Qualifications Pack- Manager Heat Treatment / Metallurgist

SECTOR: AUTOMOTIVE

SUB-SECTOR: MANUFACTURING

OCCUPATION: HEAT TREATMENT

JOB ROLE: HEAT TREATMENT METALLURGIST

REFERENCE ID: ASC/Q3903

ALIGNED TO: NCO-2004/Nil

Heat Treatment Metallurgist: Also known as shift in charge, this role is similar for all types of Heat Treatment techniques like Carburising, Tempering, Nitriding, Induction Hardening and Quenching and is responsible for managing heat treatment operations in the shift.

Brief Job Description: This role is responsible for supervising the various heat treatment operations like Carburising, Tempering, Nitriding, Induction Hardening and Quenching, maintaining process & output parameters viz. Temperature, cycle time, bath concentrations & hardness, strength, microstructure, guiding operatives and technicians to complete the assigned task, maintaining a safe & healthy working environment on the shop floor and maintaining records related to production, rejections, material movement and manpower productivity for a line/shift.

Personal Attributes: Technical knowledge of Heat Treatment processes and metallurgy, reading, writing and communication skills, ability to plan and prioritize, quality consciousness, analytical thinking, sensitivity to problem solving, quick decision making, safety orientation, dexterity and high precision,
## Qualifications Pack Code
ASC/Q3903

## Job Role
Heat Treatment Metallurgist

## Credits (NSQF)
TBD

## Version number
1

## Industry
Automotive

## Drafted on
20/12/2013

## Sub-sector
Manufacturing

## Last reviewed on
25/12/2013

## Occupation
Heat Treatment

## Next review date
25/12/2015

### Job Role
#### Heat Treatment Metallurgist

#### Role Description
The role is responsible for supervising the various heat treatment processes like carburizing, tempering, induction hardening, nitriding and quenching during the shift, conducting quality checks and managing operations for a shift to fulfil the production plan as shared with the team.

#### NSQF Level
6

#### Minimum Educational Qualifications
Diploma in Metallurgy/ Graduate in Chemistry

#### Maximum Educational Qualifications
B.E/ B. Tech in Mechanical Engineering/ Metallurgy

#### Training
(Suggested but not mandatory)
- Latest heat treatment techniques available in the market
- 5S and Safety aspects
- Problem Solving Techniques
- Quality Management Systems
- Team Management skills
- IT and ERP awareness

#### Experience
Heat Treatment/ Furnace Operations Experience: 12-15 years (ITI Background) and 3-4 year (diploma background)

#### Occupational Standards (OS)
1. ASC/N3906: Manage various heat treatment operations like Carburizing, tempering, induction hardening, quenching and washing
2. ASC/N0016: Understanding process requirements, ensuring process implementation and suggest basic improvements
3. ASC/N0017: Manage production related operations of the a Shift/Line on a day to day basis
4. ASC/N0018: Managing the team on the Line/Shift on a day to day basis
| Performance Criteria | 5. ASC/N0006B: Maintain a safe and healthy working environment at the work place  
6. ASC/N0022: Ensure implementation of 5S activities at the shop floor and the office area |
<table>
<thead>
<tr>
<th>Keywords /Terms</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Skills/Generic Skills</td>
<td>Core Skills or Generic Skills are a group of skills that are key to learning and working in today's world. These skills are typically needed in any work environment. In the context of the NOS, these include communication related skills that are applicable to most job roles.</td>
</tr>
<tr>
<td>Function</td>
<td>Function is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of NOS.</td>
</tr>
<tr>
<td>Job role</td>
<td>Job role defines a unique set of functions that together form a unique employment opportunity in an organization.</td>
</tr>
<tr>
<td>Knowledge and Understanding</td>
<td>Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to perform to the required standard.</td>
</tr>
<tr>
<td>National Occupational Standards (NOS)</td>
<td>NOS are Occupational Standards which apply uniquely in the Indian context.</td>
</tr>
<tr>
<td>Occupation</td>
<td>Occupation is a set of job roles, which perform similar/related set of functions in an industry.</td>
</tr>
<tr>
<td>Organisational Context</td>
<td>Organisational Context includes the way the organization is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.</td>
</tr>
<tr>
<td>Performance Criteria</td>
<td>Performance Criteria are statements that together specify the standard of performance required when carrying out a task.</td>
</tr>
<tr>
<td>Qualifications Pack(QP)</td>
<td>Qualifications Pack comprises the set of NOS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification pack code.</td>
</tr>
<tr>
<td>Qualifications Pack Code</td>
<td>Qualifications Pack Code is a unique reference code that identifies a qualifications pack.</td>
</tr>
<tr>
<td>Scope</td>
<td>Scope is the set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on the quality of performance required.</td>
</tr>
<tr>
<td>Sector</td>
<td>Sector is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.</td>
</tr>
<tr>
<td>Sub-Sector</td>
<td>Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.</td>
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<tr>
<td>------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Sub-functions</td>
<td>Sub-functions are sub-activities essential to fulfil the achieving the objectives of the function.</td>
</tr>
<tr>
<td>Technical Knowledge</td>
<td>Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.</td>
</tr>
<tr>
<td>Unit Code</td>
<td>Unit Code is a unique identifier for a NOS unit, which can be denoted with an ‘N’.</td>
</tr>
<tr>
<td>Unit Title</td>
<td>Unit Title gives a clear overall statement about what the incumbent should be able to do.</td>
</tr>
<tr>
<td>Vertical</td>
<td>Vertical may exist within a sub-sector representing different domain areas or the client industries served by the industry.</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Keywords /Terms</th>
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<tbody>
<tr>
<td>NOS</td>
<td>National Occupational Standard(s)</td>
</tr>
<tr>
<td>NVEQF</td>
<td>National Vocational Education Qualifications Framework</td>
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<tr>
<td>NVQF</td>
<td>National Vocational Qualifications Framework</td>
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<td>NSQF</td>
<td>National Skills Qualifications Framework</td>
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<tr>
<td>OEM</td>
<td>Original Equipment Manufacturer</td>
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<tr>
<td>OS</td>
<td>Occupational Standard(s)</td>
</tr>
<tr>
<td>QP</td>
<td>Qualifications Pack</td>
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</tbody>
</table>

Acronyms
ASC/N3906: Manage various heat treatment operations like Carburizing, tempering, induction hardening, quenching and washing

Overview
This unit is about supervising the various heat treatment processes like tempering, induction hardening and quenching and managing Heat Treatment Shop operations
ASC/N3906: Manage various heat treatment operations like Carburizing, tempering, induction hardening, quenching and washing

