# Automotive
# Skills Development Council

**N·S·D·C**
National Skill Development Corporation

## QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR AUTOMOTIVE INDUSTRY

## Contents

## What are Occupational Standards (OS)?

➢ OS describe what individuals need to do, know and understand in order to carry out a particular job role or function

➢ OS are performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding

### Contact Us:

ASDC, Core 4-B, 5th Floor, India Habitat Centre, Lodhi Road, New Delhi

E-mail:
skc@asdc.org.in

## Introduction
## Qualifications Pack- Testing  Manager

**SECTOR:** AUTOMOTIVE

**SUB-SECTOR:** RESEARCH & DEVELOPMENT

**OCCUPATION:** PRODUCT AND VEHICLE TESTING

**JOB ROLE**:  TESTING MANAGER (PRODUCT AND VEHICLE)

**REFERENCE ID:** ASC/Q8405

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

 **Testing Manager:**  The role will be responsible for setting up the testing facility and up gradation of the same. The role holder will also be responsible for ensuring all  tests are conducted, observations recorded and reports shared with key stakeholders. The role will also be responsible for project and team management

**Brief Job Description:** Testing Manager is responsible for conducting assessment of existing testing infrastructure and up gradation of the facilities as per requirement. The role holder has to ensure that the testing team completes all the indoor and outdoor tests for aggregates and vehicles as per the norms defined by the Cross functional team, observe the outcomes of the tests, analyse the test results and present consolidated reports to the Cross functional team for improvement, manage budgets for the team and ensure team productivity

**Personal Attributes:** The individual should have passions for automobiles. The individual should possess coordination and interpersonal skills, demonstrate analytical reasoning, technology savvy, oral and written communication skills, good observations skills,  ability to plan and prioritize work, quality consciousness, sensitivity to problem solving, quick decision making and  orientation to safety and quality. The individual should further have customer orientation, market awareness, out of box thinking, problem solving, latest knowledge of technologies, cost management and team management skills.

| Qualifications Pack Code | ASC/Q8405 | | |
|---|---|---|---|
| **Job Role** | Testing Manager | | |
| **Credits(NSQF)** | **TBD** | **Version number** | **1** |
| **Industry** | **Automotive** | **Drafted on** | **10/1/2014** |
| **Sub-sector** | **R&D** | **Last reviewed on** | **20/1/2014** |
| **Occupation** | **Testing** | **Next review date** | **20/1/2016** |

*(left margin: Job Details)*

| Job Role | Testing Manager |
|---|---|
| **Role Description** | The role will be responsible for setting up the testing facility and up gradation of the same. The role holder will also be responsible for ensuring all  tests are conducted, observations recorded and reports shared with key stakeholders. The role will also be responsible for project  and team management |
| **NSQF level** | 7 |
| **Minimum Educational Qualifications** | B.E/ B. Tech (Preferably automobile/ mechanical/ electronics/ electrical engineering) |
| **Maximum Educational Qualifications** | M.E/ M. Tech (Preferably automobile/ mechanical/ electronics/ electrical engineering). MBA is an added advantage |
| **Training**<br>(Suggested but not mandatory) | <ul><li>Latest automobile and aggregate testing methods</li><li>Different types of testing apparatus</li><li>Automotive industry regulations and standards</li><li>Problem Solving techniques</li><li>Project management techniques</li><li>Stress management techniques</li><li>Team management skills</li><li>Finance and Cost management</li><li>IT and ERP Awareness</li><li>5S , Quality and Safety</li></ul> |
| **Experience** | 10  years in automobile testing |

| Occupational Standards (OS) | ASC/N8407: Setting up and maintaining the testing infrastructure, conducting various types of tests on aggregates & vehicles and analysing and reporting problems<br>ASD/N0019: Managing the project delivery as a team lead within the cross functional team<br> ASC/N006E: Maintain a safe and healthy working environment<br>ASC/ N 0022 Ensure implementation of  5S activities at the shop floor & the office area |
|---|---|
| Performance Criteria | As described in the relevant NOS units |

**Definitions**

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

| | |
|---|---|
| Sub-Sector | Sub-sector is derived from a further breakdown based on the characteristics and interests of its components. |
| Sub-functions | Sub-functions are sub-activities essential to fulfil the achieving the objectives of the function. |
| Technical Knowledge | Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities. |
| Unit Code | Unit Code is a unique identifier for a NOS unit, which can be denoted with an '**N**' |
| Unit Title | Unit Title gives a clear overall statement about what the incumbent should be able to do. |
| Vertical | Vertical may exist within a sub-sector representing different domain areas or the client industries served by the industry. |

| Keywords /Terms | Description |
|---|---|
| NOS | National Occupational Standard(s) |
| NVEQF | National Vocational Education Qualifications Framework |
| NVQF | National Vocational Qualifications Framework |
| NSQF | National Skills Qualifications Framework |
| OEM | Original Equipment Manufacturer |
| OS | Occupational Standard(s) |
| QP | Qualifications Pack |
| 5 S | Technique of maintaining orderliness –Japanese terminology |
| CP | Control Plan |
| WI | Work Instructions |
| SQFD | Simplified Quality Function Definition |
| CFT | Cross Functional Team |
| SOR | Statement of requirements |

**Acronyms**

# National Occupational Standards

--------------------------------------------------------------------------------------------------------------------------------

## Overview

This Occupational Standard is about setting up and maintaining the testing infrastructure of the section, conducting various types of laboratory and on road tests, analysing the tests and sharing information with key stakeholders of the product development cross functional team

**ASC/N8407: Setting up and maintaining the testing infrastructure, conducting various types of tests on aggregates & vehicles and analysing and reporting problems**

National Occupational Standard

| Unit Code | ASC/N8407 |
|---|---|
| Unit Title (Task) | Setting up and maintaining the testing infrastructure, conducting various types of tests on aggregates & vehicles and analysing and reporting problems |
| Description | This NOS unit is about setting up and maintaining the testing infrastructure of the section, conducting various types of laboratory and on road tests, analysing the tests and sharing information with key stakeholders of the product development cross functional team |
| Scope | The role holder will be responsible for:<br>• Setting up and up gradation of the testing infrastructure<br>• Conducting aggregate and vehicle testing as per CFT ( Cross Functional Team) requirements<br>• Data analysis and reporting of test outcomes |

| Performance Criteria (PC) w.r.t. the Scope | |
|---|---|
| **Element** | **Performance Criteria** |
| Testing infrastructure setup/ up gradation of existing setup | PC1. Assess the capability of the existing testing facilities for equipment capacity, equipment types, equipment specifications, performance standards, environmental and regulatory compliance, coverage of different types of tests and flexibility of up gradation, extra attachments and modification<br>PC2. Check the capability of the existing setup to be able to conduct future tests as per changes in internal and external environmental requirements<br>PC3. Analyse the costs and time required of enhancing the capability of the testing laboratories and other testing infrastructure<br>PC4. Ensure necessary approvals are obtained within the organization to initiate the expansion of existing test setup/ building of new test setup<br>PC5. Coordinate with the test equipment manufacturers through the commercial team and the finance team to negotiate price and specifications of the required test apparatus<br>PC6. Ensure that the additional setup and new equipment meet the regulatory and safety standards<br>PC7. Ensure that the testing setup is certified by neutral agencies to meet the requirement of the industry and regulatory norms<br>PC8. Ensure that the test laboratories have equipment calibrated as per the norms and timeframes required for testing tools and apparatus<br>PC9. Ensure timely preparation of documents required for the certification process<br>PC10. Ensure completion of audit process requirements for the certification process |
| Conduct aggregate and vehicle prototype testing | PC11. Understand in detail the product attributes and share the understanding of product attributes with the team<br>PC12. Develop targets ( target setting) for the product/ vehicle testing team so that the team can benchmark the outcomes of the test procedure with the targets<br>PC13. Based on the type and specifications of the product, finalize the test parameters with the cross functional product development team<br>PC14. Identify testing parameters required for different testing areas like NVH testing, |

