

## Qualification Pack



# Manager Process Engineering

QP Code: ASC/Q6407

Version: 1.0

NSQF Level: 7

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

## Qualification Pack

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### ASC/Q6407: Manager Process Engineering

#### Brief Job Description

Individuals at this job need to develop and implement Manufacturing processes by planning, conducting techno commercial feasibility analysis and procuring the facilities, tools, gauges and equipments required. They are also responsible for process review for the new process & suggest modifications in order to improve the QCT targets.

#### Personal Attributes

This job requires the individual to work independently and be judicious in making decisions pertaining to his/her area of work. The individual should be result oriented. The individual should also be able to demonstrate skills for coordinating & leading the whole gamut of activities in theoretical & practical aspects of the process, information ordering, planning mathematical and deductive reasoning, oral expression and comprehension.

#### Applicable National Occupational Standards (NOS)

##### Compulsory NOS:

1. [ASC/N0002: Work effectively in a team](#)
2. [ASC/N0006: Maintain a safe and healthy working environment](#)
3. [ASC/N0022: Ensure implementation of 5S activities at the shop floor & the office area](#)
4. [ASC/N6424: Finalize the facilities and equipments required for the new process](#)
5. [ASC/N6425: Prepare the capital budgets, timelines, & procurement plans for the projects](#)
6. [ASC/N6426: Release the new process and sign off the PPAP document](#)

#### Qualification Pack (QP) Parameters

<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Manufacturing Support
<b>Occupation</b>	Process Engineering
<b>Country</b>	India
<b>NSQF Level</b>	7

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<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/2144.0105
<b>Minimum Educational Qualification &amp; Experience</b>	B.E./B.Tech (Industrial/Production/Mechanical Engineering ) with 5-10 Years of experience Manufacturing support department OR Certificate (ASDC Level 6 Certificate) with 1-2 years of experience
<b>Minimum Level of Education for Training in School</b>	
<b>Pre-Requisite License or Training</b>	Basic fundamentals training courses for computer designing software like CAD , GD&T,FTG designs knowledge of the manufacturing processes of the organization, TS 16949, APQP,FMEA, PPAP
<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	30/09/2013
<b>Next Review Date</b>	24/09/2021
<b>Deactivation Date</b>	24/09/2021
<b>NSQC Approval Date</b>	05/08/2015
<b>Version</b>	1.0
<b>Reference code on NQR</b>	2015/AUT/ASDC/01132
<b>NQR Version</b>	1.0

## Qualification Pack

### ASC/N0002: Work effectively in a team

#### Description

This NOS unit is about working effectively with colleagues, either in individuals own work group or in other work groups within organisation

#### Scope

This unit/task covers the following: Colleagues:

- Superiors
- Members of own work group
- People in other work groups within or outside the organisation Communicate:
- Face-to-face
- By telephone
- In writing

#### Elements and Performance Criteria

##### *Effective communication*

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

- PC1.** maintain clear communication with colleagues
- PC2.** work with colleagues
- PC3.** pass on information to colleagues in line with organisational requirements
- PC4..** work in ways that show respect for colleagues
- PC5.** carry out commitments made to colleagues
- PC6.** let colleagues know in good time if cannot carry out commitments, explaining the reasons
- PC7.** identify problems in working with colleagues and take the initiative to solve these problems
- PC8.** follow the organisations policies and procedures for working with colleagues
- PC9.** ability to share resources with other members as per priority of tasks

#### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** the organisations policies and procedures for working with colleagues, role and responsibilities in relation to this
- KU2.** the importance of effective communication and establishing good working relationships with colleagues
- KU3.** different methods of communication and the circumstances in which it is appropriate to use these
- KU4.** benefits of developing productive working relationships with colleagues
- KU5.** the importance of creating an environment of trust and mutual respect
- KU6.** whether not meeting commitments, will have implications on individuals and the organisation

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- KU7.** different types of information that colleagues might need and the importance of providing this information when it is required
- KU8.** the importance of problems, from colleagues perspective and how to provide support, where necessary, to resolve these