<table>
<thead>
<tr>
<th>Unit Code</th>
<th>ASC/N3906</th>
</tr>
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<tbody>
<tr>
<td>Unit Title (Task)</td>
<td>Manage various heat treatment operations like Carburizing, tempering, induction hardening, quenching and washing</td>
</tr>
<tr>
<td>Description</td>
<td>This NOS is about supervising end to end operations to ensure that the final products manufactured by heat treatment team is as per the quality and production norms set by the organization</td>
</tr>
<tr>
<td>Scope</td>
<td>The Heat Treatment Metallurgist or shift in charge will be responsible for • managing end to end Heat Treatment operations in the shift • setting the furnace and gas flow parameters and operating process • training team members on the process The job holder will cover all types of heat treatment processes. The role holder will interact with the machine shop, assembly line, maintenance team, HR, quality management and material management team</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance Criteria (PC) w.r.t. the Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manage Heat Treatment operations during the shift</td>
</tr>
<tr>
<td>Performance Criteria</td>
</tr>
<tr>
<td>PC1.</td>
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<tr>
<td>PC2.</td>
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<td>PC3.</td>
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<td>PC4.</td>
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<td>PC5.</td>
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<td>PC6.</td>
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<tr>
<td>PC7.</td>
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<tr>
<td>PC8.</td>
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<tr>
<td>PC9.</td>
</tr>
</tbody>
</table>
ASC/N3906: Manage various heat treatment operations like Carburizing, tempering, induction hardening, quenching and washing

- Ensure that the operator and the helper are using the right technique as mentioned in the Work Instructions created by the metallurgist
- Ensure that the operator is maintaining the correct cycle time for the furnace and completion of the furnace operations as mentioned in the Control Plan/ Work Instructions/ SOPs
- Ensure that the operator takes the correct readings on the panels to ensure an error free and risk free operation of furnaces, exchanges and auxiliaries like agitator motors, coolant pumps, oil circulation pumps etc.
- Verify the product tagging used by the operator and ensure that the storage of produced goods is as per the SOPs/ Work Instructions and ensure that the measuring tools used by the operators are calibrated as per the internal guidelines/ SOPs
- Ensure that the correct processes are followed by the operator for the Quenching process (depending on the type of quenching process – Press Quenching, Plug Quenching and Free Quenching)
- Ensure that cleaning and maintenance of all related equipment is as per the schedule and checklist provided by the maintenance team
- 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
- Ensure that suitable precautions are taken by the team while operating furnaces, shot blasting machines, quenching machines, induction hardeners etc. like using the required Personal Protective Equipment
- Periodically conduct process audit to validate the correctness of the process followed by the operators and helpers
- Conduct batch wise Non Destructive Tests to ascertain the hardness, strength and microstructure of the treated component. Certify every batch of quality worthiness
- Conduct inspection of the selected work pieces in the laboratory for validtions
- Ensure hassle free and systematic material identification (Pre & Post Heat Treatment) and batch wise traceability to ensure minimum errors during finished goods management

| Knowledge and Understanding (K)w.r.t. the scope Element | Knowledge and Understanding |
**ASC/N3906: Manage various heat treatment operations like Carburizing, tempering, induction hardening, quenching and washing**

<table>
<thead>
<tr>
<th>A. Organizational Context</th>
<th>The user/individual on the job needs to know and understand:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>KA1. relevant manufacturing standards and procedures followed in the company</td>
</tr>
<tr>
<td></td>
<td>KA2. different types of products manufactured by the company</td>
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<tr>
<td></td>
<td>KA3. functional processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution</td>
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<tr>
<td></td>
<td>KA4. quality norms and standards prescribed in the Quality Manual by the organization for heat treatment</td>
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<tr>
<td></td>
<td>KA5. 5S and Safety norms practiced in the organization</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>B. Technical Knowledge</th>
<th>The user/individual on the job needs to know and understand:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>KB1. different types of heat treatment processes and associated equipment</td>
</tr>
<tr>
<td></td>
<td>KB2. different types of furnaces and process nuances for each type of heat treatment process</td>
</tr>
<tr>
<td></td>
<td>KB3. basic knowledge of the metallurgical properties of the material</td>
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<tr>
<td></td>
<td>KB4. relationship between various process parameters like furnace temperature, pressure, carbon potential, gas flow for endothermic process, Cycle time for heating during the heat treatment process</td>
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<tr>
<td></td>
<td>KB5. how to read displays on the computer monitor and understand the information being displayed</td>
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<tr>
<td></td>
<td>KB6. understand various alarms and signals in the furnace and the action required for each type of alarm</td>
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<tr>
<td></td>
<td>KB7. various standards required for the heat treatment process</td>
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<tr>
<td></td>
<td>KB8. basic knowledge of machining activities like Grinding, milling, shaping etc.</td>
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<tr>
<td></td>
<td>KB9. methods for lifting and loading/unloading the metal components in the furnace</td>
</tr>
<tr>
<td></td>
<td>KB10. methods to test hardness of metals and usage of hardness testing machines in laboratories</td>
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<tr>
<td></td>
<td>KB11. basic troubleshooting techniques for the furnaces</td>
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<tr>
<td></td>
<td>KB12. basic principles of geometric and drawing and tolerances</td>
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<tr>
<td></td>
<td>KB13. various mechanisms of material handling and shifting</td>
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<tr>
<td></td>
<td>KB14. various methods of inspection of finished goods</td>
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<tr>
<td></td>
<td>KB15. types of defects in treated components and impact of the defect on the overall equipment operations</td>
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<tr>
<td></td>
<td>KB16. various problems solving tools like 7QC, Why Why Analysis, Brainstorming</td>
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<tr>
<td></td>
<td>KB17. potential health and safety hazards and related Safety precautions to be undertaken during the Heat Treatment process</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Skills (S)w.r.t. the scope</th>
<th>Elements</th>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Core Skills/</td>
<td>Writing and reading skills</td>
<td></td>
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</tbody>
</table>
ASC/N3906: Manage various heat treatment operations like Carburizing, tempering, induction hardening, quenching and washing

<table>
<thead>
<tr>
<th>Generic Skills</th>
<th>The user/individual on the job needs to know and understand how to:</th>
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</thead>
<tbody>
<tr>
<td>SA1.</td>
<td>document information from the manuals, discussion notes, process charts etc.</td>
</tr>
<tr>
<td>SA2.</td>
<td>create small notes/work documents/diagrams for operators and helpers to help them understand the process</td>
</tr>
<tr>
<td>SA3.</td>
<td>write interdepartmental notes/memos or make suitable entries in the online system</td>
</tr>
<tr>
<td>SA4.</td>
<td>read equipment manuals and process documents to understand the equipment and processes better</td>
</tr>
<tr>
<td>SA5.</td>
<td>read internal information memos sent by internal customers (other functions within the organization)</td>
</tr>
</tbody>
</table>

**Oral Communication (Listening and Speaking skills)**

<table>
<thead>
<tr>
<th>The user/individual on the job needs to know and understand how to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA6. discuss task lists, schedules, and work-loads with the operative team members</td>
</tr>
<tr>
<td>SA7. answer the queries raised by the operative team as well as intercompany departments</td>
</tr>
<tr>
<td>SA8. effectively communicate with the operators and helpers and make them aware of work expectations, targets, policies, processes etc.</td>
</tr>
<tr>
<td>SA9. attentively listen with full attention to the queries and grievances raised by the operative team and comprehend the information given by the speaker</td>
</tr>
</tbody>
</table>