| | |
|---|---|
| | environmental testing, fatigue testing, emission testing, electrical and electronic system testing, testing of HMI and navigation aids etc. |
| | PC15. Create specific test cases with different levels of loading scenarios, environment scenarios, different physical parameters, design modifications etc. so that various aspects of design can be tested |
| | PC16. Ensure that any changes made in physical testing parameters are also reflected in the CAE testing software so that a detailed computer aided testing can be conducted using different testing procedures |
| | PC17. Ensure that all types of tests required for testing product/ aggregate performance testing are conducted as per the test checklist finalized within the Cross functional team |
| | PC18. Ensure that all type of vehicle dynamics tests, vehicle reliability tests, vehicle endurance tests are completed as per the test checklist finalized within the cross functional team |
| | PC19. Ensure that the testing engineer observes and records the outcomes of different tests conducted |
| **Data Analysis and Reporting** | PC20. Analyse various reports prepared by the testing engineer and the team on individual tests conducted for the proto aggregate/ proto vehicle |
| | PC21. Conduct impact analysis based on the testing reports to highlight the probable effect on the performance of the aggregate or the vehicle |
| | PC22. Collate all reports and identify particular patterns of failures which have been seen during multiple tests and multiple times etc. |
| | PC23. Compare the test results with the standard values recommended by the cross functional engine design team and highlight any deviations |
| | PC24. Compare the test results with the regulatory norms especially on emissions and ensure that the engine design team is informed of the results in order to take corrective steps |
| | PC25. Compare the test results with benchmarked values for engine performance, emissions, fuel consumption |
| | PC26. Analyse the results shared by the testing engineer post plotting of Power Curves and Torque Curves to analyse engine performance |
| | PC27. Use various problem solving techniques like Brainstorming, Why Why Analysis, 7 QC tools etc. to identify problems and resolve them within the testing team |
| | PC28. Conduct FMEA and Root Cause Analysis for different problems to identify the test failure causes |
| | PC29. Consolidate individual test reports and finalize the overall product report to be submitted to the Product Testing/ Vehicle Testing head for review |
| | PC30. Conduct detailed analysis of the performance reports prepared by the team and ensure suitable action is taken on the observations highlighted in the testing reports |
| | PC31. Present the point of view of the testing team on the testing results during product development meetings with the Cross Functional Team and provide recommendations for improvements |
| | PC32. Ensure that critical recommendations are finalized within the Cross Functional Team and |

| | |
|---|---|
| | the same is shared with the production team for implementation during the production line process |
| **Ensure compliance to all regulatory and environmental requirements** | PC33. Ensure that the correct specification document is received from the prototyping and homologation team with the product testing team<br><br>PC34. Thoroughly understand the type of regulations existing in the automotive space with respect to the vehicle/ aggregate under test<br><br>PC35. Ensure that the testing team verifies the required parameters as per the type of vehicle under test and the mandatory regulatory norms as per the checklist provided by the cross functional team<br><br>PC36. Ensure that detailed information documents are prepared and shared with the team members mentioning the vehicle usage type and the geography in which the vehicle is to be deployed is given in the information document<br><br>PC37. Conduct the required homologation tests – On Road and lab tests as per the regulation checklist of the given geography<br><br>PC38. Evaluate engine performance, emissions, vehicle safety, vehicle specifications, vehicle type and weight, load capacity, dimensions, vehicle running stability, braking specifications, mileage and other parameters as per the governing standards of the type/ geography<br><br>PC39. Evaluate the test results , compare them with internal and external benchmarks & regulatory requirements like Bharat Stage norms, Automobile Industry Standards ( AIS), Central Motor Vehicle Regulations, Central Motor Vehicle |

| Knowledge and Understanding (K) w.r.t. the scope | |
|---|---|
| **Element** | **Knowledge and Understanding** |
| **A. Organisational Context**<br>(Knowledge of the Company/ Organisation and its processes) | The user/individual on the job needs to know and understand:<br>  KA1.  relevant manufacturing standards and procedures followed in the company<br>  KA2.  different types of products manufactured by the company<br>  KA3.  organization methodology on conducting marketing data analysis, benchmarking,<br>  KA4.  quality norms and standards prescribed in the Quality Manual by the organization<br>  KA5.  5S and Safety norms practiced in the organization |
| **B. Technical Knowledge** | The user/individual on the job needs to know and understand:<br>  KB1.  the working of various automobile components<br>  KB2.  fundamental for various testing instruments like hardness testing machines spectrometers, spectroscopes, microstructure analysers, refractrometers, PH meters, Humidity Analysers, fatigue testing machines and impact testing machines<br>  KB3.  fundamentals of servo hydraulics, acoustics holography, sound meters, vibration meters, load cells and strain gauges<br>  KB4.  fundamental structure and working of anaechoic chambers and reverberation chambers<br>  KB5.  fundamentals of instrumentation and usage of flow meters for checking fuel and lubrication flow, smoke meters, power transducers, |

temperature sensors, particle sensors process for setting up of test benches, test platforms and test apparatus various types of tests used to evaluate the design and performance of various automotive components

KB6.   different parameters used to evaluate the performance of the components

KB7.   various national and international regulations, norms and standards on vehicles and engine performance – regulations related to noise, vibrations, durability, reliability factors for 2 wheeler, 3 wheeler and 4 wheelers under normal and difficult environmental conditions

KB8.   various defects related to reliability and durability of the component and impact of the defect on the final component and vehicle performance

KB9.   various types of software testing programs like Pro Mechanica, Nastran, Matlab, Similink etc available in the market

KB10. impact of wind, water flow, hot & cold conditions, pressure on the performance of the vehicle

KB11. impact of various mechanical and thermal stresses on the external frame of the vehicle and overall vehicle performance

KB12. basic working of Data Acquisition Systems and Data Loggers

KB13. analytical tools like Histogram analysis, Pareto Analysis, Why- Why analysis, Process Mapping, Ishikawa ( Fishbone) analysis

KB1.   project management techniques and usage of different project management tools like primavera, MS Office etc.