### Generic Skills (GS)

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

- GS1.** complete well written work with attention to detail
- GS2.** read instructions, guidelines/procedures
- GS3.** listen effectively and orally communicate information
- GS4.** make decisions on a suitable course of action or response
- GS5.** plan and organise work to achieve targets and deadlines
- GS6.** check that the work meets customer requirements
- GS7.** deliver consistent and reliable service to customers
- GS8.** apply problem solving approaches in different situations
- GS9.** apply balanced judgements to different situations
- GS10.** apply good attention to detail
- GS11.** check that the work is complete and free from errors
- GS12.** get work checked by peers
- GS13.** work effectively in a team environment

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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Effective communication</i>	<b>25</b>	<b>75</b>	-	-
<b>PC1.</b> maintain clear communication with colleagues	4	10	-	-
<b>PC2.</b> work with colleagues	2	7	-	-
<b>PC3.</b> pass on information to colleagues in line with organisational requirements	3	8	-	-
<b>PC4..</b> work in ways that show respect for colleagues	3	8	-	-
<b>PC5.</b> carry out commitments made to colleagues	2	8	-	-
<b>PC6.</b> let colleagues know in good time if cannot carry out commitments, explaining the reasons	2	8	-	-
<b>PC7.</b> identify problems in working with colleagues and take the initiative to solve these problems	4	9	-	-
<b>PC8.</b> follow the organisations policies and procedures for working with colleagues	3	9	-	-
<b>PC9.</b> ability to share resources with other members as per priority of tasks	2	8	-	-
<b>NOS Total</b>	<b>25</b>	<b>75</b>	-	-

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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N0002
<b>NOS Name</b>	Work effectively in a team
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Manufacturing and R&D, Sales and Service, Road Transportation
<b>Occupation</b>	Maintenance
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Next Review Date</b>	30/09/2015

## Qualification Pack

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

#### Description

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

#### Scope

The role holder will be responsible for

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

#### Elements and Performance Criteria

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

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

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

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

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

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

#### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

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

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

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### National Occupational Standards (NOS) Parameters

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

## 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

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

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

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

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### National Occupational Standards (NOS) Parameters

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

## Qualification Pack

### ASC/N6424: Finalize the facilities and equipments required for the new process

#### Description

This OS unit is about the manager - process analyzing the existing equipments and modifying/introducing new equipments for incorporation in the newly designed process for meeting the product QCT requirements

#### Scope

The unit/ task covers the following:

- reviewing the analysis of the existing tools and equipments & proposals prepared by the respective process engineers
- decide / finalize the process based on the comparison matrix for the proposals

#### Elements and Performance Criteria

##### *Reviewing Analysis of existing tools and equipments*

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

**PC1..** review the analysis to study /compare for the proposed options 3 D Space utilization, profiles, Cost vis--vis budgets : total & per piece Time required for implementation Capability to achieve product specifications & features

##### *Decide & finalize the process*

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

**PC2..** in the NPD-CFT finalize the proposal based on the feasibility & best balance of QCT vis--vis organizations budgeted targets

#### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** product line expansion plans for the company
- KU2.** company plant and process layout
- KU3.** manufacturing processes being followed in the company
- KU4.** sequence of operations for each process
- KU5.** in-house and third parties involved in process design for the company
- KU6.** complete knowledge of the new product usage and application
- KU7.** product conformance requirements
- KU8.** product engineering drawings and dimensional tolerances
- KU9.** knowledge of CAD software and 3D modeling techniques ( to be able to review)
- KU10.** complete layout for the process in consideration
- KU11.** material and information flow of the process

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**KU12.** knowledge of decision matrix techniques required for new process approval

### Generic Skills (GS)

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

- GS1.** read the engineering drawings of the new product
- GS2.** read the FTG drawings for the new equipments and facilities
- GS3.** prepare the process approval documents like PFMEA and Control plan
- GS4.** compile all the data in forms of reports and presentations as per requirement
- GS5.** communicate the new equipments and facilities design activities to the higher management in meetings for their support
- GS6.** coordinate with various departments for gathering all the information related to the process
- GS7.** allocate and monitor the equipment designing activity team member wise to ensure efficient and smooth execution of the activity
- GS8.** communicate with other departments like for coordinating and executing the process and equipments design activity
- GS9.** spell out effectively the findings of the proceedings to the higher management in meetings
- GS10.** Organize expert support from within/ outside professional environment for new technology, feasibility studies, decision matrix
- GS11.** analyze the way in which the existing process is in operation and think of more economic and feasible measures for process improvement

