

Qualification Pack



Product Conceptualization Engineer

QP Code: ASC/Q5101

Version: 1.0

NSQF Level: 6

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ASC/Q5101: Product Conceptualization Engineer

Brief Job Description

Product Conceptualization Engineer is responsible for broad level idea generation, collecting data for performing sensitivity, trend, economic etc. analysis; collating information for conducting internal and external benchmarking, supporting the Product Conceptualization Manager in creation of SQFD, understanding regulatory environment and also further support in assimilation of Cross Functional Teams.

Personal Attributes

The individual should have ability to co-relate technical knowledge with market data and material, cost, time estimates for different reports and design specifications, Marketing Product SOR (statement of requirements). Ability through applying different operational parameters/ principles to resolve engineering problems and finding appropriate solutions. The individual should further have customer orientation, market awareness, out of box thinking, problem solving, analytical skills, latest technologies knowledge, ability to visualize the final product etc.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [ASC/N0006: Maintain a safe and healthy working environment](#)
2. [ASC/N0022: Ensure implementation of 5S activities at the shop floor & the office area](#)
3. [ASC/N5101: Support the manager in conceptualizing the new product by using different analytical and decision making tools](#)
4. [ASC/N5102: Conducting trend analysis to effectively understand leading economic and technological trends](#)
5. [ASC/N5103: Ensuring compliance to all regulatory and environmental requirements](#)

Qualification Pack (QP) Parameters

Sector	Automotive
Sub-Sector	Research & Development
Occupation	Product Conceptualization
Country	India

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NSQF Level	6
Credits	NA
Aligned to NCO/ISCO/ISIC Code	NCO-2015/2144.0402
Minimum Educational Qualification & Experience	B.E./B.Tech (Preferably automobile/ mechanical engineering) with 2-3 years of experience In R&D automobile product conceptualization
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	Effective Data Collection for market, economic, trend analysis Economic, regulatory & environmental scenarios as applicable Problem solving
Minimum Job Entry Age	18 Years
Last Reviewed On	17/12/2013
Next Review Date	31/03/2022
NSQC Approval Date	05/08/2015
Version	1.0
Reference code on NQR	2015/AUT/ASDC/01123
NQR 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:

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

Generic Skills (GS)

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

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

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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	31/03/2022
NSQC Clearance Date	20/07/2015

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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

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

Ensure cleaning of self and the work place

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

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

Ensure standardization

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

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

Ensure sustenance

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

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

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

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

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

Generic Skills (GS)

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

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

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

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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	31/03/2022
NSQC Clearance Date	NA

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ASC/N5101: Support the manager in conceptualizing the new product by using different analytical and decision making tools

Description

This NOS unit is about supporting the Product conceptualization manager in conceptualizing the new product through using different analytical and decision making tool

Scope

The product conceptualization engineer will be responsible for:

- Supporting the manager in initial stage of idea generation, preparing basic level of sketch, layout, designs etc.
- Conducting sensitivity analysis, external/ internal benchmarking
- Understanding customer needs & formulating SOR
- Support in formation of CFT
- Support in developing the Simplified Quality Function Definition (SQFD) The role holder will interact with different Centre of Excellence, different CFT's team, Sourcing Team and others

Elements and Performance Criteria

Understanding Customer Needs

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

- PC1.** . understand and determine the customer preferences
- PC2.** . make sure to capture verbatim of the customers comment/ expectations on the proposed product
- PC3.** . evaluate the user/ customer needs
- PC4.** . clarify understanding pertaining to specification, parameter, constraints on the product design in consultation with the relevant stakeholders
- PC5.** . understand the customer requirements, prioritization and requirement classification
- PC6.** . understand the relationship between customer needs and satisfaction
- PC7.** . support in development of a range of criteria against which to evaluate different options and ideas
- PC8.** . support in conceptualizing and developing the product on the basis of 'one dimensional attributes', 'indifferent attributes', 'attractive attributes and 'must be attributes'
- PC9.** . seek both spoken and unspoken needs and translating into action and design