KB2.   fundamental of financial and budgeting process

KB3.   different type of tools , processes and infrastructure required for the development process

KB14. basic laws of physics, chemistry. metallurgy and mathematics

KB15. basic laws of geometry and product design

KB16. basic fundamentals of machines and mechanics

KB17. application of relevant principles of functionality, ergonomics, aesthetics etc

KB18.  the methods of using instruments like Vernier callipers, micrometres, and other inspection tools

KB19. how to read and interpret sketches and engineering drawings

KB20. potential health, environment and safety hazards and related safety precautions

| Skills (S) w.r.t. the scope | |
|---|---|
| **Element** | **Skills** |
| **A. Core Skills/ Generic Skills** | **Writing skills and reading Skills** |
| | The user/ individual on the job needs to know and understand how to: <br> SA1. document information from the manuals, discussion notes, process charts etc. <br> SA2. create small notes/ work documents/ diagrams for team members to help them understand the process <br> SA3. use emails and other business correspondence methods ( internal memos, circular etc. ) for communicating with other team members/ vendors/ suppliers etc. <br> SA4. write inter departmental notes/ memos or make suitable entries in the online system <br> SA5. read equipment manuals and process documents to understand the equipment and processes better |

| | | |
|---|---|---|
| | SA6. read internal information memos sent 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: <br> SA7. discuss task lists, schedules, and work-loads with the team members <br> SA8. answer the queries raised by the operative team as well as intercompany departments <br> SA9. effectively communicate with the team members and make them aware of work expectations, targets, policies, processes etc. <br> SA10. 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** | **Analytical thinking** | |
| | The user/individual on the job needs to know and understand how to: <br> SB1. break the problem into smaller issues and tasks to arrive at a solution <br> SB2. understand inter process relationship and establish relationship between various parts of the problem <br> SB3. leverage experience to find effective solutions to problems <br> SB4. use organizations analytical tools to arrive at solutions | |
| | **Plan and Organise** | |
| | The user/individual on the job needs to know and understand how to: <br> SB5. plan, organize and prioritize the work with Engineering /R & D, Marketing department <br> SB6. plan support required from CFT /project teams for benchmarking ,testing, feasibility exercises <br> SB7. organize information, standards manuals etc. so that sorting becomes easy <br> SB8. reorganize resources in case of change of plans | |
| | **Ownership** | |
| | The user/individual on the job needs to know and understand how to: <br> SB9. accept additional responsibility for self and the team <br> SB10. encourage self and other to take greater responsibilities <br> SB11. ensure that the work allocated to the team is completed as per timelines and quality norms <br> SB12. identify obstacles and bottlenecks in the process and on own find basic level solutions for removing these obstacles | |
| | **Problem solving and decision making** | |
| | The user/individual on the job needs to know and understand how to: <br> SB13. gather information skilfully from multiple sources <br> SB14. analyse information in depth and identifies the problem in a timely manner <br> SB15. develop alternate solutions and resolves problems in early stages <br> SB16. Work tireless in spite of repeat activities in a diligent manner to resolve problems on a day to day basis <br> SB17. use previous experience in resolving problems and taking decisions <br> SB18. make timely and independent decisions within the boundaries of the delegation matrix of the organization | |
| | **Initiative taking** | |

| | The user/ individual on the job needs to know and understand how to |
|---|---|
| | SB19.  clearly establish a goal for self or others to accomplish |
| | SB20.  without instructions from the manager, self-manage the work |
| | SB21.  Take additional responsibilities to make sure that the work is completed on time |
| | **Customer Orientation** |
| | The user/ individual on the job needs to know and understand how to |
| | SB22.  identify the needs of  the  customer |
| | SB23.  ensure that the product designed meets the expectation of the customer |
| | SB24.  understands importance of customer feedback and drives customer focus |
| | **Out of Box thinking** |
| | The user/ individual on the job needs to know and understand how to: |
| | SB25.  familiarise with leading practices available in the market |
| | SB26.  think independently on new approaches to manufacturing process, material management, data management and team management |
| | SB27.  represent any new ideas/ approaches on process improvement and productivity improvement to the seniors in the team |
| | **Team work and collaboration** |
| | The user/ individual on the job needs to know and understand how to: |
| | SB28.  contribute to building a positive team spirit |
| | SB29.  identify individual strengths & maximize team performance |
| | SB30.  exhibit objectivity & openness to others' views |
| | SB31.  collaborate with stakeholders to achieve the desired state of final result |
| | **People Development** |
| | The user/individual on the job  needs to know and understand how to: |
| | SB32.  identify the strengths and weaknesses of the subordinate team members |
| | SB33.  provide constructive and genuine feedback |
| | SB34.  motivate the team to take independently responsibilities in their work areas |
| | SB35.  provide training to team members  for technical and behavioural areas |
| | SB36.  create a culture of innovation and out of box thinking/ risk taken |
| | **Team Leadership** |
| | The user/individual on the job  needs to know and understand how to: |
| | SB37.  communicate effectively to the team members |
| | SB38.  identify conflicts in the team and try to resolve them at the earliest |
| | SB39.  interact and engage with the team members on a day to day basis |
| | SB40.  counsel and coach the team members and  help them resolve issues |
| | SB41.  timely highlight to the management about any good work/ achievement by the team members |
| | SB42.  display empathy  for the problems faced by the team and act on the concerns |
| | **Strategic Orientation** |
| | The user/individual on the job  needs to know and understand: |
| | SB43.  the short term and long term vision of the organization |
| | SB44.  alignment of team and functional objectives with the organizational philosophy |
| | SB45.  financial implications of decisions  on the overall team and functional objectives |

| | SB46. the need for flexibility in self and team approach due to changing market forces and organizational strategy |
|---|---|

## NOS Version Control

| NOS Code | ASC/N8407 | | |
|---|---|---|---|
| Credits(NSQF) | TBD | Version number | 1 |
| Industry | Automotive | Drafted on | 10/1/2014 |
| Industry Sub-sector | R&D | Last reviewed on | 20/1/2014 |
| Occupation | Testing | Next review date | 20/1/2016 |

# National Occupational Standard

--------------------------------------------------------------------------------------------------------------------------

## <u>Overview</u>

**This unit is about effective management of the project delivery within the cross functional team created for completion of the New Product Development**

**ASC/N0019: Managing the project delivery as a team lead within the cross functional team**

| Unit Code | ASC/N0019 |
|---|---|
| Unit Title (Task) | Managing the project delivery as a team lead within the cross functional tea |
| Description | This NOS unit is about  handling the project management and project delivery activities within the R&D team such as managing team budgets and costs, institutionalizing process improvement, process excellence and quality management within the team and manage project timelines, project quality, team resourcing and management of stakeholders related to the Product Development project |
| Scope | The role holder will be responsible for:<br>• managing end to end project delivery activities within an R&D vertical including budgeting and costing for the team and reviews<br>• deploy procedures and processes to support the NPD delivery team<br>• managing the R&D team and motivate and engage them to increase the overall productivity of the team |

| Performance Criteria(PC) w.r.t. the Scope | |
|---|---|
| **Element** | **Performance Criteria** |
| Manage Costs and Budgets for the team | PC1.  Ensure timely creation of item wise/ head wise budget for the team<br>PC2.  Ensure that all major and minor cost elements related to equipment, tools, raw material, manpower, consumables and marketing activities are considered during finalization of the  budgets for the given financial period/ project delivery period<br>PC3.  Conduct effective negotiations along with the commercial team with suppliers and vendors during procurement of equipment, fixtures & tools and raw material required for delivery of the new product<br>PC4.  Support the process wise R&D lead/ head in conducting  periodic tracking of Planned Vs. Actual expenditure ( Variance Analysis) for the team<br>PC5.  Act upon the outcomes of the variance analysis and keep the overall process/ product cost within the specified ranges<br>PC6.  Escalate any budgetary exigencies to process wise R&D Lead/ head in a timely manner so that the project delivery does not suffer because of budgetary reasons |