**B. Professional Skills**

**Analytical Thinking**

<table>
<thead>
<tr>
<th>The user/individual on the job needs to know and understand how to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB1. break the problem into smaller issues and tasks to arrive at a solution</td>
</tr>
<tr>
<td>SB2. understand interprocess relationship and establish relationship between various parts of the problem</td>
</tr>
<tr>
<td>SB3. leverage experience to find effective solutions to problems</td>
</tr>
<tr>
<td>SB4. use basic analytical tools to arrive at solutions</td>
</tr>
</tbody>
</table>

**Plan and Organize**

<table>
<thead>
<tr>
<th>The user/individual on the job needs to know and understand how to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB5. plan, organize and prioritize the work order and jobs received from the production manager</td>
</tr>
<tr>
<td>SB6. manage the schedule plan for the operators and helpers on the line/shift</td>
</tr>
<tr>
<td>SB7. validate all process/equipment manuals so that the final process selected is correct</td>
</tr>
<tr>
<td>SB8. organize information, tools, manuals etc. on the shop floor so that sorting becomes easy</td>
</tr>
<tr>
<td>SB9. reorganize resources on the line/shift in case of change of plans</td>
</tr>
</tbody>
</table>

**Judgment and Critical Thinking**
ASC/N3906: Manage various heat treatment operations like Carburizing, tempering, induction hardening, quenching and washing

<table>
<thead>
<tr>
<th>Description</th>
<th>Activities</th>
</tr>
</thead>
</table>
| **The user/individual on the job needs to know and understand how to:** | **SB10.** use common sense and make judgments during day to day basis  
**SB11.** use reasoning skills to identify and resolve problems  
**SB12.** use intuition to detect any potential problems which could arise during operations |
| **Ownership** | **SB13.** accept additional responsibility for self and the team  
**SB14.** encourage self and other to take greater responsibilities  
**SB15.** ensure that the work allocated to the team is completed as per timelines and quality norms  
**SB16.** identify obstacles and bottlenecks in the process and on own find basic level solutions for removing these obstacles |
| **Quality Consciousness** | **SB17.** identify defective parts in the manufacturing line by comparing manufactured pieces with the work standard  
**SB18.** link the defect observed with the overall impact on the performance of the component/ automobile  
**SB19.** support and contribute in monitoring and delivering high quality output from self and others  
**SB20.** train team members on maintaining quality standards set by the organization |
| **Decision making** | **SB21.** use previous experience in resolving problems and taking decisions  
**SB22.** make timely and independent decisions on the line/ shift within the boundaries of the delegation matrix of the organization |
| **Out of Box thinking** | **SB23.** familiarise with leading practices available in the market  
**SB24.** think independently on new approaches to manufacturing process, material management, data management and team management  
**SB25.** represent any new ideas/ approaches on process improvement and productivity improvement to the seniors in the team |
ASC/N3906: Manage various heat treatment operations like Carburizing, tempering, induction hardening, quenching and washing

NOS Version Control

<table>
<thead>
<tr>
<th>NOS Code</th>
<th>ASC/N3906</th>
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</thead>
<tbody>
<tr>
<td>Credits(NSQF)</td>
<td>TBD</td>
</tr>
<tr>
<td>Industry</td>
<td>Automotive</td>
</tr>
<tr>
<td>Industry Sub-sector</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Occupation</td>
<td>Heat Treatment</td>
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<td>Version number</td>
<td>1</td>
</tr>
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<td>Drafted on</td>
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</tr>
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<td>Last reviewed on</td>
<td>25/12/2013</td>
</tr>
<tr>
<td>Next review date</td>
<td>25/12/2015</td>
</tr>
</tbody>
</table>
Overview
This unit is about the understanding all the required processes, creating first level process documents, training operators on the process, ensuring process implementation and providing basic inputs for improvement
# ASC/N0016: Understanding process requirements, ensuring process implementation & suggesting process improvement initiatives

<table>
<thead>
<tr>
<th>Unit Code</th>
<th>ASC /N/0016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unit Title</strong></td>
<td>Understanding process requirements, ensuring implementation &amp; suggest basic improvements</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>This NOS 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</td>
</tr>
</tbody>
</table>
| **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 |

## Performance Criteria(PC) w.r.t. the Scope

<table>
<thead>
<tr>
<th>Element</th>
<th>Performance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC1.</td>
<td>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</td>
</tr>
<tr>
<td>PC2.</td>
<td>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</td>
</tr>
<tr>
<td>PC3.</td>
<td>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</td>
</tr>
<tr>
<td>PC4.</td>
<td>Share knowledge of processes, inputs and outputs with the operators and in order to enhance their skill levels</td>
</tr>
<tr>
<td>PC5.</td>
<td>Maintain work flow by monitoring steps of the processes, setting variables, observing control points and equipment</td>
</tr>
<tr>
<td>PC6.</td>
<td>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.)</td>
</tr>
<tr>
<td>PC7.</td>
<td>Ensuring recording and reporting procedures and systems are in place</td>
</tr>
<tr>
<td>PC8.</td>
<td>Facilitating corrections to malfunctions within process control points</td>
</tr>
<tr>
<td>PC9.</td>
<td>Ensure that all the tools and measuring instruments used on the shop floor are inspected, tested and calibrated internally/ externally as per the schedule</td>
</tr>
<tr>
<td>PC10.</td>
<td>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</td>
</tr>
</tbody>
</table>
### ASC/N0016: Understanding process requirements, ensuring process implementation & suggesting process improvement initiatives

| Process Improvement | 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  
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  
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.  
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 |

| Implementation of various initiatives |  |

| Knowledge and Understanding (K) |  |

#### A. Organizational Context (Knowledge of the company / organization and its processes)

The user/individual on the job needs to know and understand:

KA1. relevant manufacturing standards and procedures followed in the company in detail  
KA2. different types of products manufactured by the company  
KA3. knowledge of functional processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution  
KA4. quality norms and standards prescribed in the Quality Manual by the organization for painting  
KA5. 5S and Safety norms practiced in the organization
ASC/N0016: Understanding process requirements, ensuring process implementation & suggesting process improvement initiatives

