

Qualification Pack



Product Design Manager Level 7

QP Code: ASC/Q8103

Version: 1.0

NSQF Level: 7

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ASC/Q8103: Product Design Manager Level7

Brief Job Description

Product Design Manager is responsible for designing the product using CAD & CAE systems by understanding all the product requirements. The role is also responsible for ensuring that the designed product includes aspects pertaining to telematics, human machine interface ,ergonomics and design FMEA etc. Data management and system integration is further part of this role.

Personal Attributes

The individual should have ability to visualize the product creatively and innovatively design the same using out of box thinking. The individual should further have analytical skills, out of box thinking, problem solving, judgement, decision making, team management skills etc. and awareness about global and latest trends in the automotive design area with knowledge of material used in the design and technology as well.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [ASC/N0006: Maintain a safe and healthy working environment](#)
2. [ASC/N0019: Managing the project delivery as a team lead within the cross functional team](#)
3. [ASC/N0020: Managing the team on a day to day basis](#)
4. [ASC/N0022: Ensure implementation of 5S activities at the shop floor & the office area](#)
5. [ASC/N8105: Understand the product requirements, fix design specifications, reliability parameters; design the product using computer aided technology and manage product data](#)

Qualification Pack (QP) Parameters

Sector	Automotive
Sub-Sector	Research & Development
Occupation	Product design
Country	India
NSQF Level	7
Aligned to NCO/ISCO/ISIC Code	NCO-2015/2144.0801

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Minimum Educational Qualification & Experience	B.E./B.Tech (Preferably automobile/mechanical/electrical/electronic/Mechatronics engineering) with 5-10 Years of experience R&D automobile product design
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	CAD/ CAE System Application FMEA (Failure Mode Effect Analysis) Latest trends in the automotive industry Training on ergonomics Problem solving Finance & Costing Latest styling and modelling techniques
Minimum Job Entry Age	18 Years
Last Reviewed On	20/01/2014
Next Review Date	30/06/2020
Deactivation Date	30/06/2020
NSQC Approval Date	05/08/2015
Version	1.0

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ASC/N0006: Maintain a safe and healthy working environment

Description

This NOS is about creating a Safe and Healthy work place, adhering to the safety guidelines in the working area, following practices which are not impacting the environment in a negative manner and training team members on health and safety related issues

Scope

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

Elements and Performance Criteria

Identify and report the risks identified

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

- PC1..** Identify activities which can cause potential injury through sharp objects, burns, fall, electricity, gas leakages, radiation, poisonous fumes, chemicals ,loud noise
- PC2.** Inform the concerned authorities about the potential risks identified in the processes, workplace area/ layout, materials used etc
- PC3.** Inform the concerned authorities about machine breakdowns, damages which can potentially harm man/ machine during operations
- PC4.** Create awareness amongst other by sharing information on the identified risks

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

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

- PC5..** Follow the instructions given on the equipment manual describing the operating process of the equipments
- PC6..** Follow the Safety, Health and Environment related practices developed by the organization
- PC7.** Operate the machine using the recommended Personal Protective Equipments (PPE)
- PC8. .** Maintain a clean and safe working environment near the work place and ensure there is no spillage of chemicals, production waste, oil, solvents etc
- PC9.** Maintain high standards of personal hygiene at the work place
- PC10.** Ensure that the waste disposal is done in the designated area and manner as per organization SOP.
- PC11.** Inform appropriately the medical officer/ HR in case of self or an employees illness of contagious nature so that preventive actions can be planned for others

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant standards, procedures and policies related to Health, Safety and Environment followed in the company

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

Generic Skills (GS)

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

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

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Assessment Criteria

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

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

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National Occupational Standards (NOS) Parameters

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

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

Description

This NOS 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: managing end to end project delivery activities within an R&D vertical including budgeting and costing for the team deploy procedures and processes to support the NPD delivery team managing the R&D team and motivate and engage them to increase the overall productivity of the team

Elements and Performance Criteria

Manage Costs and Budgets for the team

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

- PC1..** ensure timely creation of item wise/ head wise budget for the team on a year on year basis
- 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
- PC3. .** conduct effective negotiations along with the commercial team with suppliers and vendors during procurement of equipment, tools and raw material required for delivery of the new product
- PC4. .** support the process wise r&d lead/ head in conducting periodic tracking of planned vs. actual expenditure (variance analysis) for the team
- PC5. .** act upon the outcomes of the variance analysis and keep the overall process/ product cost within the specified ranges
- 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

Process Excellence and Process Improvement

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

- PC7. .** ensure detailed self-understanding of all the requisite processes to be adopted for completing the development job
- PC8..** ensure drafting and finalizing of process manuals, work instructions, control plans, process flow charts to enable the team to easily understand and implement the process
- PC9. .** ensure that work instructions/ process steps are displayed in key areas like test labs, CA/CAD centres etc.
- PC10. .** ensuring recording and reporting procedures and systems are in place and shared with the team members

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- PC11..** ensure 5s implementation in the r&d function especially in data management and data storage (knowledge management)
- PC12. .** identify areas of improvement in the existing processes/systems and take measures to adhere to the identified kaizen/ process improvement initiatives
- PC13. .** ensure team has understanding of basic analytical tools like why whyanalysis, brainstorming, 7 QC tools, TQM principles to analyse variousproblems and design process improvement activities
- PC14..** ensure that the development team regularly engages with the analytical tools during the various product development team
- PC15..** implement various business excellence techniques like kaizen, 5S initiatives and safety interventions to enhance productivity of the team

Project Delivery Management

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

- 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
- PC17..** identify critical areas/ activities which need detailed monitoring and effective implementation to prevent any negative impact on the project process
- PC18. .** ensure tracking of key activities and milestones given in the individual project plan
- 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
- PC20..** support the process wise r&d lead/ head in creating time bound mitigation plan to deal with project plan variances
- PC21..** ensure timely setup of design centres, laboratories, testing beds as required by the npd delivery process mentioned in the overall project plan
- 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
- PC23. .** create required project status reports and share the same the relevant stakeholders in the format finalized by the cross functional project Team
- PC24. .** manage stakeholder relationship and ensure closure of open items needing feedback or approvals from the relevant stakeholders
- PC25..** ensure effective collaboration and information sharing with other members of the cross functional npd delivery team
- PC26..** escalate any pertinent issues to the process wise r&d head which need immediate attention