Supporting the manager in initial stage of idea generation

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

- PC10.** . support in brainstorming and initial stages of idea generation
- PC11.** . creation of a basic sketch/ design of the product
- PC12.** . translating/ communicating the initial product idea to the product designer in order to design a product that is aesthetically pleasing, ergonomically friendly and appealing

Preparing basic level of product layout/ sketch/ design

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

- PC13.** . creation a freehand sketch/ silhouette of the conceptual design
- PC14..** using mechanical cad (computer aided design) system support in generating the basic freehand layout design geometry
- PC15..** creation of tape drawing on package plan a 1:1 scale that includes all technical and structural constituents

Conducting sensitivity analysis

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

- PC16.** . select the parameters that need to be verified
- PC17.** . identify the range of the parameters that is realistically possible
- PC18.** . design and conduct experiment to check for sensitivity
- PC19..** summarize the results for further analysis
- PC20.** . calculate values of sensitivity index for each of the parts
- PC21.** . verify if the parts are within the sensitivity range
- PC22..** in case, the results are not optimal, new parts need to be designed
- PC23..** understand the data shared by the marketing team on competitor analysis
- PC24..** identify what parameters need to be benchmarked
- PC25.** . develop a plan for benchmarking
- PC26..** finalize on the data collection methodology and collect data
- PC27..** choose/ finalize on the best in class organizations from which benchmarking need to be completed
- PC28.** . conduct external benchmarking from demand-side perspective in order to determine if they satisfy the same set of customer needs and from supply-side perspective to determine if the organization has the same resources and technology to meet these needs
- PC29.** . collect data on the product design of the organization in comparison to the competitor design
- PC30.** . support in evaluation on parameters like feel, comfort, handling etc. in the analysis
- PC31.** . benchmark data against the technology being used by competitors
- PC32..** benchmark data against substitutes on the basis of functionality, technology and customer needs
- PC33.** . benchmark data against competitors working/focusing in the same market (for example, big vs. small car market)
- PC34.** . collect data pertaining to the competitive advantage of one organization and compare the same with the competitive advantage for own organization
- PC35..** support product conceptualization manager in creating competitors response profile which captures possible future moves
- PC36.** . support product conceptualization manager in conducting other competitor analysis, SWOT analysis, market segmentation etc.
- PC37.** . benchmark data against previous product conceptualization processes undertaken
- PC38.** . collect data to compare the technologies used previously in comparison to the current one

Support in development of the SQFD (Simplified Quality Function Definition)

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

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- PC39.** . support in assembly of the cross functional team CFT with diverse knowledge for design and fulfilment of customer needs
- PC40.** . support in formation of the team and define the scope of work for the team
- PC41..** support the product conceptualization manager in defining the time frame for completion of various activities being undertaken by the various CFT teams
- PC42.** . support the product conceptualization manager in defining the method of assessment for evaluation of work completed by the CFT team
- PC43.** . support in preparation of the SQFD through ensuring maximum satisfaction to the customer by making sure that product design and contents are as per their wishes
- PC44..** for the SQFD analyse the revealed requirements (basic wants), expected /implied requirements (customer fail to mention but wants them), exciting
- PC45.** . determine and finalize what segments will be analysed during the process and identify who the customers are
- PC46..** identifying the technical attributes in the SQFD
- PC47.** . classify and assign importance to the requirements of the customer on a scale of 1-5 of as applicable in the respective organization
- PC48.** . creation of relationship matrix to determine the relationship between customer needs and the companys ability to meet those needs
- PC49.** . support in incorporation of technical analysis completed for competitors products
- PC50.** . establishment for target values for each of the technical descriptors/ parameters
- PC51..** support in creation of a correlation matrix
- PC52.** . eliminate any negative preferences and maximize only on the positive
- PC53.** . complete the documentation on the regulatory requirements
- PC54.** . calculate and validate the absolute importance of each technical descriptor
- PC55.** . understand which of the technical descriptors matters the most