<table>
<thead>
<tr>
<th>B. Technical Knowledge</th>
<th>The user/individual on the job needs to know and understand:</th>
</tr>
</thead>
<tbody>
<tr>
<td>KB1.</td>
<td>different types of manufacturing processes used</td>
</tr>
<tr>
<td>KB2.</td>
<td>requirement of raw materials used in the process</td>
</tr>
<tr>
<td>KB3.</td>
<td>about tools, jigs and fixtures, their usage and maintenance methods</td>
</tr>
<tr>
<td>KB4.</td>
<td>how to operate the machine in both, automatic and manual mode</td>
</tr>
<tr>
<td>KB5.</td>
<td>basic understanding of robotics, CNC operations, data acquisitions systems, automatic recording instruments</td>
</tr>
<tr>
<td>KB6.</td>
<td>using engineering drawings, sketches, control plan and work instructions in the plant</td>
</tr>
<tr>
<td>KB7.</td>
<td>usage of various measurement tools like Vernier Calipers, Micrometres, rulers, scales, weighing machines etc.</td>
</tr>
<tr>
<td>KB8.</td>
<td>basic arithmetic and calculation methods</td>
</tr>
<tr>
<td>KB9.</td>
<td>how to handle electrical equipment and circuits, rectifiers and control panel etc.</td>
</tr>
<tr>
<td>KB10.</td>
<td>different types of defects which may arise due to improper manufacturing and the impact of the defect on product performance</td>
</tr>
<tr>
<td>KB11.</td>
<td>metallurgical and chemical properties of material involved</td>
</tr>
<tr>
<td>KB12.</td>
<td>how to measure the correct specifications of the output in the terms of thickness, hardness, durability, tightness, finesse etc.</td>
</tr>
<tr>
<td>KB13.</td>
<td>various problems solving tools like 7QC, Why Why Analysis, Brain storming etc.</td>
</tr>
<tr>
<td>KB14.</td>
<td>key areas of power consumption/steam consumption, compressed air consumption etc.</td>
</tr>
<tr>
<td>KB15.</td>
<td>various data entry tools and formats used in the organization</td>
</tr>
<tr>
<td>KB16.</td>
<td>ability to visualize the final product output and hence decide on the key steps and parameters to be followed</td>
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<td>KB17.</td>
<td>usage of various business correspondence tools like Email, MS Office tools (Word, Excel, Power Point) etc.</td>
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<td>about the various hazards related to various chemicals if used in the processes, the hazards involved in the process operations and usage of PPEs</td>
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Skills (s) [optional]

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<th>A. Core Skills/ Generic Skills</th>
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<td>SA1.</td>
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<td>SA2.</td>
<td>create small notes/work documents/diagrams for supervisors, operators and helpers to help them understand the process</td>
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<td>SA3.</td>
<td>use emails and other business correspondence methods (internal memos, circular etc.) for communicating with other team members/vendors/suppliers etc.</td>
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<tr>
<td>SA4.</td>
<td>read equipment manuals and process documents given by the equipment supplier to understand the equipment and processes better</td>
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### ASC/N0016: Understanding process requirements, ensuring process implementation & suggesting process improvement initiatives

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<th>Oral Communication (Listening and Speaking skills)</th>
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<td>The user/individual on the job needs to know and understand how to:</td>
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<td>SA5. discuss task lists, schedules, and work-loads with the operative team members</td>
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<tr>
<td>SA6. effectively explain supervisors, operators and helpers about equipment operations, process steps and other operational requirements</td>
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<td>SA7. answer the queries raised by the operative team as well as intercompany departments</td>
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<tr>
<td>SA8. effectively communicate with the operators and helpers and make them aware of work expectations, targets, policies, processes etc.</td>
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<td>SA9. attentively listen with full attention the queries and grievances raised by the operative team and comprehend the information given by the speaker</td>
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### B. Professional Skills

#### Team Leadership

The user/individual on the job needs to know and understand how to:

| SB1. communicate effectively to the team members |
| SB2. identify conflicts in the team and try to resolve them at the earliest |
| SB3. interact and engage with the team members on a day to day basis |
| SB4. counsel and coach the operators and help them resolve issues |
| SB5. timely highlight to the management about any good work/achievement by the operators and helpers |

#### Analytical Thinking

The user/individual on the job needs to know and understand how to:

| SB6. break the problem into smaller issues and tasks to arrive at a solution |
| SB7. understand inter process relationship and establish relationship between various parts of the problem |
| SB8. leverage experience to find effective solutions to problems |
| SB9. use basic analytical tools to arrive at solutions |

#### Plan and Organize

The user/individual on the job needs to know and understand how to:

| SB10. plan, organize and prioritize the work order and jobs received from the production manager |
| SB11. manage the schedule plan for the operators and helpers on the line/shift |
| SB12. validate all process/equipment manuals so that the final process selected is correct |
| SB13. organize information, tools, manuals etc. on the shop floor so that sorting becomes easy |
| SB14. reorganize resources on the line/shift in case of change of plans |

#### Judgment and Critical Thinking
ASC/N0016: Understanding process requirements, ensuring process implementation & suggesting process improvement initiatives

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<td>SB16. use reasoning skills to identify and resolve problems</td>
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<td>SB17. use intuition to detect any potential problems which could arise during operations</td>
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**Ownership**

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<td>SB21. identify obstacles and bottlenecks in the process and on own find basic level solutions for removing these obstacles</td>
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<td>SB23. encourage collaboration between team members</td>
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<td>SB24. resolve team issues and grievances to manage conflicts within the team</td>
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<td>SB25. create an environment of approachability, trust and openness within the team</td>
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<td>SB26. ensure role clarity for all operators and helpers on the line/ shift</td>
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<td>SB27. escalate any team related issues to the concerned person at the right time</td>
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**Quality Consciousness**

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<td>SB29. manufactured pieces with the work standard</td>
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<td>SB30. link the defect observed with the overall impact on the performance of the component/ automobile</td>
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<td>SB31. support and contribute in monitoring and delivering high quality output from self and others</td>
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<td>SB32. train team members on maintaining quality standards set by the organization</td>
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**Decision making**

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<tr>
<td>SB29. think independently on new approaches to manufacturing process, material management, data management and team management</td>
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ASC/N0016: Understanding process requirements, ensuring process implementation & suggesting process improvement initiatives

| SB30. represent any new ideas/approaches on process improvement and productivity improvement to the seniors in the team |

## NOS Version Control

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

National Occupational Standard

Overview
This unit is about the ensuring the effective, efficient and safe production output in a shift/process shop
## ASC/N0017: Manage the production related operations of the shift/line on a day to day basis

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<th>Unit Code</th>
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<tr>
<td>Unit Title (Task)</td>
<td>Manage the production related operations of the shift/line on a day to day basis</td>
</tr>
<tr>
<td>Description</td>
<td>This NOS is about ensuring Operational Productivity</td>
</tr>
</tbody>
</table>
| 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 |

### Performance Criteria(PC) w.r.t. the Scope

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<th>Element</th>
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<tr>
<td><strong>Manpower Management</strong></td>
<td></td>
</tr>
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</table>
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** |  
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** |  
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  
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 |
**ASC/N0017: Manage the production related operations of the shift/line on a day to day basis**