Human Resource Management

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

- PC27. .** finalize along with the individual process head in the cft, the manpower planning and manpower deployment for the delivery team
- PC28..** identify the competencies required for the project delivery team
- PC29..** ensure identification and deployment of right skilled people at the right places on the delivery process
- PC30..** track the performance of the team during the various stages of the project and provide timely feedback for course correction

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- PC31..** share knowledge of processes , inputs and outputs with the team members to enhance their skill levels
- PC32. .** other than technical trainings, support the team by delivering trainings related to quality and safety for the operators and helpers
- 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 (KU)

The individual on the job needs to know and understand:

- KU1.** different types of products manufactured by the company
- KU2.** overall R&D strategy for the organization
- KU3.** knowledge of functional processes like Procurement, Store management, inventory management, quality management, HR and key contact points for query resolution
- KU4.** 5S and Safety norms practiced in the organization
- KU5.** project management techniques and usage of different project management tools like primavera, MS Office etc.
- KU6.** various problems solving tools like 7QC, Why Why Analysis, Brain storming etc.
- KU7.** fundamental of financial and budgeting process
- KU8.** different type of tools , processes and infrastructure required for the development process
- KU9.** different types of communication channels practiced by the organization
- KU10.** the method of noting observations, maintaining records and sharing them with the concerned in the required format how to share feedback with team members
- KU11.** various data entry tools and formats used in the organization
- KU12.** ability to visualize the final product output and hence decide on the key steps and parameters to be followed
- KU13.** usage of various business correspondence tools like Email, MS Office tools (Word, Excel, Power Point), ERP tools etc.
- KU14.** 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

Generic Skills (GS)

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

- GS1.** document information from the manuals, discussion notes, process charts etc.
- GS2.** create small notes/ work documents/ diagrams for team members to help them understand the process
- GS3.** use emails and other business correspondence methods (internal memos, circular etc.) for communicating with other team members/ vendors/ suppliers etc.
- GS4.** read internal information memos send by internal customers (other functions within the organization)

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- GS5.** articulate the thoughts in ones mind into the written format and communicate with the team members
- GS6.** discuss task lists, schedules, and work-loads with the operative team members
- GS7.** answer the queries raised by team as well as intercompany departments
- GS8.** articulate the thoughts in ones mind into the written format and communicate with the team members
- GS9.** effectively communicate with the team members and make them aware of work expectations, targets, policies, processes etc.
- GS10.** attentively listen with full attention the queries and grievances raised by the team and comprehend the information given by the speaker
- GS11.** identify the strengths and weaknesses of the subordinate team members
- GS12.** provide constructive and genuine feedback
- GS13.** motivate the team to take independently responsibilities in their work areas
- GS14.** provide training to team members for technical and behavioural areas
- GS15.** create a culture of innovation and out of box thinking/ risk taken
- GS16.** communicate effectively to the team members
- GS17.** identify conflicts in the team and try to resolve them at the earliest
- GS18.** interact and engage with the team members on a day to day basis
- GS19.** counsel and coach the team members and help them resolve issues
- GS20.** timely highlight to the management about any good work/ achievement by the team members
- GS21.** display empathy for the problems faced by the team and act on the concerns
- GS22.** break the problem into smaller issues and tasks to arrive at a solution
- GS23.** understand inter process relationship and establish relationship between various parts of the problem
- GS24.** leverage experience to find effective solutions to problems
- GS25.** use basic analytical tools to arrive at solutions
- GS26.** develop alternate solutions and resolves problems in early stages
- GS27.** work tireless in spite of repeat activities in a diligent manner to resolve problems on a day to day basis
- GS28.** collaborate with cross functional teams to resolve problems
- GS29.** use common sense and make judgments during day to day basis
- GS30.** use reasoning skills to identify and resolve problems
- GS31.** use intuition to detect any potential problems which could arise during operations
- GS32.** critically analyse solutions/ recommendations shared by operatives and supervisors for implementation gather information skilfully from multiple sources
- GS33.** analyse information in depth and identifies the problem in a timely manner
- GS34.** accept additional responsibility for self and the team
- GS35.** encourage self and other to take greater responsibilities
- GS36.** ensure that the work allocated to the team is completed as per timelines and quality norms
- GS37.** identify obstacles and bottlenecks in the process and on own find basic level solutions for removing these obstacles

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- GS38.** motivate and provide support for the team on the shop floor
- GS39.** encourage collaboration between team members
- GS40.** resolve team issues and grievances to manage conflicts within the team
- GS41.** create an environment of approachability, trust and openness within the team
- GS42.** ensure role clarity for all operators and helpers on the line/ shift
- GS43.** escalate any team related issues to the concerned person at the right time
- GS44.** use previous experience in resolving problems and taking decisions
- GS45.** make timely and independent decisions on the line/ shift within the boundaries of the delegation matrix of the organization
- GS46.** exhibit objectivity & openness to others views
- GS47.** collaborate with stakeholders to achieve the desired state of final result
- GS48.** familiarise with leading practices available in the market
- GS49.** think independently on new approaches to manufacturing process, material management, data management and team management
- GS50.** represent any new ideas/ approaches on process improvement and productivity improvement to the seniors in the team