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Reviewing Analysis of existing tools and equipments</i>	15	35	-	-
<b>PC1..</b> review the analysis to study /compare for the proposed options 3 D Space utilization, profiles, Cost vis--vis budgets : total & per piece Time required for implementation Capability to achieve product specifications & features	15	35	-	-
<i>Decide &amp; finalize the process</i>	15	35	-	-
<b>PC2..</b> in the NPD-CFT finalize the proposal based on the feasibility & best balance of QCT vis--vis organizations budgeted targets	15	35	-	-
<b>NOS Total</b>	<b>30</b>	<b>70</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N6424
<b>NOS Name</b>	Finalize the facilities and equipments required for the new process
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Manufacturing Support
<b>Occupation</b>	Process Engineering
<b>NSQF Level</b>	7
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Next Review Date</b>	30/09/2015

## Qualification Pack

# ASC/N6425: Prepare the capital budgets, timelines, & procurement plans for the projects

## Description

This OS unit is about process engineer preparing & controlling the capital budget, project timeline, of the proposed investments for setting up the newly designed process and getting it approved from the authorities as per SOP

## Scope

This unit/ task covers the following:

- preparing list of FTGs for the new equipments of the process
- floating of enquiries for the budgetary quotes
- compiling capital budget and getting the approval from Finance department

## Elements and Performance Criteria

### *Preparation of FTGs*

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

- PC1..** collate all the FTGs for the new equipments and facilities
- PC2..** compile a comprehensive list of FTGs

### *Floatation of budgetary quotes*

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

- PC3..** invite budgetary quotes for the finalized equipments from list of approved suppliers capital budget for the investments
- PC4..** also ask each supplier to give justification for the quote proposed by the supplier
- PC5..** record the budgetary quote along with the justification for each equipment in form of a list

### *Compiling & monitoring the budget/ timeline*

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

- PC6..** prepare a comprehensive capital budget for all the investments along with a detailed justification note for each investment
- PC7..** submit the compiled budget to the authority as per organization sop and get it approved with appropriate justifications
- PC8..** based on the time required for designing associated equipment, fixtures, tools etc, procurement and downstream activities of integration, tryouts etc timeline should be prepared by respective process engineers & compiled at the apex level of process manager / project manager
- PC9..** monitor the budgeted costs and time in the entire cycle of NPD development with the team of engineers by setting review meetings etc.
- PC10..** ensure placing orders for main , auxiliary equipment as per the lists prepared for all projects as per organizational SOP and review progress periodically to monitor the timelines

## Knowledge and Understanding (KU)

## Qualification Pack

The individual on the job needs to know and understand:

- KU1.** product line expansion plans for the company
- KU2.** company plant and process layout
- KU3.** manufacturing processes being followed in the company
- KU4.** sequence of operations for each process
- KU5.** in-house and third parties involved in process and facilities design for the company
- KU6.** Process of budgets, approvals , Review meetings
- KU7.** knowledge of documents required for vendor approval like RFPs , RFQs etc.
- KU8.** tools and equipments functioning for the new process
- KU9.** facilities requirement and operation knowledge
- KU10.** complete layout for the process in consideration
- KU11.** material and information flow of the process
- KU12.** knowledge of APQP, PPAP ,
- KU13.** Preparation of timeline in MS Project / excel
- KU14.** Decision making matrix

## Generic Skills (GS)

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

- GS1.** read FTG drawings of the new equipments
- GS2.** prepare the capital budget in the prescribed format
- GS3.** compile all the data in forms of reports and presentations as per requirement
- GS4.** communicate the capital budget requirements to the higher management in meetings for their support
- GS5.** coordinate with all suppliers and Finance department for compilation and approval of the capital budget for the investments
- GS6.** Co-ordinate with various Process engineers for the tasks allocated
- GS7.** plan the capital budget preparation activity and ensure approval of the same in the stipulated time
- GS8.** Plan stage milestone Reviews for the Projects
- GS9.** think of alternate economic sources for procurement of finalized equipments
- GS10.** Think of fall-back action plans in the environment to meet the final goals of QCT for multiple projects being executed simultaneously.