<table>
<thead>
<tr>
<th>Conformance to Product and Process Quality</th>
<th>PC13. Ensure that the operator and helper are using the required Personal Protective Equipment like Goggles, masks, gloves and other PPE's at the time of conducting the operation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PC14. Conduct random incoming quality inspection of material and provide the relevant feedback on the same to the store</td>
</tr>
<tr>
<td></td>
<td>PC15. Conduct quality inspection of the process parameters, lab parameters and WIP products and provide necessary feedback to the line leaders</td>
</tr>
<tr>
<td></td>
<td>PC16. Conduct quality inspection of the first sample/batch to ensure that the quality of the product produced meet customer requirements</td>
</tr>
<tr>
<td></td>
<td>PC17. Conduct inspection and analysis of the defects observed in the process and products</td>
</tr>
<tr>
<td>Data Collation and Analysis</td>
<td>PC18. Prepare daily and monthly production MIS reports to match actual performance vis-à-vis the targets and report the same to Production In-chart</td>
</tr>
<tr>
<td></td>
<td>PC19. Verify the production and material movement related data entries in the system (manual/ERP) for the shift and ensure correctness of the data</td>
</tr>
<tr>
<td></td>
<td>PC20. Ensure compilation of data of breakdown maintenance and reporting the same to the maintenance team</td>
</tr>
<tr>
<td></td>
<td>PC21. Collaborate with the maintenance team in conducting detailed breakdown analysis to understand problems, look out for process/machine modifications and resolve the issues</td>
</tr>
<tr>
<td></td>
<td>PC22. Conduct random sampling of the process parameters, finished goods and WIP products and provide necessary feedback to the line leaders</td>
</tr>
<tr>
<td></td>
<td>PC23. Collaborate with the Quality Management and Inspection team in conducting detailed analysis to resolve issues</td>
</tr>
<tr>
<td></td>
<td>PC24. Collaborate with various supervisors to capture process data points as mentioned in the internal operating guidelines for data analytics</td>
</tr>
<tr>
<td></td>
<td>PC25. Support the Shop Head/Process Head in analysing the various data points related to production, maintenance, manpower deployment, material management, costs etc.</td>
</tr>
<tr>
<td></td>
<td>PC26. Support the Shop Head/Process Head in creating various analytical presentations required for process/shop/ plant review</td>
</tr>
</tbody>
</table>

**Knowledge and Understanding (K)**

<table>
<thead>
<tr>
<th>B. Organizational Context (Knowledge of the company/organization and its processes)</th>
<th>The user/individual on the job needs to know and understand:</th>
</tr>
</thead>
<tbody>
<tr>
<td>KA1. relevant manufacturing standards and procedures followed in the company in detail</td>
<td></td>
</tr>
<tr>
<td>KA2. different types of products manufactured by the company</td>
<td></td>
</tr>
<tr>
<td>KA3. knowledge of functional processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution</td>
<td></td>
</tr>
<tr>
<td>KA4. quality norms and standards prescribed in the Quality Manual by the organization for painting</td>
<td></td>
</tr>
<tr>
<td>KA5. 5S and Safety norms practiced in the organization</td>
<td></td>
</tr>
</tbody>
</table>
## ASC/N0017: Manage the production related operations of the shift/line on a day to day basis

### B. Technical Knowledge

The user/individual on the job needs to know and understand:

- **KB1.** different types of manufacturing processes
- **KB2.** requirement of raw materials used in the process
- **KB3.** about tools, jigs and fixtures, their usage and maintenance
- **KB4.** how to operate both in automatic and manual mode
- **KB5.** basic understanding of robotics, CNC operations, data acquisitions systems, automatic recording instruments
- **KB6.** different types of defects which may arise due to improper manufacturing
- **KB7.** basic Arithmetic and calculation methods
- **KB8.** ability to visualize the final product output and hence decide on the key steps to be followed
- **KB9.** about handling of electrical equipment and circuits, rectifiers and control panel etc.
- **KB10.** metallurgical and chemical properties of the material under usage
- **KB11.** how to measure the correct specifications of the output in the terms of thickness, hardness, durability, tightness etc
- **KB12.** how to visualize the final product output and hence decide on the parameters of temperature, pressure, current and voltage
- **KB13.** various problems solving tools like 7QC, Why Why Analysis, Brainstorming
- **KB14.** usage of various business correspondence tools like Email, MS Office tools (Word, Excel, Power Point) etc.
- **KB15.** about the various hazards related to various chemicals if used in the processes, the hazards involved in the process operations and usage of PPEs

### Skills (s) [optional]

#### C. Core Skills/ Generic Skills

**Writing and reading skills**

The user/individual on the job needs to know and understand how to:

- **SA1.** create first level process manuals, Control Plans, Work Instructions in a manner that the operators can easily understand the process requirements and process steps
- **SA2.** create small notes/work documents/diagrams for supervisors, operators and helpers to help them understand the process
- **SA3.** use emails and other business correspondence methods (internal memos, circular etc.) for communicating with other team members/vendors/suppliers etc.
- **SA4.** read equipment manuals and process documents given by the equipment supplier to understand the equipment and processes better

**Oral Communication (Listening and Speaking skills)**

The user/individual on the job needs to know and understand how to:

- **SA5.** discuss task lists, schedules, and work-loads with the operative team members
- **SA6.** effectively explain supervisors, operators and helpers about equipment
ASC/N0017: Manage the production related operations of the shift/line on a day to day basis

| operations, process steps and other operational requirements |
| SA7. answer the queries raised by the operative team as well as intercompany departments |
| SA8. effectively communicate with the operators and helpers and make them aware of work expectations, targets, policies, processes etc. |
| SA9. attentively listen with full attention the queries and grievances raised by the operative team and comprehend the information given by the speaker |

| Team Leadership |
| The user/individual on the job needs to know and understand: |
| SB1. communicate effectively to the team members |
| SB2. identify conflicts in the team and try to resolve them at the earliest |
| SB3. interact and engage with the team members on a day to day basis |
| SB4. counsel and coach the operators and help them resolve issues |
| SB5. timely highlight to the management about any good work/ achievement by the operators and helpers |

| Analytical Thinking and Problem Solving |
| The user/individual on the job needs to know and understand how to: |
| SB6. identify problems occurring on the shop floor |
| SB7. break the problem into smaller issues and tasks to arrive at a solution |
| SB8. understand inter process relationship and establish relationship between various parts of the problem |
| SB9. leverage experience and technical expertise to find effective solutions to problems |
| SB10. use basic analytical tools to arrive at solutions |
| SB11. collaborate with cross functional teams to resolve problems |

| Plan and Organize |
| The user/individual on the job needs to know and understand how to: |
| SB12. plan, organize and prioritize the work order and jobs received from the production manager |
| SB13. manage the schedule plan for the operators and helpers on the line/shift |
| SB14. validate all process/equipment manuals so that the final process selected is correct |
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| SB16. reorganize resources on the line/shift in case of change of plans |

| Judgment and Critical Thinking |
| The user/individual on the job needs to know and understand how to: |
| SB17. use common sense and make judgments during day to day basis |
| SB18. use reasoning skills to identify and resolve problems |
| SB19. use intuition to detect any potential problems which could arise during operations |
| SB20. critically analyse solutions/recommendations shared by operatives and supervisors for implementation |
ASC/N0017: Manage the production related operations of the shift/line on a day to day basis

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

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Overview
This unit is about effective management of the team of operators and helpers for day to day operations in the line/shift
**Unit Code**
ASC /N0018

**Unit Title**
Managing the team in the shift on a day to day basis

**Description**
This NOS 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.

**Performance Criteria(PC) w.r.t. the Scope**

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<tr>
<th>Element</th>
<th>Performance Criteria</th>
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| Engaging the shop floor workforce through employee communication and employee engagement | 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 |
| Finalizing manpower deployment | PC9. Finalize along with the process manager, the shift planning and manpower deployment for the shift/ line as per the proposed production plan  
PC10. Support the process manager in creating week wise shift rosters for |
### ASC/N0018: Managing the team on the line/shift on a day to day basis