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Manage Costs and Budgets for the team</i>	6	12	-	-
PC1. ensure timely creation of item wise/ head wise budget for the team on a year on year basis	1	2	-	-
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	1	2	-	-
PC3. conduct effective negotiations along with the commercial team with suppliers and vendors during procurement of equipment, tools and raw material required for delivery of the new product	1	2	-	-
PC4. support the process wise r&d lead/ head in conducting periodic tracking of planned vs. actual expenditure (variance analysis) for the team	1	2	-	-
PC5. act upon the outcomes of the variance analysis and keep the overall process/ product cost within the specified ranges	1	2	-	-
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	1	2	-	-
<i>Process Excellence and Process Improvement</i>	9	22	-	-
PC7. ensure detailed self-understanding of all the requisite processes to be adopted for completing the development job	1	2	-	-
PC8. ensure drafting and finalizing of process manuals, work instructions, control plans, process flow charts to enable the team to easily understand and implement the process	1	3	-	-
PC9. ensure that work instructions/ process steps are displayed in key areas like test labs, CA/CAD centres etc.	1	3	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. . ensuring recording and reporting procedures and systems are in place and shared with the team members	1	3	-	-
PC11. .. ensure 5s implementation in the r&d function especially in data management and data storage (knowledge management)	1	3	-	-
PC12. . identify areas of improvement in the existing processes/systems and take measures to adhere to the identified kaizen/ process improvement initiatives	1	2	-	-
PC13. . ensure team has understanding of basic analytical tools like why whyanalysis, brainstorming, 7 QC tools, TQM principles to analyse various problems and design process improvement activities	1	2	-	-
PC14. .. ensure that the development team regularly engages with the analytical tools during the various product development team	1	2	-	-
PC15. .. implement various business excellence techniques like kaizen, 5S initiatives and safety interventions to enhance productivity of the team	1	2	-	-
<i>Project Delivery Management</i>	10	22	-	-
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	1	2	-	-
PC17. .. identify critical areas/ activities which need detailed monitoring and effective implementation to prevent any negative impact on the project process	1	2	-	-
PC18. . ensure tracking of key activities and milestones given in the individual project plan	1	2	-	-
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	1	2	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC20.. support the process wise r&d lead/ head in creating time bound mitigation plan to deal with project plan variances	1	2	-	-
PC21.. ensure timely setup of design centres, laboratories, testing beds as required by the npd delivery process mentioned in the overall project plan	1	2	-	-
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	0.5	2	-	-
PC23. . create required project status reports and share the same the relevant stakeholders in the format finalized by the cross functional project Team	1	2	-	-
PC24. . manage stakeholder relationship and ensure closure of open items needing feedback or approvals from the relevant stakeholders	1	2	-	-
PC25.. ensure effective collaboration and information sharing with other members of the cross functional npd delivery team	1	2	-	-
PC26.. escalate any pertinent issues to the process wise r&d head which need immediate attention	0.5	2	-	-
<i>Human Resource Management</i>	5	14	-	-
PC27. . finalize along with the individual process head in the cft, the manpower planning and manpower deployment for the delivery team	0.5	2	-	-
PC28.. identify the competencies required for the project delivery team	1	2	-	-
PC29.. ensure identification and deployment of right skilled people at the right places on the delivery process	0.5	2	-	-
PC30.. track the performance of the team during the various stages of the project and provide timely feedback for course correction	0.5	2	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC31. .. share knowledge of processes , inputs and outputs with the team members to enhance their skill levels	1	2	-	-
PC32. . other than technical trainings, support the team by delivering trainings related to quality and safety for the operators and helpers	1	2	-	-
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	0.5	2	-	-
NOS Total	30	70	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	ASC/N0019
NOS Name	Managing the project delivery as a team lead within the cross functional team
Sector	Automotive
Sub-Sector	Research & Development
Occupation	Prototyping
NSQF Level	7
Credits	TBD
Version	1.0
Last Reviewed Date	20/01/2014
Next Review Date	20/01/2014
NSQC Clearance Date	

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

Description

This NOS 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 Engaging the team through employee communication and employee engagement Finalizing manpower deployment Employee Performance Measurement and Employee Development Ensuring the proper culture and facilities for R&D

Elements and Performance Criteria

Engaging the team through employee communication and employee engagement

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

- PC1.** . ensure engineer and team are aware of the job expectations on a monthly/weekly/daily basis
- PC2.** . involve engineer and team for the daily work meeting/brain storming sessions / staff meetings to communicate information intended for them
- PC3..** ensure communication to team on any changes in policies/ processes by the organization through required verbal/ written mechanisms
- PC4..** ensure participation of employees in various engagement initiatives organized at the engineering centre and other place by the organization
- PC5..** involve engineer and team in TQM & kaizen meets, brainstorming sessions, safety drills etc. to increase their involvement in R&D operations
- PC6..** escalate issues to concerned staff in case of any issue related to team management and engagement

Finalizing manpower deployment

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

- PC7..** finalize along with the engineer the shiftplanning and manpower deployment for the month/week as per the proposed prototype development plan
- PC8. .** ensure that the engineer maintains the information on leaves share the information with the concerned as and when required
- PC9. .** ensure that the engineer identifies the skilled manpower for the process and ensure periodic up - dation of skill matrix/ skill chart
- PC10. .** ensure identification and deployment of right skilled people at the right places on the prototype shop

Employee Performance Measurement and Employee Development

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

- PC11. .** ensure that the engineer tracks the daily performance of the team and note the achievement levels in an online IT enabled system
- PC12..** provide feedback to engineer pertaining to performance appraisals of team

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- PC13.** . ensure that the team is trained and are aware of the processes which need to be followed on the shop floor during the proto type process
- PC14.** . other than technical trainings, support the team by delivering trainings related to quality and safety for them
- 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

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

- PC16.** . ensure that the engineer maintains a cordial and open culture in the team so that maximum new ideas are generated
- PC17..** . ensure a culture of intelligent market benchmarking for different types of design, prototypes and testing methodologies in the company
- 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 (KU)

The individual on the job needs to know and understand:

- KU1.** . relevant standards and procedures followed in the company
- KU2.** . different types of products manufactured by the company
- KU3.** . quality management practices of the organization
- KU4.** . different types of R&D processes
- KU5.** . various grievance management tools available in the organization
- KU6.** . various problems solving tools like 7QC, Why Why Analysis, Brain storming
- KU7.** . different types of communication channels practiced by the organization
- KU8.** . the method of noting observations, maintaining records and sharing them with the concerned in the required format
- KU9.** . knowledge of shift roster norms and guidelines
- KU10.** . how and when to measure performance of the operators
- KU11.** . how to share feedback with team members

Generic Skills (GS)

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

- GS1.** . document information from the manuals,discussion notes, process charts etc.
- GS2.** . create small notes/ work documents/ diagrams for operators and helpers to help them understand the process
- GS3.** . use emails and other business correspondence methods (internal memos, circular etc.) for communicating with other team members/ vendors/ suppliers etc
- GS4.** . read internal information memos send by internal customers (other functions within the organization)

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- GS5.** discuss task lists, schedules, and work-loads with the operative team members
- GS6.** answer the queries raised by the operative team as well as intercompany departments
- GS7.** effectively communicate with the operators and helpers and make them aware of work expectations, targets, policies, processes etc.
- GS8.** attentively listen with full attention the queries and grievances raised by the operative team and comprehend the information given by the speaker
- GS9.** identify the strengths and weaknesses of the subordinate team members (operators and helpers)
- GS10.** provide constructive and genuine feedback
- GS11.** motivate the team to take independently responsibilities in their work areas
- GS12.** provide training to the operators and helpers for technical and behavioural areas
- GS13.** communicate effectively to the team members
- GS14.** identify conflicts in the team and try to resolve them at the earliest
- GS15.** interact and engage with the team members on a day to day basis
- GS16.** counsel and coach the operators and help them resolve issues
- GS17.** timely highlight to the management about any good work/ achievement by the operators and helpers
- GS18.** display empathy for the problems faced by the team and act on the concerns
- GS19.** break the problem into smaller issues and tasks to arrive at a solution
- GS20.** understand inter process relationship and establish relationship between various parts of the problem
- GS21.** leverage experience to find effective solutions to problems
- GS22.** use basic analytical tools to arrive at solutions
- GS23.** collaborate with cross functional teams to resolve problems
- GS24.** use common sense and make judgments during day to day basis
- GS25.** use reasoning skills to identify and resolve problems
- GS26.** use intuition to detect any potential problems which could arise during operations
- GS27.** critically analyse solutions/ recommendations shared by operatives and supervisors for implementation
- GS28.** accept additional responsibility for self and the team
- GS29.** encourage self and other to take greater responsibilities
- GS30.** ensure that the work allocated to the team is completed as per timelines and quality norms
- GS31.** identify obstacles and bottlenecks in the process and on own find basic level solutions for removing these obstacles
- GS32.** motivate and provide support for the team on the shop floor
- GS33.** encourage collaboration between team members
- GS34.** resolve team issues and grievances to manage conflicts within the team
- GS35.** create an environment of approachability, trust and openness within the team
- GS36.** ensure role clarity for all operators and helpers on the line/ shift
- GS37.** escalate any team related issues to the concerned person at the right time
- GS38.** use previous experience in resolving problems and taking decisions

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GS39. make timely and independent decisions on the line/ shift within the boundaries of the delegation matrix of the organization

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Engaging the team through employee communication and employee engagement</i>	11	24	-	-
PC1. . ensure engineer and team are aware of the job expectations on a monthly/weekly/daily basis	2	4	-	-
PC2. . involve engineer and team for the daily work meeting/brain storming sessions / staff meetings to communicate information intended for them	2	4	-	-
PC3.. ensure communication to team on any changes in policies/ processes by the organization through required verbal/ written mechanisms	2	4	-	-
PC4.. ensure participation of employees in various engagement initiatives organized at the engineering centre and other place by the organization	2	4	-	-
PC5.. involve engineer and team in TQM & kaizen meets, brainstorming sessions, safety drills etc. to increase their involvement in R&D operations	2	4	-	-
PC6.. escalate issues to concerned staff in case of any issue related to team management and engagement	1	4	-	-
<i>Finalizing manpower deployment</i>	6	18	-	-
PC7.. finalize along with the engineer the shiftplanning and manpower deployment for the month/week as per the proposed prototype development plan	2	5	-	-
PC8. . ensure that the engineer maintains the information on leaves share the information with the concerned as and when required	1	4	-	-
PC9. . ensure that the engineer identifies the skilled manpower for the process and ensure periodic up - dation of skill matrix/ skill chart	1	5	-	-
PC10. . ensure identification and deployment of right skilled people at the right places on the prototype shop	2	4	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Employee Performance Measurement and Employee Development</i>	9	18	-	-
PC11. . ensure that the engineer tracks the daily performance of the team and note the achievement levels in an online IT enabled system	2	5	-	-
PC12. .. provide feedback to engineer pertaining to performance appraisals of team	2	3	-	-
PC13. . ensure that the team is trained and are aware of the processes which need to be followed on the shop floor during the proto type process	2	4	-	-
PC14. . other than technical trainings, support the team by delivering trainings related to quality and safety for them	1	3	-	-
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	2	3	-	-
<i>Ensuring the proper culture and facilities for R&D</i>	4	10	-	-
PC16. . ensure that the engineer maintains a cordial and open culture in the team so that maximum new ideas are generated	1	3	-	-
PC17. .. ensure a culture of intelligent market benchmarking for different types of design, prototypes and testing methodologies in the company	1	3	-	-
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	2	4	-	-
NOS Total	30	70	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	ASC/N0020
NOS Name	Managing the team on a day to day basis
Sector	Automotive
Sub-Sector	Research & Development
Occupation	Prototyping
NSQF Level	7
Credits	TBD
Version	1.0
Last Reviewed Date	20/01/2014
Next Review Date	20/01/2014
NSQC Clearance Date	

Qualification Pack

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

Description

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

Scope

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

Elements and Performance Criteria

Ensure proper sorting of items at the work place

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

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

Ensure proper documentation and storage - streamlining & organizing the workplace

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

- PC11.** ensure that the team follows the given instructions and checks for labelling of fluids, oils lubricants, solvents, chemicals etc and proper storage of the same to avoid spillage, leakage, fire etc
- PC12.** make sure that all material and tools are stored in the designated places and in the manner indicated in the 5s instructions

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- PC13.** ensure that organizing the workplace takes place with due considerations to the principles of wasted motions, ergonomics, work & method study .