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant manufacturing standards and procedures followed in the company
- KU2.** different types of products manufactured by the company
- KU3.** organization methodology on conducting marketing data analysis, benchmarking,
- KU4.** quality norms and standards prescribed in the Quality Manual by the organization
- KU5.** 5S and Safety norms practiced in the organization
- KU6.** ability to collect data and conduct basic level analysis such as sensitivity, competitor etc. basis the technical parameters that are defined
- KU7.** basic fundamentals of machines and mechanics
- KU8.** application of relevant principles of functionality, ergonomics, aesthetics etc.
- KU9.** ability to consider relevant social, economic, environmental, sustainable, ethical and cultural issues that may impact in design solutions
- KU10.** ability to conduct SWOT, PESTLE analysis
- KU11.** ability to use different data analytics tools

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- KU12.** latest technologies in auto industry
- KU13.** latest regulations in auto industry
- KU14.** basic Arithmetic and calculation methods for tolerance limits
- KU15.** metallurgical properties of metals used for different processes
- KU16.** the methods of using instruments like Vernier callipers, Micrometres, rulers and other inspection tools
- KU17.** how to read and interpret sketches and engineering drawings
- KU18.** 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)
- 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 SB8. reorganize resources in case of change of plans
- GS16.** use common sense and make judgments during day to day basis
- GS17.** use reasoning skills to identify and resolve problems
- GS18.** use intuition to detect any potential problems which could arise during operations
- GS19.** accept additional responsibility for self and the team
- GS20.** encourage self and other to take greater responsibilities
- GS21.** ensure that the work allocated to the team is completed as per timelines and quality norms

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- GS22.** identify obstacles and bottlenecks in the process and on own find basic level solutions for removing these obstacles
- GS23.** gather information skilfully from multiple sources
- GS24.** analyse information in depth and identifies the problem in a timely manner
- GS25.** develop alternate solutions and resolves problems in early stages
- GS26.** work tireless in spite of repeat activities in a diligent manner to resolve problems on a day to day basis
- GS27.** use previous experience in resolving problems and taking decisions
- GS28.** make timely and independent decisions within the boundaries of the delegation matrix of the organization
- GS29.** clearly establish a goal for self or others to accomplish
- GS30.** without instructions from the manager, self-manage the work
- GS31.** take additional responsibilities to make sure that the work is completed on time
- GS32.** identify the needs of the customer
- GS33.** ensure that the product designed meets the expectation of the customer
- GS34.** understands importance of customer feedback and drives customer focus
- GS35.** familiarise with leading practices available in the market
- GS36.** think independently on new approaches to manufacturing process, material management, data management and team management
- GS37.** represent any new ideas/ approaches on process improvement and productivity improvement to the seniors in the team
- GS38.** contribute to building a positive team spirit
- GS39.** identify individual strengths & maximize team performance
- GS40.** exhibit objectivity & openness to others views
- GS41.** collaborate with stakeholders to achieve the desired state of final result

