and process steps
- GS2.** create small notes/ work documents/ diagrams for supervisors, operators and helpers to help them understand the process
- GS3.** use emails and other business correspondence methods ( internal memos, circular etc. ) for communicating with other team members/ vendors/ suppliers etc.

## Qualification Pack

- GS4.** read equipment manuals and process documents given by the equipment supplier to understand the equipment and processes better
- GS5.** discuss task lists, schedules, and work-loads with the operative team members
- GS6.** effectively explain supervisors, operators and helpers about equipment operations, process steps and other operational requirements
- GS7.** answer the queries raised by the operative team as well as intercompany departments
- GS8.** effectively communicate with the operators and helpers and make them aware of work expectations, targets, policies, processes etc.
- GS9.** attentively listen with full attention the queries and grievances raised by the operative team and comprehend the information given by the speaker
- GS10.** break the problem into smaller issues and tasks to arrive at a solution
- GS11.** understand inter process relationship and establish relationship between various parts of the problem
- GS12.** leverage experience to find effective solutions to problems
- GS13.** use basic analytical tools to arrive at solutions
- GS14.** plan, organize and prioritize the work order and jobs received from the production manager
- GS15.** manage the schedule plan for the operators and helpers on the line/shift
- GS16.** validate all process/ equipment manuals so that the final process
- GS17.** selected is correct
- GS18.** organize information, tools, manuals etc. on the shop floor so that sorting becomes easy
- GS19.** reorganize resources on the line/ shift in case of change of plans
- GS20.** use common sense and make judgments during day to day basis
- GS21.** use reasoning skills to identify and resolve problems
- GS22.** use intuition to detect any potential problems which could arise during operations
- GS23.** accept additional responsibility for self and the team
- GS24.** encourage self and other to take greater responsibilities
- GS25.** ensure that the work allocated to the team is completed as per timelines and quality norms
- GS26.** identify obstacles and bottlenecks in the process and on own find basic level solutions for removing these obstacles
- GS27.** identify defective parts in the manufacturing line by comparing
- GS28.** manufactured pieces with the work standard
- GS29.** link the defect observed with the overall impact on the performance of the component/ automobile
- GS30.** support and contribute in monitoring and delivering high quality output from self and others
- GS31.** train team members on maintaining quality standards set by the organization
- GS32.** use previous experience in resolving problems and taking decisions
- GS33.** make timely and independent decisions on the line/ shift within the boundaries of the delegation matrix of the organization
- GS34.** Familiarise with leading practices available in the market
- GS35.** Think independently on new approaches to manufacturing process, material management, data management and team management

## Qualification Pack

**GS36.** Represent any new ideas/ approaches on process improvement and productivity improvement to the seniors in the team