**ASC/N0019: Managing the project delivery as a team lead within the cross functional team**

| | |
|---|---|
| **Process Excellence and Process Improvement** | PC7. Ensure detailed self-understanding of all the requisite processes to be adopted for completing the development job<br><br>PC8. Ensure drafting and finalizing by the CFT of process manuals, process flow, FMEA, CP and WI to enable the team to easily understand and implement the process<br><br>PC9. Ensure that Work Instructions/ Process steps are displayed in key areas like test labs, CA/CAD centres etc.<br><br>PC10. Ensuring recording and reporting procedures and systems are in place and shared with the team members<br><br>PC11. Ensure 5S implementation in the R&D function especially in data management and data storage ( Knowledge Management)<br><br>PC12. Identify areas of improvement in the existing processes/systems and take measures to adhere to the identified Kaizen/ process improvement initiatives<br><br>PC13. Ensure team has understanding of basic analytical tools like Why- Why analysis, brainstorming, 7 QC tools, TQM principles to analyse various problems and design process improvement activities<br><br>PC14. Ensure that the development team regularly engages with the analytical tools during the various product development team<br><br>PC15. Implement various business excellence techniques like Kaizen, 5S initiatives and safety interventions to enhance productivity of the team |
| **Project Delivery Management** | PC16. Support the process wise R&D lead/ head in creating the project plan for the individual product development team and ensure linkage with the overall NPD plan of the organization<br><br>PC17. Identify critical areas/ activities which need detailed monitoring and effective implementation to prevent any negative impact on the project process<br><br>PC18. Ensure tracking of key activities and milestones given in the individual project plan<br><br>PC19. Support the process wise R&D lead/ head in monitoring of individual project timelines, work quality, development & delivery costs, team contribution and knowledge management activities<br><br>PC20. Support the process wise R&D lead/ head in creating time bound mitigation plan to deal with project plan variances<br><br>PC21. Ensure timely setup of design centres, laboratories, testing beds as required by the NPD delivery process mentioned in the overall project plan<br><br>PC22. In case new equipment/ procedures are required, ensure that the responsible team is contacted well before the execution time in order to prevent delays in the development process<br><br>PC23. Create required project status reports and share the same the relevant stakeholders in the format finalized by the Cross Functional Project Team<br><br>PC24. Manage stakeholder relationship and ensure closure of open items needing feedback or approvals from the relevant stakeholders<br><br>PC25. Ensure effective collaboration and information sharing with other members of the cross functional NPD delivery team<br><br>PC26. Escalate any pertinent issues to the process wise R&D head which need |

| | |
|---|---|
| | immediate attention |
| **Human Resource Management** | PC27. Finalize along with the individual process head in the CFT, the manpower planning and manpower deployment for the delivery team<br>PC28. Identify the competencies required for the project delivery team<br>PC29. Ensure identification and deployment of right skilled people at the right places on the delivery process<br>PC30. Track the performance of the team during the various stages of the project and provide timely feedback for course correction<br>PC31. Share knowledge of processes , inputs and outputs with the team members to enhance their skill levels<br>PC32. Other than technical trainings, support the team by delivering trainings related to quality and safety for the operators and helpers<br>PC33. 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 |

| **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:<br>KA1. different types of products manufactured by the company<br>KA2. overall R&D strategy for the organization<br>KA3. knowledge of functional processes like Procurement, Store management, inventory management, quality management, HR and key contact points for query resolution<br>KA4. 5S and Safety norms practiced in the organization |
| **B. Technical Knowledge** | The user/individual on the job needs to know and understand:<br>KB4. project management techniques and usage of different project management tools like primavera, MS Office etc.<br>KB5. various problems solving tools like 7QC, Why Why Analysis, Brain storming etc.<br>KB6. fundamental of financial and budgeting process<br>KB7. different type of tools , processes and infrastructure required for the development process<br>KB8. different types of communication channels practiced by the organization<br>KB9. the method of noting observations, maintaining records and sharing them with the concerned in the required format<br>how to share feedback with team members<br>KB10. various data entry tools and formats used in the organization<br>KB11. ability to visualize the final product output and hence decide on the key steps and parameters to be followed<br>KB12. usage of various business correspondence tools like Email, MS Office tools ( Word, Excel, Power Point), ERP tools etc.<br>KB13. about the various hazards related to various chemicals, load, power , heat sources/ tools as 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:<br>SA1.  document information from the manuals, discussion notes, process charts etc.<br>SA2.  create small notes/ work documents/ diagrams  for team members  to help them understand the process<br>SA3.  use emails and other business correspondence methods ( internal memos, circular etc. ) for communicating with other team members/ vendors/ suppliers etc.<br>SA4.  read internal information memos send by internal customers ( other functions within the organization)<br>SA5.  articulate the thoughts in one's mind into the written format and communicate with the team members |
| | | **Oral Communication (Listening and Speaking skills)** |
| | | The user/individual on the job  needs to know and understand how to:<br>SA6.  discuss task lists, schedules, and work-loads with the operative  team members<br>SA7.  answer the queries raised by team as well as intercompany departments<br>SA8.  articulate the thoughts in one's mind into the written format and communicate with the team members<br>SA9.  effectively communicate with the team members  and make them aware of work expectations, targets, policies, processes etc.<br>SA10. attentively listen with full attention the queries and grievances raised by the  team and comprehend the information given by the speaker |
| **D.** | **Professional Skills** | **People Development** |
| | | The user/individual on the job  needs to know and understand how to:<br>SB1.  identify the strengths and weaknesses of the subordinate team members<br>SB2.  provide constructive and genuine feedback<br>SB3.  motivate the team to take independently responsibilities in their work areas<br>SB4.  provide training to team members  for technical and behavioural areas<br>SB5.  create a culture of innovation and out of box thinking/ risk taken |
| | | **Team Leadership** |
| | | The user/individual on the job  needs to know and understand how to:<br>SB6.  communicate effectively to the team members<br>SB7.  identify conflicts in the team and try to resolve them at the earliest<br>SB8.  interact and engage with the team members on a day to day basis<br>SB9.  counsel and coach the team members and  help them resolve issues<br>SB10. timely highlight to the management about any good work/ achievement by the team members<br>SB11. display empathy  for the problems faced by the team and act on the concerns |
| | | **Analytical Thinking and Problem Solving** |

| | |
|---|---|
| | The user/individual on the job  needs to know and understand how to:<br>SB12.  break the problem into smaller issues and tasks to arrive at a solution<br>SB13.  understand inter process relationship and establish relationship between various parts of the problem<br>SB14.  leverage experience to find effective solutions to problems<br>SB15.  use basic analytical tools to arrive at solutions<br>SB16.  develop  alternate solutions and resolves problems in early stages<br>SB17.  work tireless in spite of repeat activities in a diligent manner to resolve problems on a day to day basis<br>SB18.  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:<br>SB19.  use common sense and make judgments during day to day basis<br>SB20.  use reasoning skills to identify and resolve  problems<br>SB21.  use intuition to detect any potential problems which could arise during  operations<br>SB22.  critically analyse solutions/ recommendations shared by operatives and supervisors for implementation gather information skilfully from multiple sources<br>SB23.  analyse information in depth and identifies the problem in a timely manner |
| | **Ownership** |
| | The user/individual on the job  needs to know and understand how to:<br>SB24.  accept additional responsibility for self and the team<br>SB25.  encourage self and other to take greater responsibilities<br>SB26.  ensure that the work allocated to the team is completed as per timelines and quality norms<br>SB27.  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:<br>SB28.  motivate and provide support for the team<br>SB29.  encourage collaboration between team members<br>SB30.  resolve team issues and grievances to manage conflicts within the team<br>SB31.  create an environment of approachability, trust and openness within the team<br>SB32.  ensure role clarity for all operators and helpers on the line/ shift<br>SB33.  escalate any team related issues to the concerned person at the right time |
| | **Decision making** |
| | The user/individual on the job  needs to know and understand how to:<br>SB34.  use previous experience in resolving problems and taking decisions<br>SB35.  make  timely and independent decisions  on the line/ shift within the boundaries of the delegation matrix of the organization |
| | **Collaboration** |

