

Method Study Executive

QP Code: ASC/Q6401

NSQF Level: 5

Automotive Skills Development Council || Automotive Skills Development Council, Sat Paul Mittal Building, 1/6, Siri Institutional Area August Kranti Marg (Khel Gaon Marg) New Delhi - 110049

Qualification Pack

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ASC/Q6401: Method Study Executive

Brief Job Description

Individuals at this job need to design, develop, test and evaluate integrated systems for managing industrial production processes including human work factors, quality control, inventory control, logistics and material flow, cost analysis and production coordination.

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 information ordering, oral expression, mathematical and deductive reasoning and comprehension. The individual should be willing to work at shop floor based job for long hours.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [ASC/N0006: Maintain a safe and healthy working environment](#)
2. [ASC/N0021: Maintain 5S at the work premises](#)
3. [ASC/N6401: Analyze the work movement of operator for each shop floor activity](#)
4. [ASC/N6402: Measure the time taken for each activity and compute the TAKT time](#)
5. [ASC/N6403: Develop the work standards for each activity and maintain the system](#)

Qualification Pack (QP) Parameters

Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Industrial Engineering
Country	India
NSQF Level	5
Aligned to NCO/ISCO/ISIC Code	NCO-2015/3115.0401
Minimum Educational Qualification & Experience	B.E./B.Tech (Industrial/Production/Mechanical Engineering) with 2-3 years of experience Not applicable

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Minimum Level of Education for Training in School	
Pre-Requisite License or Training	Basic statistics & Operations research fundamentals
Minimum Job Entry Age	18 Years
Last Reviewed On	23/09/2013
Next Review Date	31/03/2020
NSQC Approval Date	28/09/2015
Version	1.0

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:

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

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

Generic Skills (GS)

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

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

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Assessment Criteria

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

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

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National Occupational Standards (NOS) Parameters

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

Qualification Pack

ASC/N0021: Maintain 5S at the work premises

Description

This NOS is about ensuring all 5 S activities both at the shop floor and the office area to facilitate increase in work productivity

Scope

The individual needs to. Ensure sorting, streamlining & organizing, storage and documentation, cleaning, standardization and sustenance across the plant and office premises of the organization

Elements and Performance Criteria

Ensure sorting

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

- PC1..** follow the sorting process and check that the tools, fixtures & jigs that are lying on workstations are the ones in use and unnecessary items are not cluttering the workbenches or work surfaces.
- PC2..** ensure segregation of waste in hazardous/ non hazardous waste as per the sorting work instructions
- PC3..** follow the technique of waste disposal and waste storage in the proper bins as per sop
- PC4..** segregate the items which are labelled as red tag items for the process area and keep them in the correct places
- PC5.** sort the tools/ equipment/ fasteners/ spare parts as per specifications/ utility into proper trays, cabinets, lockers as mentioned in the 5s guidelines/ work instructions
- PC6. .** ensure that areas of material storage areas are not overflowing
- PC7.** properly stack 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
- PC8.** return the extra material and tools to the designated sections and make sure that no additional material/ tool is lying near the work area
- PC9.** follow the floor markings/ area markings used for demarcating the various sections in the plant as per the prescribed instructions and standards
- PC10.** follow the proper labeling mechanism of instruments/ boxes/ containers and maintaining reference files/ documents with the codes and the lists

Ensure proper documentation and storage (organizing , streamlining)

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

- PC11.** check that the items in the respective areas have been identified as broken or damaged
- PC12.** follow the given instructions and check for labelling of fluids, oils, lubricants, solvents, chemicals etc. and proper storage of the same to avoid spillage, leakage, fire etc
- PC13.** make sure that all material and tools are stored in the designated places and in the manner indicated in the 5s instructions

Ensure cleaning of self and the work place

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

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- PC14.** check whether safety glasses are clean and in good condition
- PC15.** keep all outside surfaces of recycling containers are clean
- PC16..** ensure that the area has floors swept, machinery clean and generally clean. in case of cleaning, ensure that proper displays are maintained on the floor which indicate potential safety hazards
- PC17..** check whether all hoses, cabling & wires are clean, in good condition and clamped to avoid any mishap or mix up
- PC18..** ensure workbenches and work surfaces are clean and in good condition
- PC19.** follow the cleaning schedule for the lighting system to ensure proper illumination
- PC20.** store the cleaning material and equipment in the correct location and in good condition
- PC21.** ensure self-cleanliness - clean uniform, clean shoes, clean gloves, clean helmets, personal hygiene

Ensure sustenance

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

- PC22.** follow the daily cleaning standards and schedules to create a clean working environment
- PC23.** attend all training programs for employees on 5 s
- PC24.** support the team during the audit of 5 s
- PC25.** participate actively in employee work groups on 5s and encourage team members for active participation
- PC26.** follow the guidelines for what to do and what not to do to build sustainability in 5s as mentioned in the 5s check lists/ work instructions

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant standards, procedures and policies related to 5S followed in the company
- KU2.** have basic knowledge of 5S procedures
- KU3.** know various types 5s practices followed in various areas
- KU4.** understand the 5S checklists provided in the department/ team
- KU5.** have skills to identify useful & non useful items
- KU6.** have knowledge of labels , signs & colours used as indicators
- KU7.** 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/unwanted substances on the process/ environment/ machinery/ human body
- KU10.** have knowledge of best ways of cleaning & 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.