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Preparation of FTGs</i>	<b>6</b>	<b>14</b>	-	-
<b>PC1..</b> collate all the FTGs for the new equipments and facilities	3	7	-	-
<b>PC2..</b> compile a comprehensive list of FTGs	3	7	-	-
<i>Floatation of budgetary quotes</i>	<b>9</b>	<b>21</b>	-	-
<b>PC3..</b> invite budgetary quotes for the finalized equipments from list of approved suppliers capital budget for the investments	3	7	-	-
<b>PC4..</b> also ask each supplier to give justification for the quote proposed by the supplier	3	7	-	-
<b>PC5..</b> record the budgetary quote along with the justification for each equipment in form of a list	3	7	-	-
<i>Compiling &amp; monitoring the budget/ timeline</i>	<b>15</b>	<b>35</b>	-	-
<b>PC6..</b> prepare a comprehensive capital budget for all the investments along with a detailed justification note for each investment	3	7	-	-
<b>PC7..</b> submit the compiled budget to the authority as per organization sop and get it approved with appropriate justifications	3	7	-	-
<b>PC8..</b> based on the time required for designing associated equipment, fixtures, tools etc, procurement and downstream activities of integration, tryouts etc timeline should be prepared by respective process engineers & compiled at the apex level of process manager / project manager	3	7	-	-
<b>PC9..</b> monitor the budgeted costs and time in the entire cycle of NPD development with the team of engineers by setting review meetings etc.	3	7	-	-
<b>PC10..</b> ensure placing orders for main , auxiliary equipment as per the lists prepared for all projects as per organizational SOP and review progress periodically to monitor the timelines	3	7	-	-

## Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>NOS Total</b>	<b>30</b>	<b>70</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N6425
<b>NOS Name</b>	Prepare the capital budgets, timelines, & procurement plans for the projects
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Manufacturing Support
<b>Occupation</b>	Process Engineering
<b>NSQF Level</b>	7
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Next Review Date</b>	30/09/2015

## Qualification Pack

# ASC/N6426: Release the new process and sign off the PPAP document

## Description

This OS unit is about the manager process engineering releasing the process after successful completion / sign off of the PPAP

## Scope

This unit/ task covers the following:

- auditing the process pre-PPAP as per the checklists to assess qualitative completion of all the tasks
- completing all the requirements of PPAP document by attaching all the reports and submitting the PPAP document to the concerned team member in higher management for signoff and approval
- releasing the drawings and FTGs to all the departments concerned with process for comprehension (restricted access)

## Elements and Performance Criteria

### *Conducting Pre-PPAP Audit*

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

- PC1..** after successful completion of the process trials and error resolution , collate all the process layouts , product drawings and equipment drawings and ftgs
- PC2..** attach one copy of each excluding the process in the ppap document the individual handling this function shall be competent to be able to
- PC3..** organize an audit with a checklist with support from QA for qualitative and quantitative completion of all the Phase III/IV activities such as completion of all auxiliary activities e.g. material feeding , pokayoke, on the Workstation validation of Process parameters in the Try-out validation of gauges dimensional / material Inspection of samples from the pilot batch performance validation of samples from the Pilot Batch master/ limit samples wherever necessary documentation : PF, FMEA, CP & WI, documentation : Check sheets (e.g. First off /Stage Inspection plan PDI) documentation in ERP /PLM action Plan from previous reviews completed (Customer/ Internal) training of each WS Technician as per CP/WI review if mix-up of similar parts, orientation etc can occur

### *PPAP document compilation*

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

- PC4..** compile all the process documents , PFDs , PFMEAs , Pre-launch Control plans , MSA and SPC reports , supplier PPAPs for raw materials , trial run reports , equipment commissioning , process validation reports etc. in one single PPAP document
- PC5..** submit the ppap document to the concerned team in higher management and at the customers take their signoff within the stipulated time
- PC6..** after the signoff , submit the ppap document to the shop floor quality department for their records
- PC7..** send a process development completion status to all the concerned departments and grant the permission to use the process for daily production requirements

### *Granting access to drawings*

## Qualification Pack

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

- PC8..** after successful signoff of ppap , grant restricted access to all the drawings and FTGS related to process , product and equipments for better comprehension of the concerned departments like production , quality , maintenance etc.
- PC9..** ensure that the team member from each department is assigned for accessing all the drawings and other process related data

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** manufacturing processes being followed in the company
- KU2.** sequence of operations for the new process
- KU3.** approved vendors for equipments procurement for the company
- KU4.** systems followed for PPAP approval in company
- KU5.** systems followed for information security in company
- KU6.** product conformance requirements
- KU7.** tools and equipments functioning for the new process
- KU8.** facilities requirement and operation knowledge
- KU9.** complete layout for the process in consideration
- KU10.** material and information flow of the process
- KU11.** knowledge of all the documents required for the PPAP submission