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Understanding Customer Needs</i>	5.5	12	-	-
PC1. . understand and determine the customer preferences	0.5	1	-	-
PC2. . make sure to capture verbatim of the customers comment/ expectations on the proposed product	0.5	1.5	-	-
PC3. . evaluate the user/ customer needs	1	1.5	-	-
PC4. . clarify understanding pertaining to specification, parameter, constraints on the product design in consultation with the relevant stakeholders	0.5	1.5	-	-
PC5. . understand the customer requirements, prioritization and requirement classification	0.5	1	-	-
PC6. . understand the relationship between customer needs and satisfaction	0.5	1	-	-
PC7. . support in development of a range of criteria against which to evaluate different options and ideas	0.5	1.5	-	-
PC8. . support in conceptualizing and developing the product on the basis of 'one dimensional attributes', 'indifferent attributes', 'attractive attributes and 'must be attributes'	1	1.5	-	-
PC9. . seek both spoken and unspoken needs and translating into action and design	0.5	1.5	-	-
<i>Supporting the manager in initial stage of idea generation</i>	2	4.5	-	-
PC10. . support in brainstorming and initial stages of idea generation	0.5	1.5	-	-
PC11. . creation of a basic sketch/ design of the product	0.5	1.5	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12.. translating/ communicating the initial product idea to the product designer in order to design a product that is aesthetically pleasing, ergonomically friendly and appealing	1	1.5	-	-
<i>Preparing basic level of product layout/ sketch/ design</i>	2	4.5	-	-
PC13. . creation a freehand sketch/ silhouette of the conceptual design	0.5	1.5	-	-
PC14.. using mechanical cad (computer aided design) system support in generating the basic freehand layout design geometry	1	1.5	-	-
PC15.. creation of tape drawing on package plan a 1:1 scale that includes all technical and structural constituents	0.5	1.5	-	-
<i>Conducting sensitivity analysis</i>	12	30	-	-
PC16. . select the parameters that need to be verified	0.5	1	-	-
PC17. . identify the range of the parameters that is realistically possible	0.5	1	-	-
PC18. . design and conduct experiment to check for sensitivity	1	1.5	-	-
PC19.. summarize the results for further analysis	0.5	1.5	-	-
PC20. . calculate values of sensitivity index for each of the parts	0.5	1.5	-	-
PC21. . verify if the parts are within the sensitivity range	0.5	1	-	-
PC22.. in case, the results are not optimal, new parts need to be designed	0.5	1.5	-	-
PC23.. understand the data shared by the marketing team on competitor analysis	0.5	1	-	-
PC24.. identify what parameters need to be benchmarked	0.5	1.5	-	-
PC25. . develop a plan for benchmarking	0.5	1.5	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC26. finalize on the data collection methodology and collect data	0.5	1.5	-	-
PC27. choose/ finalize on the best in class organizations from which benchmarking need to be completed	0.5	1	-	-
PC28. . conduct external benchmarking from demand-side perspective in order to determine if they satisfy the same set of customer needs and from supply-side perspective to determine if the organization has the same resources and technology to meet these needs	0.5	1.5	-	-
PC29. . collect data on the product design of the organization in comparison to the competitor design	0.5	1.5	-	-
PC30. . support in evaluation on parameters like feel, comfort, handling etc. in the analysis	0.5	1	-	-
PC31. . benchmark data against the technology being used by competitors	0.5	1.5	-	-
PC32. benchmark data against substitutes on the basis of functionality, technology and customer needs	0.5	1.5	-	-
PC33. . benchmark data against competitors working/focusing in the same market (for example, big vs. small car market)	0.5	1.5	-	-
PC34. . collect data pertaining to the competitive advantage of one organization and compare the same with the competitive advantage for own organization	0.5	1.5	-	-
PC35. support product conceptualization manager in creating competitors response profile which captures possible future moves	0.5	1	-	-
PC36. . support product conceptualization manager in conducting other competitor analysis, SWOT analysis, market segmentation etc.	0.5	1	-	-
PC37. . benchmark data against previous product conceptualization processes undertaken	0.5	1.5	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC38. . collect data to compare the technologies used previously in comparison to the current one	0.5	1	-	-
<i>Support in development of the SQFD (Simplified Quality Function Definition)</i>	8.5	19	-	-
PC39. . support in assembly of the cross functional team CFT with diverse knowledge for design and fulfilment of customer needs	0.5	1	-	-
PC40. . support in formation of the team and define the scope of work for the team	0.5	1.5	-	-
PC41.. support the product conceptualization manager in defining the time frame for completion of various activities being undertaken by the various CFT teams	0.5	1	-	-
PC42. . support the product conceptualization manager in defining the method of assessment for evaluation of work completed by the CFT team	0.5	1	-	-
PC43. . support in preparation of the SQFD through ensuring maximum satisfaction to the customer by making sure that product design and contents are as per their wishes	0.5	1.5	-	-
PC44.. for the SQFD analyse the revealed requirements (basic wants), expected /implied requirements (customer fail to mention but wants them), exciting	0.5	1.5	-	-
PC45. . determine and finalize what segments will be analysed during the process and identify who the customers are	0.5	1.5	-	-
PC46.. identifying the technical attributes in the SQFD	0.5	1	-	-
PC47. . classify and assign importance to the requirements of the customer on a scale of 1-5 of as applicable in the respective organization	0.5	1	-	-
PC48. . creation of relationship matrix to determine the relationship between customer needs and the companys ability to meet those needs	0.5	1	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC49. . support in incorporation of technical analysis completed for competitors products	0.5	1	-	-
PC50. . establishment for target values for each of the technical descriptors/ parameters	0.5	1	-	-
PC51.. support in creation of a correlation matrix	0.5	1	-	-
PC52. . eliminate any negative preferences and maximize only on the positive	0.5	1	-	-
PC53. . complete the documentation on the regulatory requirements	0.5	1	-	-
PC54. . calculate and validate the absolute importance of each technical descriptor	0.5	1	-	-
PC55. . understand which of the technical descriptors matters the most	0.5	1	-	-
NOS Total	30	70	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	ASC/N5101
NOS Name	Support the manager in conceptualizing the new product by using different analytical and decision making tools
Sector	Automotive
Sub-Sector	Research & Development
Occupation	Product Conceptualization
NSQF Level	6
Credits	TBD
Version	1.0
Last Reviewed Date	17/12/2013
Next Review Date	31/03/2022
NSQC Clearance Date	NA