<table>
<thead>
<tr>
<th>Employee Performance Measurement and Employee Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>the shift/ line manpower and ensure rotation of manpower as per the organizational norms and guidelines</td>
</tr>
<tr>
<td>PC11. 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</td>
</tr>
<tr>
<td>PC12. Identify skilled manpower for the process and ensure periodic updation of Skill Matrix/ Skill Chart for the shift/ line/ process area</td>
</tr>
<tr>
<td>PC13. Support deployment of operatives and skill manpower based on the skill matrix created</td>
</tr>
<tr>
<td>PC14. Ensure identification and deployment of right skilled people at the right places on the line/ process area</td>
</tr>
</tbody>
</table>

| 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 |

<table>
<thead>
<tr>
<th>Grievance Management for Operators and Helpers</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC24. In case the operating staff has any queries, ensure that the queries are resolved either by self or escalated to the concerned person</td>
</tr>
<tr>
<td>PC25. Listen to issues related to workmen problems/ work men grievances/ Complaints/ Personal Problems etc. for the operators and helpers</td>
</tr>
<tr>
<td>PC26. Resolve issues which are under the purview of the supervisor and escalate the ones which need higher intervention to the concerned team</td>
</tr>
<tr>
<td>PC27. Counsel employees for any work related issues or any personal problems highlighted by the employee</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Knowledge and Understanding (K)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Organizational Context</strong> (Knowledge of the company / organization and its)</td>
</tr>
<tr>
<td>The user/individual on the job needs to know and understand:</td>
</tr>
<tr>
<td>KA1. relevant HR Policies and Processes followed by the organization</td>
</tr>
<tr>
<td>KA2. different types of products manufactured by the company</td>
</tr>
<tr>
<td>KA3. knowledge of functional processes like Procurement, Store management, inventory management, quality management and key contact points for</td>
</tr>
</tbody>
</table>
### ASC/N0018: Managing the team on the line/shift on a day to day basis

| processes) | query resolution  
| KA4. 5S and Safety norms practiced in the organization |

#### B. Technical Knowledge

The user/individual on the job needs to know and understand:

- **KB1.** different types of manufacturing processes
- **KB2.** various grievance management tools available in the organization
- **KB3.** various problems solving tools like 7QC, Why Why Analysis, Brainstorming
- **KB4.** different types of communication channels practiced by the organization
- **KB5.** the method of noting observations, maintaining records and sharing them with the concerned in the required format
- **KB6.** knowledge of shift roster norms and guidelines
- **KB7.** how and when to measure performance of the operators
- **KB8.** how to share feedback with team members

<table>
<thead>
<tr>
<th>Skills (s) [optional]</th>
</tr>
</thead>
</table>

#### A. Core Skills/ Generic Skills

**Writing and reading skills**

The user/individual on the job needs to know and understand how to:

- **SA1.** document information from the manuals, discussion notes, process charts etc.
- **SA2.** create small notes/ work documents/ diagrams for operators and helpers to help them understand the process
- **SA3.** use emails and other business correspondence methods (internal memos, circular etc.) for communicating with other team members/ vendors/ suppliers etc
- **SA4.** read internal information memos send by internal customers (other functions within the organization)

**Oral Communication (Listening and Speaking skills)**

The user/individual on the job needs to know and understand how to:

- **SA5.** discuss task lists, schedules, and work-loads with the operative team members
- **SA6.** answer the queries raised by the operative team as well as intercompany departments
- **SA7.** effectively communicate with the operators and helpers and make them aware of work expectations, targets, policies, processes etc.
- **SA8.** attentively listen with full attention the queries and grievances raised by the operative team and comprehend the information given by the speaker

#### B. Professional Skills

**People Development**

The user/individual on the job needs to know and understand how to:

- **SB1.** identify the strengths and weaknesses of the subordinate team members (operators and helpers)
- **SB2.** provide constructive and genuine feedback
- **SB3.** motivate the team to take independently responsibilities in their work areas
### ASC/N0018: Managing the team on the line/shift on a day to day basis

<table>
<thead>
<tr>
<th>SB4.</th>
<th>provide training to the operators and helpers for technical and behavioural areas</th>
</tr>
</thead>
</table>

#### Team Leadership

The user/individual on the job needs to know and understand how to:

- SB5. communicate effectively to the team members
- SB6. identify conflicts in the team and try to resolve them at the earliest
- SB7. interact and engage with the team members on a day to day basis
- SB8. counsel and coach the operators and help them resolve issues
- SB9. timely highlight to the management about any good work/achievement by the operators and helpers
- SB10. display empathy for the problems faced by the team and act on the concerns

#### Analytical Thinking

The user/individual on the job needs to know and understand how to:

- SB11. break the problem into smaller issues and tasks to arrive at a solution
- SB12. understand inter process relationship and establish relationship between various parts of the problem
- SB13. leverage experience to find effective solutions to problems
- SB14. use basic analytical tools to arrive at solutions
- SB15. collaborate with cross functional teams to resolve problems

#### Judgment and Critical Thinking

The user/individual on the job needs to know and understand how to:

- SB16. use common sense and make judgments during day to day basis
- SB17. use reasoning skills to identify and resolve problems
- SB18. use intuition to detect any potential problems which could arise during operations
- SB19. critically analyse solutions/recommendations shared by operatives and supervisors for implementation

#### Ownership

The user/individual on the job needs to know and understand how to:

- SB20. accept additional responsibility for self and the team
- SB21. encourage self and other to take greater responsibilities
- SB22. ensure that the work allocated to the team is completed as per timelines and quality norms
- SB23. identify obstacles and bottlenecks in the process and on own find basic level solutions for removing these obstacles

#### Team Work

The user/individual on the job needs to know and understand how to:

- SB24. motivate and provide support for the team on the shop floor
- SB25. encourage collaboration between team members
- SB26. resolve team issues and grievances to manage conflicts within the team
- SB27. create an environment of approachability, trust and openness within the team
- SB28. ensure role clarity for all operators and helpers on the line/shift
- SB29. escalate any team related issues to the concerned person at the right
ASC/N0018: Managing the team on the line/shift on a day to day basis

<table>
<thead>
<tr>
<th>Decision making</th>
</tr>
</thead>
<tbody>
<tr>
<td>The user/individual on the job needs to know and understand how to:</td>
</tr>
<tr>
<td>SB30. use previous experience in resolving problems and taking decisions</td>
</tr>
<tr>
<td>SB31. make timely and independent decisions on the line/shift within the</td>
</tr>
<tr>
<td>boundaries of the delegation matrix of the organization</td>
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</tbody>
</table>

NOS Version Control

<table>
<thead>
<tr>
<th>NOS Code</th>
<th>ASC/N0018</th>
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<tbody>
<tr>
<td>Credits(NSQF)</td>
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<td>Next review date</td>
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</table>
Overview
This unit is about maintaining a Safe and Healthy working environment
ASC/N0006B: Maintain a safe and healthy working environment at the work place