| | The user/ individual on the job needs to know and understand how to: |
|---|---|
| | SB36. exhibit objectivity & openness to others' views |
| | SB37. collaborate with stakeholders to achieve the desired state of final result |
| | **Out of Box thinking** |
| | The user/ individual on the job needs to know and understand how to: |
| | SB38. familiarise with leading practices available in the market |
| | SB39. think independently on new approaches to manufacturing process, material management, data management and team management |
| | SB40. represent any new ideas/ approaches on process improvement and productivity improvement to the seniors in the team |

# NOS Version Control

| NOS Code | ASC/N0019 | | |
|---|---|---|---|
| Credits(NSQF) | TBD | Version number | 1 |
| Industry | Automotive | Drafted on | 10/1/2014 |
| Industry Sub-sector | R&D | Last reviewed on | 20/1/2014 |
| Occupation | All R&D | Next review date | 20/1/2016 |

# National Occupational Standard



-------------------------------------------------------------------------------------------------------------------------
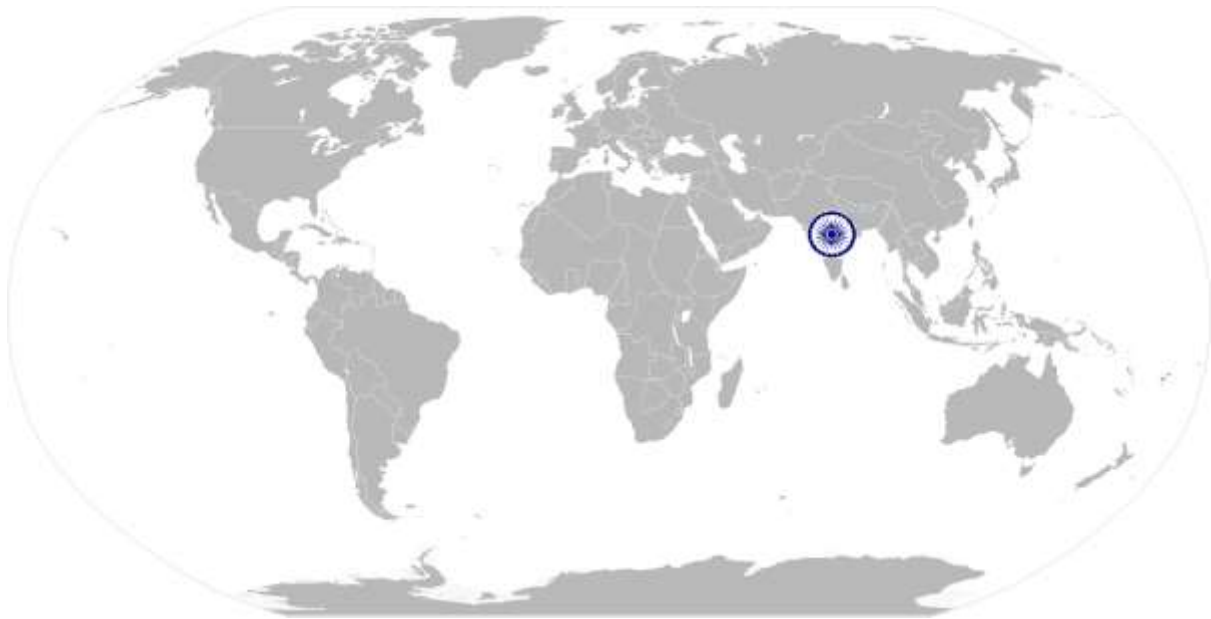
## Overview

**Managing the team on a day to day basis and ensuring employee productivity by engaging them, providing them the right feedback, resolving their grievances and ensuring their development**

**ASC/N0020: Managing the team on a day to day basis**

| Unit Code | ASC /N0020 |
|---|---|
| Unit Title (Task) | Managing the team on a day to day basis |
| Description | This NOS unit is about managing the team of on day to day basis, ensuring their deployment, motivating them by involving them in various engagement initiatives helping them improve the skills levels and managing their grievances in the best possible manner in order to maximize the people productivity |
| Scope | The person is responsible for ensuring<br><br>• Engaging the team through employee communication and employee engagement<br>• Finalizing manpower deployment<br>• Employee Performance Measurement and Employee Development<br>• Ensuring the proper culture and facilities for R&D |

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

| Element | Performance Criteria |
|---|---|
| Engaging the team through employee communication and employee engagement | PC1. Ensure engineer and team are aware of the job expectations on a monthly/weekly/daily basis<br>PC2. Involve engineer and team for the daily work meeting/brain storming sessions / staff meetings to communicate information intended for them<br>PC3. Ensure communication to team on any changes in policies/ processes by the organization through required verbal/ written mechanisms<br>PC4. Ensure participation of employees in various engagement initiatives organized at the engineering centre and other place by the organization<br>PC5. Involve engineer and team in TQM & Kaizen meets, Brainstorming sessions, safety drills etc. to increase their involvement in R&D operations<br>PC6. Escalate issues to concerned staff in case of any issue related to team management and engagement |
| Finalizing manpower deployment | PC7. Finalize along with the engineer the shift planning and manpower deployment for the month/week as per the proposed development plan<br>PC8. Ensure that the engineer maintains the information on leaves share the information with the concerned as and when required<br>PC9. Ensure that the engineer identifies the skilled manpower for the process<br>PC10. Ensure identification and deployment of right skilled people at the right places in the team |
| Employee Performance Measurement and Employee Development | PC11. Ensure that the engineer tracks the daily performance of the team and note the achievement levels in an online IT enabled system<br>PC12. Provide feedback to engineer pertaining to performance appraisals of team<br>PC13. Ensure that the team is trained and are aware of the processes which need to be followed<br>PC14. Other than technical trainings, support the team by delivering trainings related to quality and safety for them<br>PC15. 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 |

| Ensuring the proper culture and facilities for R&D | PC16. Ensure that the engineer maintains a cordial and open culture in the team so that maximum new ideas are generated<br>PC17. Ensure a culture of intelligent market benchmarking for different types of design, prototypes and testing methodologies in the company<br>PC18. Ensure development of effective design and test centres where different types of prototype models could be build and tested to have maximum conversion of new ideas to product in a cost effective manner |
|---|---|

## Knowledge and Understanding (K)

| A. Organizational Context<br>(Knowledge of the company / organization and its processes) | The user/individual on the job needs to know and understand:<br>KA1. relevant standards and procedures followed in the company<br>KA2. different types of products manufactured by the company<br>KA3. quality management practices of the organization |
|---|---|
| B. Technical Knowledge | The user/individual on the job needs to know and understand:<br>KA4. different types of R&D processes<br>KA5. various grievance management tools available in the organization<br>KA6. various problems solving tools like 7QC, Why Why Analysis, Brain storming<br>KA7. different types of communication channels practiced by the organization<br>KA8. the method of noting observations, maintaining records and sharing them with the concerned in the required format<br>KA9. knowledge of shift roster norms and guidelines<br>KA10. how and when to measure performance of the operators<br>KA11. how to share feedback with team members |