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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.** read 5S instructions put up across the plant premises
- GS4.** effectively communicate information to team members inform employees in the plant and concerned functions about 5S
- GS5.** question the process head in order to understand the 5S related issues
- GS6.** attentively listen with full attention and comprehend the information given by the speaker during 5S training programs
- GS7.** use common sense and make judgments during day to day basis
- GS8.** use reasoning skills to identify and resolve basic problems using 5S
- GS9.** persuade co team members to follow 5 S
- GS10.** ensure that the co team members understand the importance of using 5 S tool
- GS11.** use innovative skills to perform and manage 5 S activities at the work desk and the shop floor
- GS12.** exhibit inquisitive behaviour to seek feedback and question on the existing set patterns of work
- GS13.** do what is right, not what is a popular practices
- GS14.** follow shop floor rules& regulations and avoid deviations; make 5S an integral way of life
- GS15.** ensure self-cleanliness on a daily basis
- GS16.** demonstrate the will to keep the work area in a clean and orderly manner

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Ensure sorting</i>	10	30	-	-
PC1.. follow the sorting process and check that the tools, fixtures & jigs that are lying on workstations are the ones in use and unnecessary items are not cluttering the workbenches or work surfaces.	1	3	-	-
PC2.. ensure segregation of waste in hazardous/ non hazardous waste as per the sorting work instructions	1	3	-	-
PC3.. follow the technique of waste disposal and waste storage in the proper bins as per sop	1	3	-	-
PC4.. segregate the items which are labelled as red tag items for the process area and keep them in the correct places	1	3	-	-
PC5. sort the tools/ equipment/ fasteners/ spare parts as per specifications/ utility into proper trays, cabinets, lockers as mentioned in the 5s guidelines/ work instructions	1	3	-	-
PC6. . ensure that areas of material storage areas are not overflowing	1	3	-	-
PC7. properly stack 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	3	-	-
PC8. return the extra material and tools to the designated sections and make sure that no additional material/ tool is lying near the work area	1	3	-	-
PC9. follow the floor markings/ area markings used for demarcating the various sections in the plant as per the prescribed instructions and standards	1	3	-	-
PC10. follow the proper labeling mechanism of instruments/ boxes/ containers and maintaining reference files/ documents with the codes and the lists	1	3	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Ensure proper documentation and storage (organizing , streamlining)</i>	3	9	-	-
PC11. check that the items in the respective areas have been identified as broken or damaged	1	3	-	-
PC12. follow the given instructions and check for labelling of fluids, oils, lubricants, solvents, chemicals etc. and proper storage of the same to avoid spillage, leakage, fire etc	1	3	-	-
PC13. make sure that all material and tools are stored in the designated places and in the manner indicated in the 5s instructions	1	3	-	-
<i>Ensure cleaning of self and the work place</i>	8	24	-	-
PC14. check whether safety glasses are clean and in good condition	1	3	-	-
PC15. keep all outside surfaces of recycling containers are clean	1	3	-	-
PC16.. ensure that the area has floors swept, machinery clean and generally clean. in case of cleaning, ensure that proper displays are maintained on the floor which indicate potential safety hazards	1	3	-	-
PC17.. check whether all hoses, cabling & wires are clean, in good condition and clamped to avoid any mishap or mix up	1	3	-	-
PC18.. ensure workbenches and work surfaces are clean and in good condition	1	3	-	-
PC19. follow the cleaning schedule for the lighting system to ensure proper illumination	1	3	-	-
PC20. store the cleaning material and equipment in the correct location and in good condition	1	3	-	-
PC21. ensure self-cleanliness - clean uniform, clean shoes, clean gloves, clean helmets, personal hygiene	1	3	-	-
<i>Ensure sustenance</i>	4	12	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC22. follow the daily cleaning standards and schedules to create a clean working environment	1	3	-	-
PC23. attend all training programs for employees on 5 s	0.5	2	-	-
PC24. support the team during the audit of 5 s	1	3	-	-
PC25. participate actively in employee work groups on 5s and encourage team members for active participation	0.5	2	-	-
PC26. follow the guidelines for what to do and what not to do to build sustainability in 5s as mentioned in the 5s check lists/ work instructions	1	2	-	-
NOS Total	25	75	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	ASC/N0021
NOS Name	Maintain 5S at the work premises
Sector	Automotive
Sub-Sector	Generic
Occupation	Generic
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	15/03/2014
Next Review Date	15/03/2016
NSQC Clearance Date	

Qualification Pack

ASC/N6401: Analyze the work movement of operator for each shop floor activity

Description

This OS unit is about the industrial engineer studying and analyzing the work or movement of operator performing a shop floor activity. Based on the study, the engineer develops the most convenient work method