<table>
<thead>
<tr>
<th>Unit Code</th>
<th>ASC/N0006B</th>
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</thead>
<tbody>
<tr>
<td>Unit Title (Task)</td>
<td>Maintain a safe and healthy working environment at the work place</td>
</tr>
<tr>
<td>Description</td>
<td>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</td>
</tr>
<tr>
<td>Scope</td>
<td>The role holder will be responsible for</td>
</tr>
<tr>
<td></td>
<td>• identifying and reporting of risks</td>
</tr>
<tr>
<td></td>
<td>• creating and sustaining a safe, clean and environment friendly work place</td>
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<td></td>
<td>This NOS will be applicable to all Automotive sector manufacturing job roles</td>
</tr>
</tbody>
</table>

### Performance Criteria (PC) w.r.t. the Scope

<table>
<thead>
<tr>
<th>Element</th>
<th>Performance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify and report the risks identified</td>
<td>PC1. Identify activities which can cause potential injury through sharp objects, burns, fall, electricity, gas leakages, radiation, poisonous fumes, chemicals, loud noise</td>
</tr>
<tr>
<td></td>
<td>PC2. Identify areas in the plant which are potentially hazardous/unhygienic in nature</td>
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<td></td>
<td>PC3. Conduct regular checks on machine health to identify potential hazards due to wear and tear of machine</td>
</tr>
<tr>
<td></td>
<td>PC4. Ensure that all equipment are tested of safety conformance as per the cycle/timelines identified in the organization</td>
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<tr>
<td></td>
<td>PC5. Inform the shop head and the safety team about the potential risks identified in the processes, workplace area/layout, material used, malfunctioning of safety related equipment etc.</td>
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<tr>
<td></td>
<td>PC6. Inform the maintenance team about machine breakdowns, damages which can potentially harm man/machine during operations and analyse their defects to prevent any future damage to men/machine</td>
</tr>
<tr>
<td></td>
<td>PC7. Ensure that all risk involving and hazardous areas near the work place are marked/tagged in order to caution the users of the work area/machinery</td>
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<tr>
<td></td>
<td>PC8. Create awareness amongst other by sharing information on the identified risks. Ensure that periodic awareness sessions are conducted for the helpers and operatives to make them aware of the risks identified</td>
</tr>
<tr>
<td>Create and sustain a Safe, clean and environment friendly work place</td>
<td>PC9. Support the Safety team in risk identification and creation of a risk mitigation plan</td>
</tr>
<tr>
<td></td>
<td>PC10. Train team members on safety and health related issues</td>
</tr>
<tr>
<td></td>
<td>PC11. Ensure that all team members operate the machine using the recommended Personal Protective Equipment (PPE) and also ensure self-usage of the required PPEs</td>
</tr>
<tr>
<td></td>
<td>PC12. Ensure that all operatives follow the instructions given on the</td>
</tr>
</tbody>
</table>
ASC/N0006B: Maintain a safe and healthy working environment at the workplace

<table>
<thead>
<tr>
<th>Knowledge and Understanding (K)w.r.t. the scope</th>
<th>Knowledge and Understanding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Organizational Context</strong> (Knowledge of the company / organization and its processes)</td>
<td>The user/individual on the job needs to know and understand:</td>
</tr>
<tr>
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<tr>
<td><strong>B. Technical Knowledge</strong></td>
<td>The user/individual on the job needs to know and understand:</td>
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<td>KB5. knowledge of personal hygiene and how an individual can</td>
</tr>
</tbody>
</table>
**ASC/N0006B: Maintain a safe and healthy working environment at the work place**

<table>
<thead>
<tr>
<th>Skills (S)w.r.t. the scope</th>
<th>Element</th>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A. Core Skills/ Generic Skills</td>
<td>Writing Skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The user/ individual on the job needs to know and understand how to:</td>
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<tr>
<td></td>
<td></td>
<td>SA1. write basic level notes and observations</td>
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<tr>
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<td></td>
<td>SA2. note down observations (if any) related to the process</td>
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<tr>
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<td>SA3. write information documents to internal departments/ internal teams</td>
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<tr>
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<td></td>
<td>Reading Skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The user/individual on the job needs to know and understand how to:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SA4. read safety instructions put up across the plant premises</td>
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<tr>
<td></td>
<td></td>
<td>SA5. read safety precautions mentioned in equipment manuals and panels to understand the potential risks associated</td>
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<tr>
<td></td>
<td></td>
<td>Oral Communication (Listening and Speaking skills)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The user/individual on the job needs to know and understand how to:</td>
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<tr>
<td></td>
<td></td>
<td>SA6. effectively communicate information to team members</td>
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<td></td>
<td></td>
<td>SA7. Inform employees in the plant and concerned functions about events, incidents &amp; potential risks observed related to Safety, Health and Environment.</td>
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<td>SA8. question the process head/ safety team in order to understand the safety related issues</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SA9. attentively listen with full attention and comprehend the information given by the speaker during safety drills and training programs</td>
</tr>
<tr>
<td></td>
<td>B. Professional Skills</td>
<td>Judgmental Thinking</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The user/ individual on the job needs to know and understand how to:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SB1. use common sense and make judgments during day to day basis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SB2. use reasoning skills to identify and resolve basic problems</td>
</tr>
<tr>
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<td></td>
<td>Persuasion skills</td>
</tr>
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<td>The user/ individual on the jobs needs to know and understand how to:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SB3. persuade team members to wear Personal Protective Equipment as per requirement</td>
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<tr>
<td></td>
<td></td>
<td>SB4. ensure that the team understands the importance of using various machines and equipment without creating any risk to human/ machine</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SB5. train team members on various risks identified</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Analytical Thinking</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The user/individual on the job needs to know and understand how to:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SB6. break the problem into smaller issues and tasks to arrive at a solution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SB7. understand inter process relationship and establish relationship</td>
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</table>
ASC/N0006B: Maintain a safe and healthy working environment at the work place

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>SB8.</td>
<td>leverage experience to find effective solutions to problems</td>
</tr>
<tr>
<td>SB9.</td>
<td>use basic analytical tools to arrive at solutions</td>
</tr>
</tbody>
</table>

## NOS Version Control

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</tr>
</tbody>
</table>
Overview

This unit is about the implementing the various principles of 5S and ensure that the given guidelines are followed to ensure a clean and efficient working environment in the organization.
ASC/N0022: Ensure implementation of 5S activities at the shop floor and the office area

<table>
<thead>
<tr>
<th>Unit Code</th>
<th>ASC/N0022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Title (Task)</td>
<td>Ensure implementation of 5S activities at the shop floor &amp; the office area</td>
</tr>
<tr>
<td>Description</td>
<td>This NOS is about overseeing the implementation of all 5S activities both at the shop floor and the office area by the team members and training the team in implementation of the 5S principles</td>
</tr>
</tbody>
</table>
| 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 |