## Skills (S) [Optional]

| A. Core Skills/ Generic Skills | **Writing and reading skills** |
|---|---|
| | The user/ individual on the job needs to know and understand how to:<br>SA1. document information from the manuals, discussion notes, process charts etc.<br>SA2. create small notes/ work documents/ diagrams for operators and helpers to help them understand the process<br>SA3. use emails and other business correspondence methods ( internal memos, circular etc. ) for communicating with other team members/ vendors/ suppliers etc.<br>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:<br>SA5. discuss task lists, schedules, and work-loads with the operative team members<br>SA6. answer the queries raised by the operative team as well as intercompany departments<br>SA7. effectively communicate with the operators and helpers and make them aware of work expectations, targets, policies, processes etc. |

**ASC/N0020: Managing the team on a day to day basis**

| | | |
|---|---|---|
| | | 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: <br> SB1. identify the strengths and weaknesses of the subordinate team members ( operators and helpers) <br> SB2. provide constructive and genuine feedback <br> SB3. motivate the team to take independently responsibilities in their work areas <br> SB4. provide training to the operators and helpers for technical and behavioural areas | |
| | **Team Leadership** | |
| | The user/individual on the job needs to know and understand how to: <br> SB5. communicate effectively to the team members <br> SB6. identify conflicts in the team and try to resolve them at the earliest <br> SB7. interact and engage with the team members on a day to day basis <br> SB8. counsel and coach the operators and help them resolve issues <br> SB9. timely highlight to the management about any good work/ achievement by the operators and helpers <br> 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: <br> SB11. break the problem into smaller issues and tasks to arrive at a solution <br> SB12. understand inter process relationship and establish relationship between various parts of the problem <br> SB13. leverage experience to find effective solutions to problems <br> SB14. use basic analytical tools to arrive at solutions <br> 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: <br> SB16. use common sense and make judgments during day to day basis <br> SB17. use reasoning skills to identify and resolve problems <br> SB18. use intuition to detect any potential problems which could arise during operations <br> 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: <br> SB20. accept additional responsibility for self and the team <br> SB21. encourage self and other to take greater responsibilities <br> SB22. ensure that the work allocated to the team is completed as per timelines and quality norms <br> SB23. identify obstacles and bottlenecks in the process and on own find basic level solutions for removing these obstacles | |
| | **Team Work** | |

**ASC/N0020: Managing the team on a day to day basis**

| | |
|---|---|
| | The user/individual on the job needs to know and understand how to:<br>SB24. motivate and provide support for the team<br>SB25. encourage collaboration between team members<br>SB26. resolve team issues and grievances to manage conflicts within the team<br>SB27. create an environment of approachability, trust and openness within the team<br>SB28. ensure role clarity for all operators and helpers on the line/ shift<br>SB29. escalate any team related issues to the concerned person at the right time |
| | **Decision making** |
| | The user/individual on the job needs to know and understand how to:<br>SB30. use previous experience in resolving problems and taking decisions<br>SB31. make timely and independent decisions on the line/ shift within the boundaries of the delegation matrix of the organization |
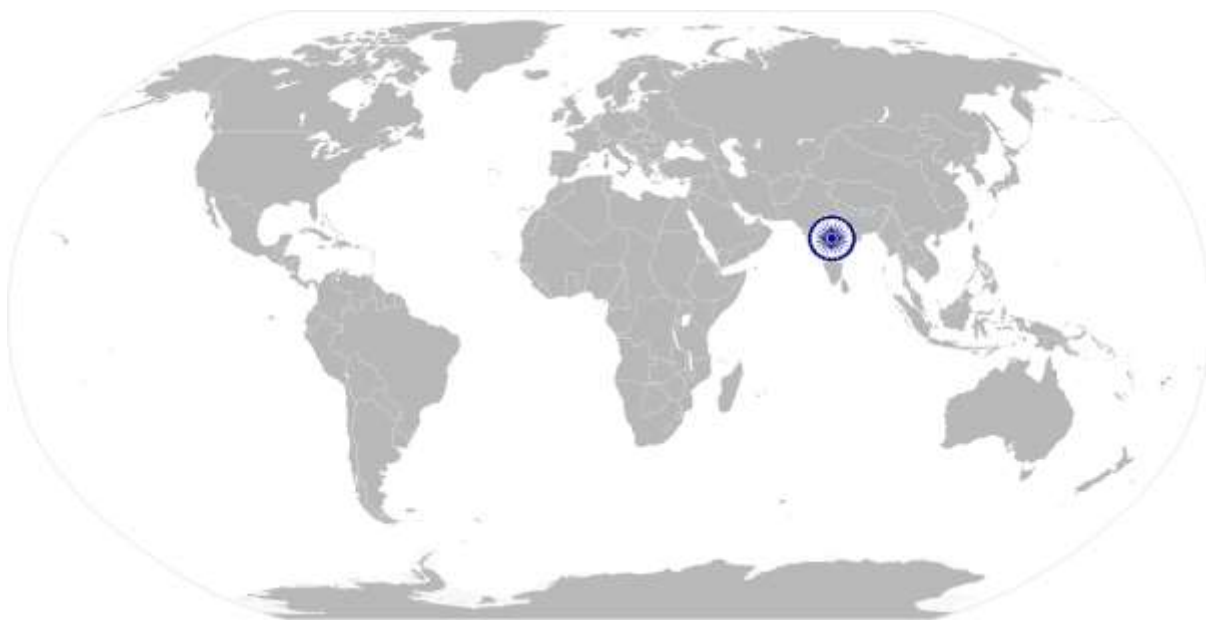
## NOS Version Control

| NOS Code | ASC/N0020 | | |
|---|---|---|---|
| Credits(NSQF) | TBD | Version number | 1 |
| Industry | Automotive | Drafted on | 26/12/2013 |
| Industry Sub-sector | Research & Development | Last reviewed on | 20/1/2014 |
| Occupation | All | Next review date | 20/1/2014 |