Ensure cleaning of self and the work place

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

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

Ensure standardization

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

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

Ensure sustenance

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

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

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant standards, procedures and policies related to 5S followed in the company
- KU2.** have basic knowledge of 5S procedures
- KU3.** know various types 5s practices followed in various areas
- KU4.** understand the 5S checklists provided in the department/ team
- KU5.** have skills to identify useful & non useful items

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

Generic Skills (GS)

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

- GS1.** write basic level notes and observations
- GS2.** note down observations (if any) related to the process
- GS3.** write information documents to internal departments/ internal teams
- GS4.** read 5S instructions put up across the plant premises
- GS5.** effectively communicate information to team members inform employees in the plant and concerned functions about 5S
- GS6.** question the process head in order to understand the 5S related issues
- GS7.** attentively listen with full attention and comprehend the information given by the speaker during 5S training programs
- GS8.** use common sense and make judgments during day to day basis
- GS9.** use reasoning skills to identify and resolve basic problems using 5S
- GS10.** persuade team members to follow 5 S
- GS11.** ensure that the team members understand the importance of using 5 S tool
- GS12.** use innovative skills to perform and manage 5 S activities at the work desk and the shop floor
- GS13.** exhibit inquisitive behaviour to seek feedback and question on the existing set patterns of work emerge, techniques in CA/CI around 5 S work practices
- GS14.** do what is right, not what is a popular practice
- GS15.** follow shop floor rules& regulations and avoid deviations
- GS16.** lead by example in the plant premises while performing activities related to 5S
- GS17.** ensure self-cleanliness on a daily basis
- GS18.** demonstrate the will to keep the work area in a clean and orderly manner
- GS19.** accept additional responsibility for self and the team
- GS20.** encourage self and other to take greater responsibilities for managing 5S
- GS21.** identify obstacles and bottlenecks in the process and find basic level solutions for removing these obstacles

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- GS22.** use previous experience in resolving problems and taking decisions
- GS23.** make timely and independent decisions on the line/ shift within the boundaries of the delegation matrix of the organization

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Ensure proper sorting of items at the work place</i>	10	25	-	-
PC1.. ensure all recyclable materials are put in designated containers	1	2.5	-	-
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	1	2.5	-	-
PC3. ensure that the operators and other team members are segregating the waste in hazardous/ non hazardous waste as per the sorting work instructions	1	2.5	-	-
PC4. ensure that all the operators are following the technique of waste disposal and waste storage in the designated bins	1	2.5	-	-
PC5.. segregate the items which are labelled at red tag items for the process area and keep them in the correct places	1	2.5	-	-
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	1	2.5	-	-
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	1	2.5	-	-
PC8. . oversee removal of unnecessary equipment, storage, furniture, unneeded inventory, supplies, parts and material	1	2.5	-	-
PC9. ensure that areas of material storage areas are not overflowing	1	2.5	-	-
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	1	2.5	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Ensure proper documentation and storage - streamlining & organizing the workplace</i>	3	7.5	-	-
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	1	2.5	-	-
PC12. make sure that all material and tools are stored in the designated places and in the manner indicated in the 5s instructions	1	2.5	-	-
PC13. ensure that organizing the workplace takes place with due considerations to the principles of wasted motions, ergonomics, work & method study .	1	2.5	-	-
<i>Ensure cleaning of self and the work place</i>	4	10	-	-
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	1	2.5	-	-
PC15.. ensure workbenches and work surfaces are clean and in good condition	1	2.5	-	-
PC16.. ensure adherence to the cleaning schedule for the lighting system to ensure proper illumination	1	2.5	-	-
PC17.. ensure all recyclable materials are put in designated containers	1	2.5	-	-
<i>Ensure standardization</i>	5	12.5	-	-
PC18. ensure that daily cleaning standards and schedules to create a clean working environment are followed across the plant	1	2.5	-	-
PC19.. ensure all recyclable materials are put in designated containers	1	2.5	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC20. . ensure logical and user friendly documentation and file management for all activities across the plant and create guidelines around standardization of processes	1	2.5	-	-
PC21. ensure timely creation and sharing of the 5s checklists	1	2.5	-	-
PC22. ensure that the 5s manual are available as per the timelines	1	2.5	-	-
<i>Ensure sustenance</i>	7	16	-	-
PC23. ensure team cooperation during the audit of 5 s activities	1	2.5	-	-
PC24. ensure that workmen are periodically trained to address challenges related to 5s	1	2.5	-	-
PC25.. participate actively in employee work groups on 5s and encourage team members for active participation	1	2	-	-
PC26.. oversee that the staff/operators are trained and fully understand 5s procedures	1	2	-	-
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	1	2.5	-	-
PC28. ensure continuous training of the team members on 5s in order to increase their awareness and support implementation	1	2	-	-
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	1	2.5	-	-
NOS Total	29	71	-	-

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National Occupational Standards (NOS) Parameters

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

Qualification Pack

ASC/N8105: Understand the product requirements, fix design specifications, reliability parameters; design the product using computer aided technology and manage product data

Description

This NOS unit is about understanding the product requirements, fixing design specifications, reliability parameters; designing the product using computer aided technology and manage product data

Scope

The product design manager will be responsible for: Understanding product requirements fixed by the CFT Team Creation of basic product design & finalize the design specifications Ensure reliability and validity of the product design Designing the vehicle using CAD/ CAE Ensure design FMEA is conducted, simulations on the product design is conducted Ensure completion of process pertaining to telematics and HMI Ensure creation of standardization for capturing work analysis and management of product design data Ensure system integration mechanism are in place The role holder will interact with different Centre of Excellence, different CFT's team, Sourcing Team, Prototype department, product conceptualization team, finance and HR