<table>
<thead>
<tr>
<th>Performance Criteria (PC) w.r.t. the Scope</th>
<th>Performance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure proper sorting of items at the work place</td>
<td>PC1. Ensure all recyclable materials are put in designated containers&lt;br&gt;PC2. Ensure no Tools, fixtures &amp; jigs are lying on workstations unless in use and no un-necessary items is lying on workbenches or work surfaces unless in use&lt;br&gt;PC3. Ensure that the operators and other team members are segregating the waste in hazardous/Non Hazardous waste as per the sorting work instructions&lt;br&gt;PC4. Ensure that all the operators are following the technique of waste disposal and waste storage in the designated bins&lt;br&gt;PC5. Segregate the items which are labelled at red tag items for the process area and keep them in the correct places&lt;br&gt;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&lt;br&gt;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&lt;br&gt;PC8. Oversee removal of unnecessary equipment, storage, furniture, unneeded inventory, supplies, parts and material&lt;br&gt;PC9. Ensure that areas of material storage areas are not overflowing&lt;br&gt;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</td>
</tr>
</tbody>
</table>

| Ensure proper documentation and storage – streamlining & organizing the workplace | 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.<br>PC12. Make sure that all material and tools are stored in the designated places and in the manner indicated in the 5S instructions |
## ASC/N0022: Ensure implementation of 5S activities at the shop floor and the office area

<table>
<thead>
<tr>
<th>Ensure cleaning of self and the work place</th>
<th>PC13. Ensure that organizing the workplace takes place with due considerations to the principles of wasted motions, ergonomics, work &amp; method study.</th>
</tr>
</thead>
</table>
| Ensure standardization | 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 self-cleanliness - clean uniform, clean shoes, clean gloves, clean helmets, personal hygiene |
| Ensure sustenance | PC18. Ensure that daily cleaning standards and schedules to create a clean working environment are followed across the plant  
PC19. Oversee that various cleaning and organizing tasks have been developed and assigned for the work area  
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 |

| Knowledge and Understanding (K) w.r.t. the scope |
| --- | --- |
| Element | Knowledge and Understanding |
| C. Organizational Context (Knowledge of the company / organization and its processes) | The user/individual on the job needs to know and understand:  
KA3. relevant standards, procedures and policies related to 5S followed in the company |
ASC/N0022: Ensure implementation of 5S activities at the shop floor and the office area

| D. Technical Knowledge | The user/individual on the job needs to:
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>KB6.</td>
<td>have basic knowledge of 5S procedures</td>
</tr>
<tr>
<td>KB7.</td>
<td>know various types 5s practices followed in various areas</td>
</tr>
<tr>
<td>KB8.</td>
<td>understand the 5S checklists provided in the department/team</td>
</tr>
<tr>
<td>KB9.</td>
<td>have skills to identify useful &amp; non useful items</td>
</tr>
<tr>
<td>KB10.</td>
<td>have knowledge of labels, signs &amp; colours used as indicators</td>
</tr>
<tr>
<td>KB11.</td>
<td>have knowledge on how to sort and store various types of tools, equipment, material etc.</td>
</tr>
<tr>
<td>KB12.</td>
<td>know, how to identify various types of waste products</td>
</tr>
<tr>
<td>KB13.</td>
<td>understand the impact of waste/dirt/dust/unwanted substances on the process/environment/machinery/human body</td>
</tr>
<tr>
<td>KB14.</td>
<td>have knowledge of best and environment protective ways of cleaning &amp; waste disposal</td>
</tr>
<tr>
<td>KB15.</td>
<td>understand the importance of standardization in processes</td>
</tr>
<tr>
<td>KB16.</td>
<td>understand the importance of sustainability in 5S</td>
</tr>
<tr>
<td>KB17.</td>
<td>have knowledge of TQM process</td>
</tr>
<tr>
<td>KB18.</td>
<td>have knowledge of various materials and storage norms</td>
</tr>
<tr>
<td>KB19.</td>
<td>understand visual controls, symbols, graphs etc.</td>
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</tbody>
</table>

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<thead>
<tr>
<th>Skills (S)w.r.t. the scope</th>
<th>Element</th>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. Core Skills/ Generic Skills</td>
<td>Writing Skills</td>
<td>The user/individual on the job needs to know and understand how to: SA10. write basic level notes and observations, SA11. note down observations (if any) related to the process, SA12. write information documents to internal departments/internal teams</td>
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<tr>
<td></td>
<td>Reading Skills</td>
<td>The user/individual on the job needs to know and understand how to: SA13. read 5S instructions put up across the plant premises</td>
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<td></td>
<td>Oral Communication (Listening and Speaking skills)</td>
<td>The user/individual on the job needs to know and understand how to: SA14. effectively communicate information to team members inform employees in the plant and concerned functions about 5S, SA15. question the process head in order to understand the 5S related issues, SA16. attentively listen with full attention and comprehend the information given by the speaker during 5S training programs</td>
</tr>
<tr>
<td>D. Professional Skills</td>
<td>Judgmental Thinking</td>
<td>The user/individual on the job needs to know and understand how to: SB10. use common sense and make judgments during day to day basis, SB11. use reasoning skills to identify and resolve basic problems using</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>ASC/N0022: Ensure implementation of 5S activities at the shop floor and the office area</th>
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<tbody>
<tr>
<td><strong>5S</strong></td>
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<tr>
<td><strong>Persuasion</strong></td>
</tr>
<tr>
<td>The user/individual on the job needs to know and understand how to:</td>
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<tr>
<td>SB12. persuade team members to follow 5S</td>
</tr>
<tr>
<td>SB13. ensure that the team members understand the importance of using 5S tool</td>
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<tr>
<td><strong>Creativity</strong></td>
</tr>
<tr>
<td>The user/individual on the job needs to know and understand how to:</td>
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<tr>
<td>SB14. use innovative skills to perform and manage 5S activities at the work desk and the shop floor</td>
</tr>
<tr>
<td>SB15. exhibit inquisitive behaviour to seek feedback and question on the existing set patterns of work emerge, techniques in CA/CI around 5S work practices</td>
</tr>
<tr>
<td><strong>Self-Discipline</strong></td>
</tr>
<tr>
<td>The user/individual on the job needs to know and understand how to:</td>
</tr>
<tr>
<td>SB16. do what is right, not what is a popular practice</td>
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<tr>
<td>SB17. follow shop floor rules &amp; regulations and avoid deviations</td>
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<tr>
<td>SB18. lead by example in the plant premises while performing activities related to 5S</td>
</tr>
<tr>
<td>SB19. ensure self-cleanliness on a daily basis</td>
</tr>
<tr>
<td>SB20. demonstrate the will to keep the work area in a clean and orderly manner</td>
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<tr>
<td><strong>Ownership</strong></td>
</tr>
<tr>
<td>The user/individual on the job needs to know and understand how to:</td>
</tr>
<tr>
<td>SB21. accept additional responsibility for self and the team</td>
</tr>
<tr>
<td>SB22. encourage self and other to take greater responsibilities for managing 5S</td>
</tr>
<tr>
<td>SB23. identify obstacles and bottlenecks in the process and find basic level solutions for removing these obstacles</td>
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<tr>
<td><strong>Decision making</strong></td>
</tr>
<tr>
<td>The user/individual on the job needs to know and understand how to:</td>
</tr>
<tr>
<td>SB24. use previous experience in resolving problems and taking decisions</td>
</tr>
<tr>
<td>SB25. make timely and independent decisions on the line/shift within the boundaries of the delegation matrix of the organization</td>
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**NOS Version Control**

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<thead>
<tr>
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<td>Industry Sub-sector</td>
<td>Manufacturing/ R&amp;D</td>
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<td>Last reviewed on</td>
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