Qualification Pack

ASC/N5102: Conducting trend analysis to effectively understand leading economic and technological trends

Description

This NOS unit is about conducting trend analysis to effectively understand leading economic and technological trends using various tools and methodology prescribed by the organization

Scope

The product conceptualization engineer will be responsible for:

- Supporting the manager in conducting future trend analysis
- Supporting the manager in conducting economic trend analysis
- Supporting the manager in conducting technology trend analysis including research on alternative fuels The role holder will interact with different Centre of Excellence, different CFT's team, Sourcing Team and others

Elements and Performance Criteria

Supporting in conducting future trend analysis

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

- PC1.** . support in analysing the features currently being used in similar products by the company itself as well as competitors
- PC2.** . benchmark the features of competitors and develop some sort of similar feature
- PC3..** support in analysing the features that customers want/need as well as those that they desire
- PC4.** . create qualitative surveys to collect data on customer needs and desires
- PC5.** . create quantitative surveys to collect data on customer needs and desires
- PC6.** . support in analyses to see the potential production and costs of those new features to see economic viability
- PC7.** . support in analysing the sensitivity to change, structural viability and if the features meet emission, safety and other requirements

Support in conducting economic trend analysis

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

- PC8.** . support in analysing to check if the current economic trends and if the customer has the willingness to pay for the product
- PC9..** support the manager in developing an approximate cost of the new product given the current and future economic trends
- PC10..** support in benchmarking the cost of conceptualization and production of current products to the predicted economic trends while making the potential product
- PC11.** . support the product conceptualization manager in analysing the fuel cost, mileage parameters, maintenance cost etc.
- PC12.** . support in analysis of different government policies, auto sector methods and export and import parameters

Qualification Pack

PC13.. generate a report to see if the potential customers can afford the product

PC14. . support in analysing the costs incurred by competition while producing the product

Support in conducting technology trend analysis and research on alternative fuel

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

PC15. . support in analysing the current technology that is in use in the industry, internally by the company and by competition

PC16.. support in analysing the future predicted technology to be used

PC17. . support in narrowing down the type of technology that is the most beneficial

PC18. . develop a cost benefit analysis of the technology to be used with the help of the manager

PC19. . check to see the technology sensitivity and well as if it meets all requirements

PC20. . benchmark the current technology being used to the company itself and competition

PC21. . decide whether to deploy the technology presently, to keep in the bench from a commercial viability point of view

PC22. . coordinate on aspects related to different technology/ alternative fuels/ new regulations with other nodal agency/ ministries

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. relevant manufacturing standards and procedures followed in the company

KU2. different types of products manufactured by the company

KU3. organization methodology on conducting marketing data analysis, benchmarking,

KU4. 5S and Safety norms practiced in the organization

KU5. ability to collect data and conduct basic level analysis such as sensitivity, competitor etc. basis the technical parameters that are defined

KU6. basic fundamentals of machines and mechanics

KU7. application of relevant principles of functionality, ergonomics, aesthetics etc.