Elements and Performance Criteria

Understanding product requirements fixed by the CFT Team

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

- PC1..** understand product requirements fixed by the cft team basis customer preferences, benchmarking data, technology parameters etc.
- PC2..** analyse the type of material (including new material) to be used
- PC3..** analyse the technology and technique to be used in design of the product
- PC4..** brainstorm and create mental picture/ image of the design
- PC5..** consider aspects of aesthetic appeal, ergonomics etc. while designing the product

Creation of basic product design

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

- PC6..** ensure creation of a freehand sketch/silhouette basis the mental image of the product design by the design team
- PC7..** share basic design principles with the team
- PC8..** selecting the procedure that displays design hierarchy
- PC9..** using mechanical cad (computer aided design) system to generate design geometry

Finalize the design specifications

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

- PC10..** create design input specifications for each of the aggregates, body of the vehicle etc.
- PC11..** ensure the required specification of the product is achieved
- PC12..** ensure conformance between design output and design input
- PC13..** decide the means of demonstration that each requirement has been met

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- PC14..** create a mechanism for capturing design output
- PC15..** develop a quality cost delivery analyses for all decision metrics relating to developing the body of the car and cost involved
- PC16..** define elements related to colour design (interior and exterior) through analysis of a range of data including what colours are in vogue in the fields of fashion and interior design around the world
- PC17..** ensure elements pertaining to completing clay modelling activities are finalized

Ensure reliability and validity of the product design

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

- PC18..** define reliability requirements on the basis of benchmarks, competitive analysis, cost, safety etc.
- PC19..** prioritize key reliability risk items and the corresponding risk reduction strategy
- PC20..** estimate the products design reliability
- PC21..** analyse product reliability using simulation models, prior warranty and tests data from similar models
- PC22..** analyse failure risks and mechanics
- PC23..** use design of experiments methodology to identify factors significant to the life of the vehicle
- PC24..** use life data analysis (lda) techniques to statistically estimate the reliability of the product design and calculate various reliability-related metrics
- PC25..** conduct reliability growth (rg) testing and analyse effective methodology to discover defects and improve the design during/ post testing inputs

Designing the vehicle using CAD/ CAE

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

- PC26..** transform the functional architecture to physical architecture through application of cad (computer aided design) and cae (computer aided engineering)
- PC27..** create product designs as per the defined geometrical parameters which can be readily altered by changing relevant parameters
- PC28..** creation of 2d/ 3d model using cad/ cae along engineering inputs, customer requirements and product necessities using the modelling section of the software
- PC29..** analyse the model using loads to check and validate the design
- PC30..** digitizing and translating the clay model into a cad design into 3d real time view
- PC31..** ensure designing of the smaller parts to check if they all fit and add to structural viability
- PC32..** ensure incorporation of engineering parameters related to speed, cutting pattern, coolant information etc. to the cad/ cae

Ensure design FMEA (Failure Mode Effect Analysis) is conducted

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

- PC33..** understand the purpose of the design
- PC34..** identify all the ways the failure could happen (creation of failure modes) and the consequence of each failure
- PC35..** determine the seriousness of each effect
- PC36..** creation of a rating system (0 to 10) to identify how serious each effect is

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- PC37..** for each failure mode ensure the potential root causes is determined and the occurrence rating o (between 0 and 10) is defined
- PC38..** identify recommended actions (design changes) to lower severity or occurrence
- PC39..** check for architectural design verification
- PC40..** formulate simulation model to be used
- PC41..** ensure the model is tested and compare behaviour with that of the actual problem environment
- PC42..** run the simulation, analyse results and make changes accordingly
- PC43..** rerun simulation to test the new solution
- PC44..** validate simulation to increase the chances that the simulation will be valid in the real world
- Ensure completion of process pertaining to telematics and human machine interface for product design*
- To be competent, the user/individual on the job must be able to:
- PC45..** validate that telematics follows requirements and ensure its functionality
- PC46..** ensure telematics system can analyse drivers sense of driving
- PC47..** ensure a high performance hmi(human machine interface) philosophy is and style guide is adopted with proper principles
- PC48..** determine specific performance and goal objectives/targets for process control, such as safety parameters, production rate, efficiency, cost, and quality
- PC49..** analyse controls that must be monitored and manipulated to achieve the performance and goal objectives, determining the content of each level 2 and 3 graphic
- PC50..** design high performance graphics, following the hmi philosophy, addressing the identified tasks
- PC51..** install, commission, and provide training on the new hmi
- PC52..** control, maintain, and periodically reassess the hmi performance
- Ensure creation of standardization for capturing work analysis*
- To be competent, the user/individual on the job must be able to:
- PC53..** ensure that standardized work analysis sheet are used to capture analysis
- PC54..** validate the analysis sheet
- PC55..** standardize the time to check that the processes are being conducted within the specified amount of time
- PC56..** ensure usage of standardized work combination sheet
- PC57..** standardize the applicability of different processes to be used
- Ensure management of product design data*
- To be competent, the user/individual on the job must be able to:
- PC58..** identify the product and information regarding the product design
- PC59..** identify product structure management- product material, process management of the product
- PC60..** identify and store information regarding product development and tools to be used
- PC61..** ensure usage of change control and change assessment management in case of any changes to the product design data
- PC62..** ensure generating status accounting the product: its history, present use, serialization, part status, customer data

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Ensure system integration mechanism are in place

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

- PC63..** create a system integration team who help integrate all the parts of the product design data
- PC64..** ensure planning and control of the entire system through status control reports, meetings reviews etc.
- PC65..** ensure continued system integration and validating of the data captured