# National Occupational Standard



---
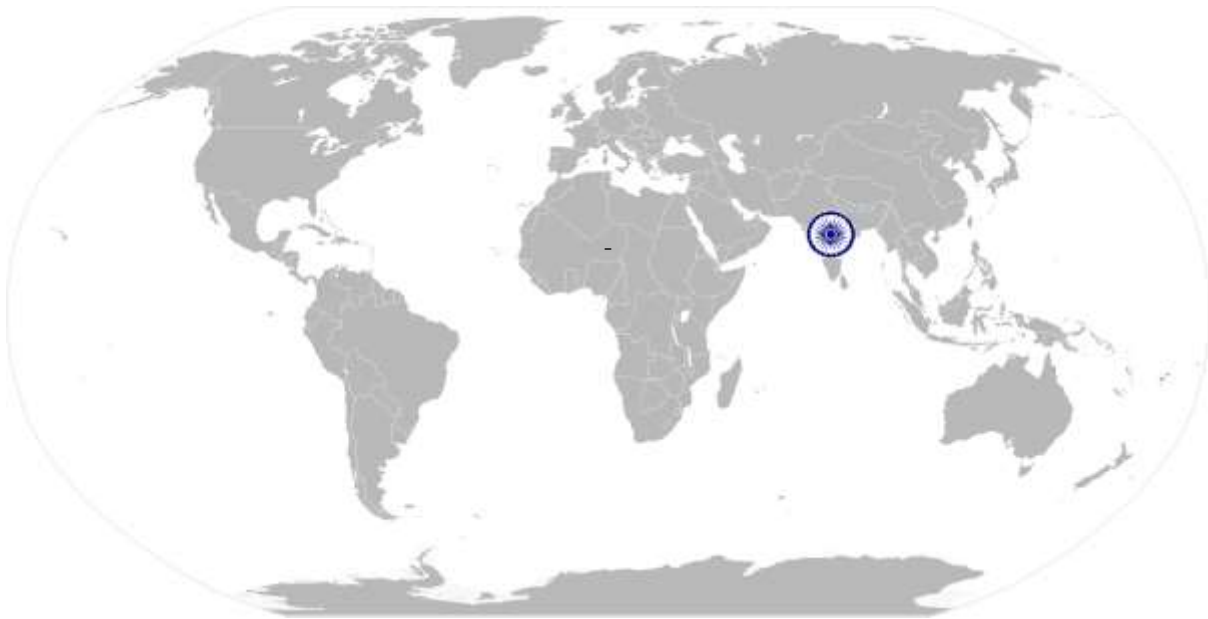
## Overview

**This unit is about maintaining a Safe and Healthy working environment**

**ASC/N0006E: Maintain a Safe and Healthy working environment**

| Unit Code | ASC/N0006E |
|---|---|
| Unit Title (Task) | **Maintain a safe and healthy working environment at the work place** |
| Description | This NOS unit 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: <br> • identifying and reporting risks <br> • creating and sustaining a safe, clean and environmental friendly work place <br><br> This NOS will be applicable to all Automotive sector manufacturing job roles |

| Performance Criteria (PC) w.r.t. the Scope | |
|---|---|
| **Element** | **Performance Criteria** |
| Display awareness to the potential safety risks | PC1. Display understanding of the activities which can cause potential injury through sharp objects, burns, fall, electricity, gas leakages, radiation, poisonous fumes, chemicals ,loud noise <br> PC2. Be aware of the areas in the plant/ lab/ R&D facility which are potentially hazardous/ unhygienic in nature <br> PC3. Understand all risk involving hazardous areas near the work place that are marked/ tagged in order to caution the users of the work area/ machinery <br> PC4. Attend awareness drives held amongst other on sharing information on the identified risks <br> PC5. Attend periodic awareness sessions that are conducted |
| Display awareness towards maintaining a Safe, clean and environment friendly work place | PC6. Wear the recommended Personal Protective Equipment (PPE) and also ensure self-usage of the required PPEs when entering the plant/ lab/ R&D test lab premises <br> PC7. Display awareness of the instructions given on the equipment manual describing the operating process of the equipment to prevent any hazard <br> PC8. Be aware of the first aid safety kit at the work place/ shop floor/ lab location and the requisite items to respond to minor injuries <br> PC9. Attend all safety and fire drills to be self-aware of safety hazards and preventive techniques and ensure that the team participate in all the required safety and fire drills <br> PC10. Participate in all safety related initiatives like Safety Committee participations, Safety Day Celebrations etc. <br> PC11. Maintain high standards of personal hygiene at the work place <br> PC12. Inform the medical officer/ HR in case of self or an employee's illness of contagious nature so that preventive actions can be planned for others |

| Knowledge and Understanding (K) w.r.t. the scope | |
|---|---|
| **Element** | **Knowledge and Understanding** |

## ASC/N0006E: Maintain a Safe and Healthy working environment

| A. Organizational Context (Knowledge of the company / organization and its processes) | The user/individual on the job needs to know and understand:<br>KA1. relevant standards, procedures and policies related to Health, Safety and Environment followed in the company<br>KA2. emergency handling procedures & hierarchy for escalation |
|---|---|
| B. Technical Knowledge | The user/individual on the job needs to know and understand:<br>KB1. basic knowledge of Safety procedures( fire fighting, first aid) within the organization<br>KB2. knowledge of various types of PPEs and their usage<br>KB3. basic knowledge of risks/hazards associated with each occupation in the organization<br>KB4. how to safely operate various tools and machines and risks associated with the tools/ equipment<br>KB5. knowledge of personal hygiene and how an individual an contribute towards creating a highly safe and clean working environment |

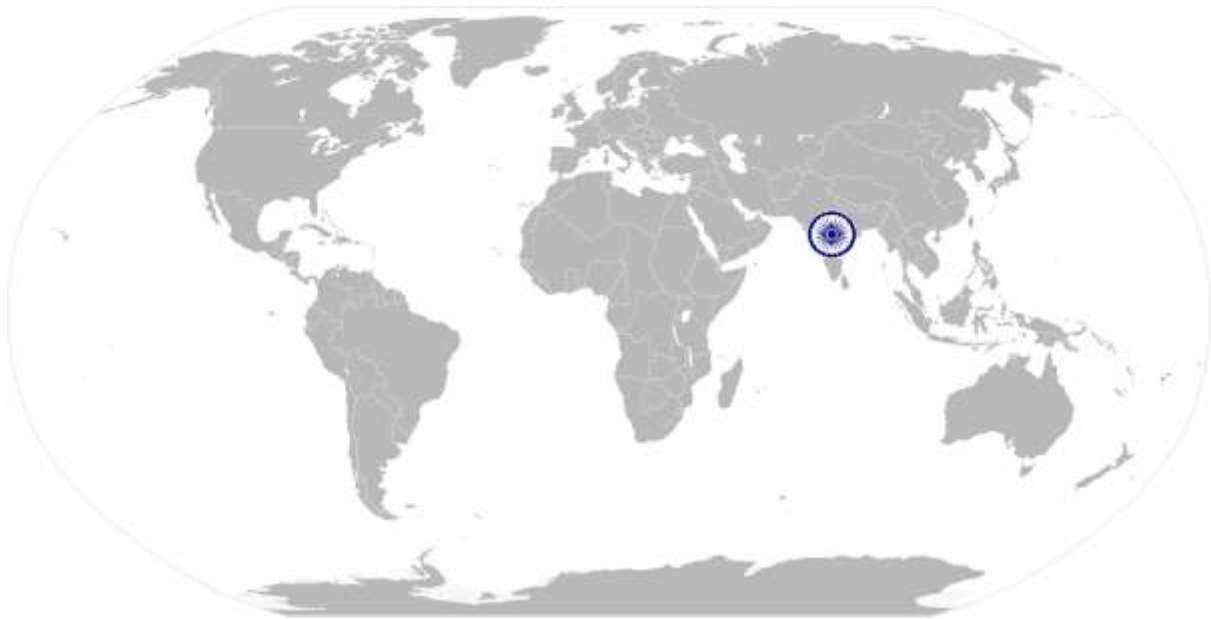| Skills (S) w.r.t. the scope | |
|---|---|
| **Element** | **Skills** |
| A. Core Skills/ Generic Skills | **Writing Skills** |
| | The user/ individual on the job needs to know and understand how to:<br>SA1. write basic level notes and observations<br>SA2. note down observations (if any) related to the process<br>SA3. write information documents to internal departments/ internal teams |
| | **Reading Skills** |
| | The user/individual on the job needs to know and understand how to:<br>SA4. read safety instructions put up across the plant premises<br>SA5. read safety precautions mentioned in equipment manuals and panels to understand the potential risks associated |
| | **Oral Communication (Listening and Speaking skills)** |
| | The user/individual on the job needs to know and understand how to:<br>SA6. effectively communicate information to team members<br>SA7. inform employees in the plant and concerned functions about<br>SA8. events, incidents & potential risks observed related to Safety, Health and Environment.<br>SA9. question the process head/ safety team in order to understand the safety related issues<br>SA10. attentively listen with full attention and comprehend the<br>SA11. information given by the speaker during safety drills and training programs |
| B. Professional Skills | **Judgmental Thinking** |
| | The user/individual on the job needs to know and understand how to:<br>SB1. use common sense and make judgments during day to day basis<br>SB2. use reasoning skills to identify and resolve basic problems |
| | **Persuasion skills** |

