

Qualification Pack



Manager Maintenance Mechanical & Electrical Level 5

QP Code: ASC/Q6801

Version: 1.0

NSQF Level: 6

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

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ASC/Q6801: Manager Maintenance Mechanical & Electrical Level 5

Brief Job Description

Individuals at this job are responsible for maintaining status of continuous running of equipment and machinery. They use computerized systems to oversee routine maintenance and organize repairs. They are also involved in control and monitoring devices and occasionally in the manufacture of items that will help in maintenance.

Personal Attributes

Individuals at this job are responsible for maintaining status of continuous running of equipment and machinery. They use computerized systems to oversee routine maintenance and organize repairs. They are also involved in control and monitoring devices and occasionally in the manufacture of items that will help in maintenance.

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/N6801: Develop strategies to improve overall reliability and safety of plant, personnel and production processes](#)

Qualification Pack (QP) Parameters

Sector	Automotive
Sub-Sector	Manufacturing Support
Occupation	Maintenance
Country	India
NSQF Level	6
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3115.0501
Minimum Educational Qualification & Experience	B.E./B.Tech (Industrial/Production/Mechanical Engineering) with 10-15 Years of experience Maintenance/Manufacturing

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Minimum Level of Education for Training in School	
Pre-Requisite License or Training	Basic fundamentals training courses on working of equipments and machinery TPM , Predictive maintenance Techniques, Automation, Robotics
Minimum Job Entry Age	18 Years
Last Reviewed On	14/04/2014
Next Review Date	31/03/2021
Deactivation Date	31/03/2021
NSQC Approval Date	28/09/2015
Version	1.0

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

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National Occupational Standards (NOS) Parameters

NOS Code	ASC/N0002
NOS Name	Work effectively in a team
Sector	Automotive
Sub-Sector	Manufacturing and R&D, Sales and Service, Road Transportation
Occupation	Maintenance
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	23/09/2013
Next Review Date	30/09/2015
NSQC Clearance Date	28/09/2015

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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	15/09/2015
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	15/03/2016
NSQC Clearance Date	

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ASC/N6801: Develop strategies to improve overall reliability and safety of plant, personnel and production processes

Description

This OS unit is about the study and analysis of the various equipments and machinery used in the production process and also ensuring safety of manpower using those equipments and machinery

Scope

The unit/ task covers the following:

- planning and scheduling planned and unplanned work
- diagnosing breakdown problems
- carrying out quality inspections on jobs
- arranging specialist procurement of fixtures, fittings or components
- controlling maintenance tools, stores and equipment
- monitoring and controlling maintenance costs
- dealing with emergency and breakdown problems resolution
- laying down maintenance strategies to help with installation and commissioning guidelines

Elements and Performance Criteria

Planning and scheduling planned and unplanned work

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

- PC1..** understand the usage cycle of existing equipments and machinery that exist in the plant and any changes in the same owing to customer orders/ npd to be launched.
- PC2..** lay down the system for the maintenance cycle of each equipment by sticking appropriate stickers or recording maintenance schedules for routine activities by operator/ M/c technician special periodic by maintenance technician
- PC3..** based on the breakdown frequency of machines and equipments divide the manpower into planned and unplanned work
- PC4..** plan for contingency against major breakdowns, natural / manmade emergencies to be competent , the user/individual on the job must:
- PC5..** based on the nature of equipment preview and decide if any predictive technique can be applied on the equipment viz. vibration, stress analysis , oil analysis, wiring life assessment etc. if so plan the calendar for 2-3 years for this activity for the equipments in the plant.
- PC6..** at capacity expansion stage /NPD ensure standardization of critical spares e.g. sensors, plcs, bearings etc.
- PC7..** strategize to plan improvements in key performance parameters viz. mean time between breakdown, cost of maintenance, reduce power, water consumption etc.

Diagnosing breakdown problems

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

- PC8..** immediately report to the spot where breakdown has taken place
- PC9..** understand the reason for breakdown

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- PC10..** identify problems quickly by performing root cause analysis to devise a solution to fix the same. Use CFT approach , TOPS 8D , fault trees , equipment manual as necessary
- PC11..** take immediate / permanent corrective actions so that the problem is contained & is not repeated. deploy horizontally if applicable
- PC12..** make changes if any , as required in the preventive maintenance schedules based on findings in the breakdown maintenance actions.
- PC13..** collect all the information related to the problem and document the same in equipment history sheets in organization ERP/records in order to refer in future

carrying out quality inspections on jobs

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

- PC14..** carry out readings of important parameters e.g. geometrical accuracies etc with help of in-plant specialists/ standards room staff as necessary.
- PC15..** equipment to be run after ensuring all parts are assembled including protective guards Fluids / lubricants taken care of for replacement, quantity Electrical connections, wiring as per the diagram connected/ clamped and taped.

Maintenance Spares, store, special fixtures etc,

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

- PC16..** carry maintenance spares stock based on the equipment manufacturers recommendations
- PC17..** classify special fixtures, fittings, electronic items, plc s etc in such a way that vendor selection, ordering is organized and distributed amongst the manpower available as per their capabilities.
- PC18..** investigate possibilities to review spares stock that can be kept at equipment suppliers end to reduce inventory holding costs.