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** different types of products manufactured by the company
- KU2.** organization methodology/ procedures used for product design
- KU3.** management of product design data as per the procedures defined by the organization
- KU4.** quality norms and standards prescribed in the Quality Manual by the organization
- KU5.** 5S and Safety norms practiced in the organization
- KU6.** fundamentals of machines and mechanics
- KU7.** application of relevant principles of functionality, ergonomics, aesthetics etc
- KU8.** knowledge of different materials/ chemical process used in product design
- KU9.** fine arts, sculpturing and hand skills for clay modelling
- KU10.** application of CAE/ CAD systems
- KU11.** latest technologies in auto industry
- KU12.** latest regulations in auto industry
- KU13.** basic Arithmetic and calculation methods for tolerance limits
- KU14.** metallurgical properties of metals used for different processes
- KU15.** the methods of using instruments like Vernier callipers, Micrometres, rulers and other inspection tools
- KU16.** how to read and interpret sketches and engineering drawings
- KU17.** how to visually represent the final product output and hence decide on the key steps to be followed

Generic Skills (GS)

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

- GS1.** document information from the manuals, discussion notes, process charts etc
- GS2.** create small notes/ work documents/ diagrams for operators and helpers to help them understand the process
- GS3.** write inter departmental notes/ memos or make suitable entries in the online system
- GS4.** read equipment manuals and process documents to understand the equipment and processes better
- GS5.** read internal information memos sent by internal customers (other functions within the organization)

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- GS6.** discuss task lists, schedules, and work-loads with the team members
- GS7.** answer the queries raised by the team as well as intercompany departments
- GS8.** attentively listen with full attention the queries and grievances raised by the team and comprehend the information given by the speaker
- GS9.** break the problem into smaller issues and tasks to arrive at a solution
- GS10.** understand inter process relationship and establish relationship between various parts of the problem
- GS11.** leverage experience to find effective solutions to problems
- GS12.** use organizations analytical tools to arrive at solutions
- GS13.** plan, organize and prioritize the work with Engineering /R & D, Marketing department
- GS14.** plan support required from CFT /project teams for benchmarking ,testing,feasibility exercises
- GS15.** organize information, standards manuals etc. so that sorting becomes easy
- GS16.** reorganize resources in case of change of plans
- GS17.** use common sense and make judgments during day to day basis
- GS18.** use reasoning skills to identify and resolve problems
- GS19.** use intuition to detect any potential problems which could arise during operations
- GS20.** accept additional responsibility for self and the team
- GS21.** encourage self and other to take greater responsibilities
- GS22.** ensure that the work allocated to the team is completed as per timelines and quality norms
- GS23.** identify obstacles and bottlenecks in the process and on own find basic level solutions for removing these obstacles
- GS24.** gather information skilfully from multiple sources
- GS25.** analyse information in depth and identifies the problem in a timely manner
- GS26.** develop alternate solutions and resolves problems in early stages
- GS27.** work tireless in spite of repeat activities in a diligent manner to resolve problems on a day to day basis
- GS28.** use previous experience in resolving problems and taking decisions
- GS29.** make timely and independent decisions within the boundaries of the delegation matrix of the organization
- GS30.** clearly establish a goal for self or others to accomplish
- GS31.** without instructions from the manager, self-manage the work
- GS32.** take additional responsibilities to make sure that the work is completed on time
- GS33.** identify the needs of the customer
- GS34.** ensure that the product designed meets the expectation of the customer
- GS35.** understands importance of customer feedback and drives customer focus
- GS36.** familiarise with leading practices available in the market
- GS37.** think independently on new approaches to manufacturing process, material management, data management and team management
- GS38.** represent any new ideas/ approaches on process improvement and productivity improvement to the seniors in the team
- GS39.** contribute to building a positive team spirit

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- GS40.** identify individual strengths & maximize team performance
- GS41.** exhibit objectivity & openness to others views
- GS42.** collaborate with stakeholders to achieve the desired state of final result