## Generic Skills (GS)

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

- GS1.** compile all the data in forms of PPAP document
- GS2.** communicate with concerned departments and explain the method of opening the restricted access to the
- GS3.** spell out the complete new process development activity execution to the higher management
- GS4.** coordinate with all the team members and compile the PPAP document
- GS5.** coordinate with R&D department and compile all the drawings and FTGs
- GS6.** plan the PPAP submission and drawings release activity in a timely and effective manner
- GS7.** think of all the alternate solutions for the problems arising in successful PPAP submission
- GS8.** imagine and visualize possibilities of an error in the environment and draw preventive actions for these.

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Conducting Pre-PPAP Audit</i>	<b>14</b>	<b>27</b>	-	-
<b>PC1..</b> after successful completion of the process trials and error resolution , collate all the process layouts , product drawings and equipment drawings and ftgs	4	9	-	-
<b>PC2..</b> attach one copy of each excluding the process in the ppap document the individual handling this function shall be competent to be able to	4	9	-	-
<b>PC3..</b> organize an audit with a checklist with support from QA for qualitative and quantitative completion of all the Phase III/IV activities such as completion of all auxiliary activities e.g. material feeding , pokayoke, on the Workstation validation of Process parameters in the Try-out validation of gauges dimensional / material Inspection of samples from the pilot batch performance validation of samples from the Pilot Batch master/ limit samples wherever necessary documentation : PF, FMEA, CP & WI, documentation : Check sheets (e.g. First off /Stage Inspection plan PDI) documentation in ERP /PLM action Plan from previous reviews completed (Customer/ Internal) training of each WS Technician as per CP/WI review if mix-up of similar parts, orientation etc can occur	6	9	-	-
<i>PPAP document compilation</i>	<b>12</b>	<b>29</b>	-	-
<b>PC4..</b> compile all the process documents , PFDs , PFMEAs , Pre-launch Control plans , MSA and SPC reports , supplier PPAPs for raw materials , trial run reports , equipment commissioning , process validation reports etc. in one single PPAP document	6	8	-	-
<b>PC5..</b> submit the ppap document to the concerned team in higher management and at the customers take their signoff within the stipulated time	2	7	-	-
<b>PC6..</b> after the signoff , submit the ppap document to the shop floor quality department for their records	2	7	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC7..</b> send a process development completion status to all the concerned departments and grant the permission to use the process for daily production requirements	2	7	-	-
<i>Granting access to drawings</i>	<b>4</b>	<b>14</b>	-	-
<b>PC8..</b> after successful signoff of ppap , grant restricted access to all the drawings and FTGS related to process , product and equipments for better comprehension of the concerned departments like production , quality , maintenance etc.	2	7	-	-
<b>PC9..</b> ensure that the team member from each department is assigned for accessing all the drawings and other process related data	2	7	-	-
<b>NOS Total</b>	<b>30</b>	<b>70</b>	-	-

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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	ASC/N6426
<b>NOS Name</b>	Release the new process and sign off the PPAP document
<b>Sector</b>	Automotive
<b>Sub-Sector</b>	Manufacturing Support
<b>Occupation</b>	Process Engineering
<b>NSQF Level</b>	7
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Next Review Date</b>	30/09/2015

### 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.

#### Minimum Aggregate Passing % at QP Level : 75

**(Please note:** Every Trainee should score a minimum aggregate passing percentage as specified above, to

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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/N0002.Work effectively in a team	25	75	-	-	100	10
ASC/N0006.Maintain a safe and healthy working environment	25	75	-	-	100	10
ASC/N0022.Ensure implementation of 5S activities at the shop floor & the office area	29	71	-	-	100	10
ASC/N6424.Finalize the facilities and equipments required for the new process	30	70	-	-	100	25
ASC/N6425.Prepare the capital budgets, timelines,& procurement plans for the projects	30	70	-	-	100	25
ASC/N6426.Release the new process and sign off the PPAP document	30	70	-	-	100	20
<b>Total</b>	<b>169</b>	<b>431</b>	<b>-</b>	<b>-</b>	<b>600</b>	<b>100</b>

## Qualification Pack

### Acronyms

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

## Qualification Pack

### Glossary

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

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