| | |
|---|---|
| | The user/ individual on the jobs needs to know and understand how to: |
| | SB3. persuade team members to wear Personal Protective Equipment as per requirement |
| | SB4. ensure that the team understands the importance of using various machines and equipment without creating any risk to human/ machine |
| | SB5. train team members on various risks identified |
| | **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 |

## NOS Version Control

| NOS Code | ASC/N006E | | |
|---|---|---|---|
| Credits(NSQF) | TBD | Version number | 1 |
| Industry | Automotive | Drafted on | 10/1/2014 |
| Industry Sub-sector | R&D | Last reviewed on | 20/1/2014 |
| Occupation | All | Next review date | 20/1/2016 |

# National Occupational Standard



---------------------------------------------------------------------------------------------------------------------------------

## 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 5 S activities at the shop floor & office area**

<table>
<tr><td rowspan="8" style="vertical-align:middle;">National Occupational Standard</td><td>**Unit Code**</td><td colspan="2">ASC/N0022</td></tr>
<tr><td>**Unit Title (Task)**</td><td colspan="2">**Ensure implementation of 5S activities at the shop floor & the office area**</td></tr>
<tr><td>**Description**</td><td colspan="2">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</td></tr>
<tr><td>**Scope**</td><td colspan="2">The individual needs to<br>• 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</td></tr>
<tr><td colspan="3">**Performance Criteria (PC) w.r.t. the Scope**</td></tr>
<tr><td>**Element**</td><td colspan="2">**Performance Criteria**</td></tr>
<tr><td>**Ensure proper sorting of items at the work place**</td><td colspan="2">PC1. Ensure all recyclable materials are put in designated containers<br>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<br>PC3. Ensure that the operators and other team members are segregating the waste in hazardous/ Non Hazardous waste as per the sorting work instructions<br>PC4. Ensure that all the operators are following the technique of waste disposal and waste storage in the designated bins<br>PC5. Segregate the items which are labelled at red tag items for the process area and keep them in the correct places<br>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<br>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<br>PC8. Oversee removal of unnecessary equipment, storage, furniture, unneeded inventory, supplies, parts and material<br>PC9. Ensure that areas of material storage areas are not overflowing<br>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>
<tr><td>**Ensure proper documentation and storage – streamlining & organizing the workplace**</td><td colspan="2">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<br>PC13. Ensure that organizing the workplace takes place with due considerations to the principles of wasted motions, ergonomics,</td></tr>
</table>

| | |
|---|---|
| | work & method study . |
| **Ensure cleaning of self and the work place** | 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 standardization** | 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 |
| **Ensure sustenance** | 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 (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:<br>KA3. relevant standards, procedures and policies related to 5S followed in the company |
| **D. Technical Knowledge** | The user/individual on the job needs to :<br>KB6. have basic knowledge of 5S procedures<br>KB7. know various types 5s practices followed in various areas |

|  | KB8. understand the 5S checklists provided in the department/ team<br>KB9. have skills to identify useful & non useful items<br>KB10. have knowledge of labels , signs & colours used as indicators<br>KB11. Have knowledge on how to sort and store various types of tools, equipment, material etc.<br>KB12. know , how to identify various types of waste products<br>KB13. understand the impact of waste/ dirt/ dust/unwanted substances on the process/ environment/ machinery/ human body<br>KB14. have knowledge of best and environment protective ways of cleaning & waste disposal<br>KB15. understand the importance of standardization in processes<br>KB16. understand the importance of sustainability in 5S<br>KB17. have knowledge of TQM process<br>KB18. have knowledge of various materials and storage norms<br>KB19. understand visual controls, symbols, graphs etc. |
|---|---|
| **Skills (S)w.r.t. the scope** | |
| **Element** | **Skills** |
| **A. Core Skills/ Generic Skills** | **Writing Skills** |
|  | The user/ individual on the job needs to know and understand how to:<br>SA12. write basic level notes and observations<br>SA13. note down observations (if any) related to the process<br>SA14. write information documents to internal departments/ internal teams |
|  | **Reading Skills** |
|  | The user/individual on the job needs to know and understand how to:<br>SA15. read 5S instructions put up across the plant premises |
|  | **Oral Communication (Listening and Speaking skills)** |
|  | The user/individual on the job needs to know and understand how to:<br>SA16. effectively communicate information to team members inform employees in the plant and concerned functions about 5S<br>SA17. question the process head in order to understand the 5S related issues<br>SA18. attentively listen with full attention and comprehend the information given by the speaker during 5S training programs |
| **B. Professional Skills** | **Judgmental Thinking** |
|  | The user/individual on the job needs to know and understand how to:<br>SB10. use common sense and make judgments during day to day basis<br>SB11. use reasoning skills to identify and resolve basic problems using 5S |
|  | **Persuasion** |

| | |
|---|---|
| | The user/ individual on the jobs needs to know and understand how to:<br>SB12. persuade  team members to follow 5 S<br>SB13. ensure that the  team members understand  the importance of using  5 S tool |
| | **Creativity** |
| | The user/individual on the job needs to know and understand how to :<br>SB14. use innovative skills to perform and manage 5 S activities at the work desk and the shop floor<br>SB15. 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 |
| | **Self -Discipline** |
| | The user/individual on the job needs to know and understand how to:<br>SB16. do what is right, not what is a popular practice<br>SB17. follow shop floor rules& regulations and avoid deviations<br>SB18. lead by example in the plant premises while performing activities related to 5S<br>SB19. ensure self-cleanliness on a daily basis<br>SB20. demonstrate the will to keep the work area in a clean and orderly manner |
| | **Ownership** |
| | The user/individual on the job  needs to know and understand how to:<br>SB21. accept additional responsibility for self and the team<br>SB22. encourage self and other to take greater responsibilities for managing 5S<br>SB23. identify obstacles and bottlenecks in the process and  find basic level solutions for removing these obstacles |
| | **Decision making** |
| | The user/individual on the job  needs to know and understand how to:<br>SB24. use previous experience in resolving problems and taking decisions<br>SB25. make  timely and independent decisions  on the line/ shift within the boundaries of the delegation matrix of the organization |

# NOS Version Control

| NOS Code | ASC/N0022 | | |
|---|---|---|---|
| Credits(NSQF) | TBD | Version number | 1 |
| Industry | Automotive | Drafted on | 1/03/2014 |
| Industry Sub-sector | Manufacturing/ R&D | Last reviewed on | 15/03/2014 |
| Occupation | All | Next review date | 15/03/2016 |