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Understanding product requirements fixed by the CFT Team</i>	2.5	6	-	-
PC1.. understand product requirements fixed by the cft team basis customer preferences, benchmarking data, technology parameters etc.	0.5	1	-	-
PC2.. analyse the type of material (including new material) to be used	0.5	1	-	-
PC3.. analyse the technology and technique to be used in design of the product	0.5	1	-	-
PC4.. brainstorm and create mental picture/ image of the design	0.5	2	-	-
PC5.. consider aspects of aesthetic appeal, ergonomics etc. while designing the product	0.5	1	-	-
<i>Creation of basic product design</i>	2	5	-	-
PC6.. ensure creation of a freehand sketch/silhouette basis the mental image of the product design by the design team	0.5	1	-	-
PC7.. share basic design principles with the team	0.5	1	-	-
PC8.. selecting the procedure that displays design hierarchy	0.5	1	-	-
PC9.. using mechanical cad (computer aided design) system to generate design geometry	0.5	2	-	-
<i>Finalize the design specifications</i>	4	11	-	-
PC10.. create design input specifications for each of the aggregates, body of the vehicle etc.	0.5	2	-	-
PC11.. ensure the required specification of the product is achieved	0.5	1	-	-
PC12.. ensure conformance between design output and design input	0.5	2	-	-
PC13.. decide the means of demonstration that each requirement has been met	0.5	1	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14.. create a mechanism for capturing design output	0.5	1	-	-
PC15.. develop a quality cost delivery analyses for all decision metrics relating to developing the body of the car and cost involved	0.5	1	-	-
PC16.. define elements related to colour design (interior and exterior) through analysis of a range of data including what colours are in vogue in the fields of fashion and interior design around the world	0.5	2	-	-
PC17.. ensure elements pertaining to completing clay modelling activities are finalized	0.5	1	-	-
<i>Ensure reliability and validity of the product design</i>	4	10	-	-
PC18.. define reliability requirements on the basis of benchmarks, competitive analysis, cost, safety etc.	0.5	1	-	-
PC19.. prioritize key reliability risk items and the corresponding risk reduction strategy	0.5	1	-	-
PC20.. estimate the products design reliability	0.5	2	-	-
PC21.. analyse product reliability using simulation models, prior warranty and tests data from similar models	0.5	1	-	-
PC22.. analyse failure risks and mechanics	0.5	1	-	-
PC23.. use design of experiments methodology to identify factors significant to the life of the vehicle	0.5	1	-	-
PC24.. use life data analysis (lda) techniques to statistically estimate the reliability of the product design and calculate various reliability-related metrics	0.5	1	-	-
PC25.. conduct reliability growth (rg) testing and analyse effective methodology to discover defects and improve the design during/ post testing inputs	0.5	2	-	-
<i>Designing the vehicle using CAD/ CAE</i>	3.5	8	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC26.. transform the functional architecture to physical architecture through application of cad (computer aided design) and cae (computer aided engineering)	0.5	1	-	-
PC27.. create product designs as per the defined geometrical parameters which can be readily altered by changing relevant parameters	0.5	1	-	-
PC28.. creation of 2d/ 3d model using cad/ cae along engineering inputs, customer requirements and product necessities using the modelling section of the software	0.5	1	-	-
PC29.. analyse the model using loads to check and validate the design	0.5	2	-	-
PC30.. digitizing and translating the clay model into a cad design into 3d real time view	0.5	1	-	-
PC31.. ensure designing of the smaller parts to check if they all fit and add to structural viability	0.5	1	-	-
PC32.. ensure incorporation of engineering parameters related to speed, cutting pattern, coolant information etc. to the cad/ cae	0.5	1	-	-
<i>Ensure design FMEA (Failure Mode Effect Analysis) is conducted</i>	6	16.5	-	-
PC33.. understand the purpose of the design	0.5	2	-	-
PC34.. identify all the ways the failure could happen (creation of failure modes) and the consequence of each failure	0.5	2	-	-
PC35.. determine the seriousness of each effect	0.5	1	-	-
PC36.. creation of a rating system (0 to 10) to identify how serious each effect is	0.5	2	-	-
PC37.. for each failure mode ensure the potential root causes is determined and the occurrence rating o (between 0 and 10) is defined	0.5	2	-	-
PC38.. identify recommended actions (design changes) to lower severity or occurrence	0.5	1	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC39.. check for architectural design verification	0.5	1	-	-
PC40.. formulate simulation model to be used	0.5	1	-	-
PC41.. ensure the model is tested and compare behaviour with that of the actual problem environment	0.5	1	-	-
PC42.. run the simulation, analyse results and make changes accordingly	0.5	2	-	-
PC43.. rerun simulation to test the new solution	0.5	1	-	-
PC44.. validate simulation to increase the chances that the simulation will be valid in the real world	0.5	0.5	-	-
<i>Ensure completion of process pertaining to telematics and human machine interface for product design</i>	3	5.5	-	-
PC45.. validate that telematics follows requirements and ensure its functionality	0.5	1	-	-
PC46.. ensure telematics system can analyse drivers sense of driving	0.5	0.5	-	-
PC47.. ensure a high performance hmi(human machine interface) philosophy is and style guide is adopted with proper principles	0.25	1	-	-
PC48.. determine specific performance and goal objectives/targets for process control, such as safety parameters, production rate, efficiency, cost, and quality	0.5	0.5	-	-
PC49.. analyse controls that must be monitored and manipulated to achieve the performance and goal objectives, determining the content of each level 2 and 3 graphic	0.5	1	-	-
PC50.. design high performance graphics, following the hmi philosophy, addressing the identified tasks	0.25	0.5	-	-
PC51.. install, commission, and provide training on the new hmi	0.25	0.5	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC52.. control, maintain, and periodically reassess the hmi performance	0.25	0.5	-	-
<i>Ensure creation of standardization for capturing work analysis</i>	2	4	-	-
PC53.. ensure that standardized work analysis sheet are used to capture analysis	0.25	1	-	-
PC54.. validate the analysis sheet	0.5	1	-	-
PC55.. standardize the time to check that the processes are being conducted within the specified amount of time	0.5	0.5	-	-
PC56.. ensure usage of standardized work combination sheet	0.25	1	-	-
PC57.. standardize the applicability of different processes to be used	0.5	0.5	-	-
<i>Ensure management of product design data</i>	2	2.5	-	-
PC58.. identify the product and information regarding the product design	0.5	0.5	-	-
PC59.. identify product structure management-product material, process management of the product	0.5	0.5	-	-
PC60.. identify and store information regarding product development and tools to be used	0.5	0.5	-	-
PC61.. ensure usage of change control and change assessment management in case of any changes to the product design data	0.25	0.5	-	-
PC62.. ensure generating status accounting the product: its history, present use, serialization, part status, customer data	0.25	0.5	-	-
<i>Ensure system integration mechanism are in place</i>	1	1.5	-	-
PC63.. create a system integration team who help integrate all the parts of the product design data	0.5	0.5	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC64.. ensure planning and control of the entire system though status control reports, meetings reviews etc.	0.25	0.5	-	-
PC65.. ensure continued system integration and validating of the data captured	0.25	0.5	-	-
NOS Total	30	70	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	ASC/N8105
NOS Name	Understand the product requirements, fix design specifications, reliability parameters; design the product using computer aided technology and manage product data
Sector	Automotive
Sub-Sector	Research & Development
Occupation	Product Design
NSQF Level	7
Credits	TBD
Version	1.0
Last Reviewed Date	20/01/2014
Next Review Date	20/01/2016
NSQC Clearance Date	

Qualification Pack

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

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

Recommended Pass % : 75

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ASC/N0006.Maintain a safe and healthy working environment	25	75	-	-	100	15
ASC/N0019.Managing the project delivery as a team lead within the cross functional team	30	70	-	-	100	20
ASC/N0020.Managing the team on a day to day basis	30	70	-	-	100	20

Qualification Pack

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ASC/N0022.Ensure implementation of 5S activities at the shop floor & the office area	29	71	-	-	100	15
ASC/N8105.Understand the product requirements, fix design specifications, reliability parameters; design the product using computer aided technology and manage product data	30	70	-	-	100	30
Total	144	356	-	-	500	100

Acronyms

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

Qualification Pack

Glossary

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

Qualification Pack

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