KU8. ability to consider relevant social, economic, environmental, sustainable, ethical and cultural issues that may impact in design solutions

KU9. ability to conduct SWOT, PESTLE analysis

KU10. ability to use different data analytics tools

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. how to read and interpret sketches and engineering drawings

KU16. 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:

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- 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 send by internal customers (other functions within the organization)
- 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

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Supporting in conducting future trend analysis</i>	10	26	-	-
PC1. . support in analysing the features currently being used in similar products by the company itself as well as competitors	1	4	-	-
PC2. . benchmark the features of competitors and develop some sort of similar feature	1	4	-	-
PC3.. support in analysing the features that customers want/need as well as those that they desire	1	4	-	-
PC4. . create qualitative surveys to collect data on customer needs and desires	2	3	-	-
PC5. . create quantitative surveys to collect data on customer needs and desires	2	3	-	-
PC6. . support in analyses to see the potential production and costs of those new features to see economic viability	2	4	-	-
PC7. . support in analysing the sensitivity to change, structural viability and if the features meet emission, safety and other requirements	1	4	-	-
<i>Support in conducting economic trend analysis</i>	9	22	-	-
PC8. . support in analysing to check if the current economic trends and if the customer has the willingness to pay for the product	1	4	-	-
PC9.. support the manager in developing an approximate cost of the new product given the current and future economic trends	2	4	-	-
PC10.. support in benchmarking the cost of conceptualization and production of current products to the predicted economic trends while making the potential product	2	3	-	-
PC11. . support the product conceptualization manager in analysing the fuel cost, mileage parameters, maintenance cost etc.	1	3	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. . support in analysis of different government policies, auto sector methods and export and import parameters	1	3	-	-
PC13.. generate a report to see if the potential customers can afford the product	1	2	-	-
PC14. . support in analysing the costs incurred by competition while producing the product	1	3	-	-
<i>Support in conducting technology trend analysis and research on alternative fuel</i>	11	22	-	-
PC15. . support in analysing the current technology that is in use in the industry, internally by the company and by competition	1	3	-	-
PC16.. support in analysing the future predicted technology to be used	1	3	-	-
PC17. . support in narrowing down the type of technology that is the most beneficial	2	3	-	-
PC18. . develop a cost benefit analysis of the technology to be used with the help of the manager	2	3	-	-
PC19. . check to see the technology sensitivity and well as if it meets all requirements	1	2	-	-
PC20. . benchmark the current technology being used to the company itself and competition	2	3	-	-
PC21. . decide whether to deploy the technology presently, to keep in the bench from a commercial viability point of view	1	3	-	-
PC22. . coordinate on aspects related to different technology/ alternative fuels/ new regulations with other nodal agency/ ministries	1	2	-	-
NOS Total	30	70	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	ASC/N5102
NOS Name	Conducting trend analysis to effectively understand leading economic and technological trends
Sector	Automotive
Sub-Sector	Research & Development
Occupation	Product Conceptualization
NSQF Level	6
Credits	TBD
Version	1.0
Last Reviewed Date	17/12/2013
Next Review Date	31/03/2022
NSQC Clearance Date	NA

Qualification Pack

ASC/N5103: Ensuring compliance to all regulatory and environmental requirements

Description

This NOS unit is about ensuring compliance of all regulatory and environmental requirements

Scope

The product conceptualization engineer will be responsible for:

- Supporting the manager in ensuring compliance to all regulatory and environmental requirements
The role holder will interact with different Centre of Excellence, different CFT's team, Sourcing Team and others