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Ensure compliance towards all stages of machining operations</i>	<b>16</b>	<b>34</b>	-	-
<b>PC1.</b> . ensure that the machining operator understands the task at hand	1	2	-	-
<b>PC2.</b> . ensure that the team members understand and follow all the does and donts of the manufacturing process as defined in sops/ work instructions or defined by supervisors/ master technicians	1	2	-	-
<b>PC3.</b> . ensure that the operator understands the machining and tooling requirements -fixtures, etc. and the type of coolants	1	2	-	-
<b>PC4.</b> . observe the machine operations for any malfunctions to detect defects in the component manufactured inform the maintenance team of any malfunction observed to prevent damage to the machining equipment/output product	1	2	-	-
<b>PC5.</b> . ensure recording operational data is being done such as pressure readings, length of strokes, feed rates, speed etc. in the formats specified	1	2	-	-
<b>PC6..</b> ensure tool replacement as per recommended tool life in no. of pieces and that the machine is maintained as per proper operational condition/daily maintenance check	1	2	-	-
<b>PC7.</b> . perform minor repairs and adjustments to the machine and notify maintenance team when major service/repair is required .	1	2	-	-
<b>PC8.</b> . ensure all de-burring processes are complete through the use of the correct tool to remove the extra burrs, sharp edges, rust and chips from the metal surface	1	2	-	-
<b>PC9..</b> ensure that the operator is using devices like micrometers, vernier calipers, gauges, rulers and any other inspection equipment for measuring specifications with valid calibration status	1	2	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC10..</b> ensure that calibration points are sent to the in-house agencies/ external as applicable	1	2	-	-
<b>PC11..</b> ensure changing different worn machine accessories, such as cutting/ grinding/ broaching/hobbing tools (as per tool life listed, recommended) other hand tools	1	2	-	-
<b>PC12..</b> ensure removal of chips is completed by the operator from different machine areas and dispose of scrap or waste material into the disposal area in accordance with the company policies and environmental regulations	1	2	-	-
<b>PC13..</b> ensure changing different worn machine accessories, such as burnishing, lapping, buffing tools (as per tool life listed, recommended) other hand tools	1	2	-	-
<b>PC14..</b> verify the production and material movement related data entries in the system ( manual/ erp) for the line/ shift and ensure correctness of the data	1	2	-	-
<b>PC15..</b> ensure that the material and work piece movement on the shop floor conforms to the tat time prescribed in the sop/ work plans so that production targets are met for the line/ shift	1	3	-	-
<b>PC16..</b> ensure that suitable precautions are taken by the team while operating machining tools, edm and wire cutting tool , various tools for cutting and grinding operations, assembly tools and lifting equipment etc.	1	3	-	-
<i>Ensure setting up of the CNC machine parameters</i>	<b>9</b>	<b>26</b>	-	-
<b>PC17..</b> analyse in detail the 3d cad drawings and other engineering drawings, sketches, work orders, circuit diagrams etc. to determine the type of product output including shape, geometric dimensions and tolerance and product surface	1	3	-	-
<b>PC18..</b> determine the overall process and process parameters like tool type, tool speed, feed rate as required to execute the work order	1	3	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC19..</b> define the sequence of operations of the various machine tools as determined in the overall process	1	3	-	-
<b>PC20..</b> determine reference points, zero point, radial distance, angular distance, curvatures, path of movement of tools etc. by applying basic rules of geometry and trigonometry	1	3	-	-
<b>PC21..</b> ensure accurate calculation of hole distances, hole coordinates and dimensions as per the work orders/ sops	0.5	3	-	-
<b>PC22..</b> ensure geometrical configurations , alignments for fixture/ machine axes as given in the setting instructions.	1	2	-	-
<b>PC23..</b> load the program into the relevant machine and set the machine parameters based on the program settings	1	2	-	-
<b>PC24..</b> conduct trial tests or simulations to validate the results of the fed program on the machine operations and the overall product output	0.5	3	-	-
<b>PC25..</b> revise the program settings as per the test result and feed the revised program in the CNC operated machine	1	2	-	-
<b>PC26..</b> retest the machine observation and ensure conformance with the desired outcome as given in sop, first piece inspection etc.	1	2	-	-
<i>Ensure compliance to machine setting operations</i>	<b>5</b>	<b>10</b>	-	-
<b>PC27..</b> ensure correct calculation of machine operating parameters which will be entered in the machine controllers	1	2	-	-
<b>PC28..</b> using cnc programming techniques, machine controller programming techniques, ensure that the correct program is written and selected for machine operations	1	2	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC29..</b> ensure that the programming covers all machine parameters like temperature, pressure, part movement, cycle time, required current & voltage, raw material feed rate, coolant flow, lubricant flow etc. as per the equipment operating guidelines	1	2	-	-
<b>PC30..</b> ensure that the program entered the machine is as per the loading criteria for the machine and that the machine is able to carry the operations at 100 % effectiveness	1	2	-	-
<b>PC31..</b> ensure conducting a test process after every change in the machine setting to ensure that the setting is in line with the final process outcomes	1	2	-	-
<b>NOS Total</b>	<b>30</b>	<b>70</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N3511
<b>NOS Name</b>	Ensure compliance towards different stages of machining operations, CNC programming, and machine setting
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Manufacturing
<b>Occupation</b>	Machining
<b>NSQF Level</b>	6
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	25/12/2013
<b>Next Review Date</b>	31/12/2015
<b>NSQC Clearance Date</b>	05/08/2015

## Qualification Pack

### Assessment Guidelines and Assessment Weightage

#### Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Element/ Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each Element/ PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
6. To pass the Qualification Pack assessment, every trainee should score the Recommended Pass % aggregate for the QP.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

**Recommended Pass % : 75**

#### Assessment Weightage

##### Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ASC/N0006.Maintain a safe and healthy working environment	25	75	-	-	100	15
ASC/N0016.Understanding process requirements, ensuring process implementation & suggesting process improvement initiatives	30	70	-	-	100	15

### Qualification Pack

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ASC/N0017.Manage the production related operations of the shift/line on a day to day basis	30	70	-	-	100	20
ASC/N0018.Managing the team on the line/shift on a day to day basis	30	70	-	-	100	15
ASC/N0022.Ensure implementation of 5S activities at the shop floor & the office area	29	71	-	-	100	10
ASC/N3511.Ensure compliance towards different stages of machining operations, CNC programming, and machine setting	30	70	-	-	100	25
<b>Total</b>	<b>174</b>	<b>426</b>	<b>-</b>	<b>-</b>	<b>600</b>	<b>100</b>

## Qualification Pack

### Acronyms

<b>NOS</b>	National Occupational Standard(s)
<b>NSQF</b>	National Skills Qualifications Framework
<b>QP</b>	Qualifications Pack
<b>TVET</b>	Technical and Vocational Education and Training

## Qualification Pack

### Glossary

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

## Qualification Pack

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