Manpower deployment

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

- PC19..** plan the manpower in consultation with Plant management according to the schedules for routine- preventive , breakdown , Predictive activities and expertise required based on the equipments in the plant for mechanical, Electrical, Electronic co-ordination with external experts and equipment manufacturers installation of new equipment re- layout requirements
- PC 20..** plan and deploy manpower on the basis of employed & outsourced experts as per the policies of the organization

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** company manufacturing processes
- KU2.** existing layout for the processes
- KU3.** sequence of operations for each process
- KU4.** facility planning methodology being followed in the company
- KU5.** future capacity expansions plans (if any) of the company
- KU6.** complete knowledge of the process in consideration
- KU7.** dimensions and type of the existing facility being used for the process

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- KU8.** engineering drawings of existing layout
- KU9.** operation of machinery and equipments being used for the process
- KU10.** manpower deployment plan for process
- KU11.** material and information flow of the process
- KU12.** capacity utilization levels and the cost of manufacturing being incurred
- KU13.** media of information flow like SAP , ERP etc.

Generic Skills (GS)

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

- GS1.** read the information displayed at the workplace
- GS2.** draft a pictorial representation of the existing layout for better comprehension
- GS3.** compile all the data related to study of existing facility in form of presentations and reports
- GS4.** communicate with shop floor workers gathering inputs/requirements
- GS5.** spell out effectively the findings of the study to the higher management in meetings
- GS6.** interact with workers and gather all the information related to process requirements
- GS7.** share operation knowledge with co-workers
- GS8.** coordinate with the facility planning department team and ensure timely analysis for layout designing
- GS9.** collate data from various third parties involved (if any) in existing facility design and development
- GS10.** plan the execution of requirements study for layout design in a effective manner and on timely basis
- GS11.** Plan Improvements in carbon credits, consumption of resources
- GS12.** analyze the way in which the existing facility layout is in operation and think of more economic and feasible measures for existing layout modification/redesigning

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Planning and scheduling planned and unplanned work</i>	13	29	-	-
PC1.. understand the usage cycle of existing equipments and machinery that exist in the plant and any changes in the same owing to customer orders/ npd to be launched.	2	3	-	-
PC2.. lay down the system for the maintenance cycle of each equipment by sticking appropriate stickers or recording maintenance schedules for routine activities by operator/ M/c technician special periodic by maintenance technician	2	3	-	-
PC3.. based on the breakdown frequency of machines and equipments divide the manpower into planned and unplanned work	2	4	-	-
PC4.. plan for contingency against major breakdowns, natural / manmade emergencies to be competent , the user/individual on the job must:	2	5	-	-
PC5.. based on the nature of equipment preview and decide if any predictive technique can be applied on the equipment viz. vibration, stress analysis , oil analysis, wiring life assessment etc. if so plan the calendar for 2-3 years for this activity for the equipments in the plant.	2	5	-	-
PC6.. at capacity expansion stage /NPD ensure standardization of critical spares e.g. sensors, plcs, bearings etc.	1	4	-	-
PC7.. strategize to plan improvements in key performance parameters viz. mean time between breakdown, cost of maintenance, reduce power, water consumption etc.	2	5	-	-
<i>Diagnosing breakdown problems</i>	7	21	-	-
PC8.. immediately report to the spot where breakdown has taken place	1	3	-	-
PC9.. understand the reason for breakdown	2	3	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10.. identify problems quickly by performing root cause analysis to devise a solution to fix the same. Use CFT approach , TOPS 8D , fault trees , equipment manual as necessary	1	4	-	-
PC11.. take immediate / permanent corrective actions so that the problem is contained & is not repeated. deploy horizontally if applicable	1	4	-	-
PC12.. make changes if any , as required in the preventive maintenance schedules based on findings in the breakdown maintenance actions.	1	4	-	-
PC13.. collect all the information related to the problem and document the same in equipment history sheets in organization ERP/records in order to refer in future	1	3	-	-
<i>carrying out quality inspections on jobs</i>	3	6	-	-
PC14.. carry out readings of important parameters e.g. geometrical accuracies etc with help of in-plant specialists/ standards room staff as necessary.	1	3	-	-
PC15.. equipment to be run after ensuring all parts are assembled including protective guards Fluids / lubricants taken care of for replacement, quantity Electrical connections, wiring as per the diagram connected/ clamped and taped.	2	3	-	-
<i>Maintenance Spares, store, special fixtures etc,</i>	4	9	-	-
PC16.. carry maintenance spares stock based on the equipment manufacturers recommendations	1	3	-	-
PC17.. classify special fixtures, fittings, electronic items, plc s etc in such a way that vendor selection, ordering is organized and distributed amongst the manpower available as per their capabilities.	2	3	-	-
PC18.. investigate possibilities to review spares stock that can be kept at equipment suppliers end to reduce inventory holding costs.	1	3	-	-
<i>Manpower deployment</i>	3	5	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC19.. plan the manpower in consultation with Plant management according to the schedules for routine-preventive , breakdown , Predictive activities and expertise required based on the equipments in the plant for mechanical, Electrical, Electronic co-ordination with external experts and equipment manufacturers installation of new equipment re-layout requirements	2	3	-	-
PC 20.. plan and deploy manpower on the basis of employed & outsourced experts as per the policies of the organization	1	2	-	-
NOS Total	30	70	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	ASC/N6801
NOS Name	Develop strategies to improve overall reliability and safety of plant, personnel and production processes
Sector	Automotive
Sub-Sector	Manufacturing Support
Occupation	Maintenance
NSQF Level	6
Credits	TBD
Version	1.0
Last Reviewed Date	23/09/2013
Next Review Date	30/09/2015
NSQC Clearance Date	

Qualification Pack

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

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

Recommended Pass % : 75

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ASC/N0002.Work effectively in a team	25	75	-	-	100	10
ASC/N0006.Maintain a safe and healthy working environment	25	75	-	-	100	20
ASC/N0022.Ensure implementation of 5S activities at the shop floor & the office area	29	71	-	-	100	10

Qualification Pack

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ASC/N6801.Develop strategies to improve overall reliability and safety of plant, personnel and production processes	30	70	-	-	100	60
Total	109	291	-	-	400	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.