Elements and Performance Criteria

Support the manager in ensuring compliance to all regulatory and environmental requirements

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

- PC1..** understand and analyse the current environmental and governmental regulations in terms of type of vehicles, size and its segment, utility etc.
- PC2..** check to see if the potential product will meet the environmental and government regulations (regulations of both local and global standards)
- PC3..** display understanding and orientation towards internal company regulations and if the product meets those
- PC4..** support in analysing and ensuring if the emission regulations of the country and globally to see if the product meets those
- PC5..** support in analysing and ensuring if the safety regulations of the country and globally to see if the product meets those
- PC6..** check to see the product is not utilizing a patent of some other organization
- PC7..** benchmark the regulations already in place to the future predicted ones to make sure the product will be meeting both

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant manufacturing standards and procedures followed in the company
- KU2.** different types of products manufactured by the company
- KU3.** organization methodology on conducting marketing data analysis, benchmarking
- KU4.** quality norms and standards prescribed in the Quality Manual by the organization
- KU5.** 5S and Safety norms practiced in the organization
- KU6.** ability to collect data and conduct basic level analysis such as sensitivity, competitor etc. basis the technical parameters that are defined
- KU7.** basic fundamentals of machines and mechanics

Qualification Pack

- KU8.** application of relevant principles of functionality, ergonomics, aesthetics etc
- KU9.** ability to consider relevant social, economic, environmental, sustainable, ethical and cultural issues that may impact in design solutions
- KU10.** ability to conduct SWOT, PESTLE analysis
- KU11.** ability to use different data analytics tools
- KU12.** latest technologies in auto industry
- KU13.** latest regulations in auto industry
- KU14.** basic Arithmetic and calculation methods for tolerance limits
- KU15.** metallurgical properties of metals used for different processes
- KU16.** the methods of using instruments like Vernier callipers, Micrometres, rulers and other inspection tools
- KU17.** how to read and interpret sketches and engineering drawings
- KU18.** 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 send by internal customers (other functions within the organization)
- 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

Qualification Pack

- 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
- 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

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Support the manager in ensuring compliance to all regulatory and environmental requirements</i>	30	70	-	-
PC1.. understand and analyse the current environmental and governmental regulations in terms of type of vehicles, size and its segment, utility etc.	5	10	-	-
PC2.. check to see if the potential product will meet the environmental and government regulations (regulations of both local and global standards)	5	10	-	-
PC3.. display understanding and orientation towards internal company regulations and if the product meets those	4	10	-	-
PC4.. support in analysing and ensuring if the emission regulations of the country and globally to see if the product meets those	4	10	-	-
PC5.. support in analysing and ensuring if the safety regulations of the country and globally to see if the product meets those	4	10	-	-
PC6.. check to see the product is not utilizing a patent of some other organization	4	10	-	-
PC7.. benchmark the regulations already in place to the future predicted ones to make sure the product will be meeting both	4	10	-	-
NOS Total	30	70	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	ASC/N5103
NOS Name	Ensuring compliance to all regulatory and environmental requirements
Sector	Automotive
Sub-Sector	Research & Development
Occupation	Product Conceptualization
NSQF Level	6
Credits	TBD
Version	1.0
Last Reviewed Date	17/12/2013
Next Review Date	31/03/2022
NSQC Clearance Date	NA

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.

Qualification Pack

Minimum Aggregate Passing % at QP Level : 75

(Please note: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

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/N0022.Ensure implementation of 5S activities at the shop floor & the office area	29	71	-	-	100	15
ASC/N5101.Support the manager in conceptualizing the new product by using different analytical and decision making tools	30	70	-	-	100	25
ASC/N5102.Conducting trend analysis to effectively understand leading economic and technological trends	30	70	-	-	100	25
ASC/N5103.Ensuring compliance to all regulatory and environmental requirements	30	70	-	-	100	20
Total	144	356	-	-	500	100

Qualification Pack

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.