Scope

The unit/ task covers the following: Analyzing the motion of operator while performing the shop floor activity Studying the movements involved for completion of work in the activity Developing the most convenient method of working for the operator

Elements and Performance Criteria

Analyzing the motion of operator

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

- PC1..** select the shop floor activity for motion study
- PC2..** study all the movements of the operator while doing the work like motion of hand , type of movement involved and henceforth the accuracy of the work done by the operator
- PC3..** also observe the eye movements being done by the operator
- PC4..** record the observations in the prescribed format for further analysis

Studying the work related movements

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

- PC5..** study the arrangements of the workplace like number of workstations, the position of tools and materials and the work environment.
- PC6..** also analyze the design of the tools and equipments in order to estimate the human effort involved in job performance for the activity.
- PC7..** record all these observations in the prescribed format for further analysis.

Establishment of work standards, deployment

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

- PC8..** based on the observations for both motion and work movements, develop the most practical and convenient work method.
- PC9..** also establish the procedure for execution of the work in co-ordination with the process engineer
- PC10..** incorporate the method in process documentation (PF, CP , WI etc.) ensuring clarity.
- PC11..** verify the implementation of the work method on a periodic basis.
- PC 12..** co-ordinate with production for problem solving , improvements of cycle time ergonomics etc.

Knowledge and Understanding (KU)

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The individual on the job needs to know and understand:

- KU1.** company manufacturing processes
- KU2.** sequence of operations for each shop floor activity
- KU3.** recording methods prescribed by organization for conducting the motion study
- KU4.** techniques for doing the motion study
- KU5.** the standards related to human motion while performing the work
- KU6.** all the economic factors involved in the activity

Generic Skills (GS)

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

- GS1.** read the work instructions being displayed at the workplace.
- GS2.** compile all the data related to motion study for all shop floor activities
- GS3.** communicate with shop floor workers for motion study at shop floor
- GS4.** assist workers in doing their job as per the standards
- GS5.** share operation knowledge with co-workers
- GS6.** plan the execution of motion study so that he can finish compilation of the data activity wise in the stipulated time at appropriate stage of the development
- GS7.** analyze the way in which job is being performed and think of some other suitable method in order to minimize the operator movement while performing the work

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Analyzing the motion of operator</i>	12	23	-	-
PC1.. select the shop floor activity for motion study	3	5	-	-
PC2.. study all the movements of the operator while doing the work like motion of hand , type of movement involved and henceforth the accuracy of the work done by the operator	3	6	-	-
PC3.. also observe the eye movements being done by the operator	3	6	-	-
PC4.. record the observations in the prescribed format for further analysis	3	6	-	-
<i>Studying the work related movements</i>	7	17	-	-
PC5.. study the arrangements of the workplace like number of workstations, the position of tools and materials and the work environment.	3	6	-	-
PC6.. also analyze the design of the tools and equipments in order to estimate the human effort involved in job performance for the activity.	3	6	-	-
PC7.. record all these observations in the prescribed format for further analysis.	1	5	-	-
<i>Establishment of work standards, deployment</i>	11	30	-	-
PC8.. based on the observations for both motion and work movements, develop the most practical and convenient work method.	3	6	-	-
PC9.. also establish the procedure for execution of the work in co-ordination with the process engineer	2	6	-	-
PC10.. incorporate the method in process documentation (PF, CP , WI etc.) ensuring clarity.	2	6	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11.. verify the implementation of the work method on a periodic basis.	2	6	-	-
PC 12.. co-ordinate with production for problem solving , improvements of cycle time ergonomics etc.	2	6	-	-
NOS Total	30	70	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	ASC/N6401
NOS Name	Analyze the work movement of operator for each shop floor activity
Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Industrial Engineering
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	23/09/2013
Next Review Date	30/09/2015
NSQC Clearance Date	

Qualification Pack

ASC/N6402: Measure the time taken for each activity and compute the TAKT time

Description

This OS unit is about the industrial engineer studying and measuring the time associated for various shop floor activities. The engineer based on the study establishes the work standards for each shop floor activity and thus compute the TAKTtime.

Scope

The unit/ task covers the following: Observing in minutest details for each shop floor activity Calculating the time taken to complete each activity Establishing the time standards for each activity and computing the TAKT time

Elements and Performance Criteria

Observation of the shop floor activities

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

- PC1..** select the shop floor activity for time study.
- PC2..** obtain and record all the information available about the job, the operator and the working conditions likely to affect the time study work

Calculation of time taken activity wise

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

- PC3..** breakdown the activity into distinct parts based on convenience of observation and timing
- PC4..** measure the time taken by means of a stop watch taken by the operator to perform each element of the operation.
- PC5..** at the same time, assess the operators effective speed of work relative to the observers concept of normal speed; known as performance rating

Establishment of work standards

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

- PC6..** adjust the observed time by rating factor to obtain normal time for each element
- PC7..** add the standard allowances suitably in order to compensate for fatigue, personal needs, contingencies etc. to give standard time for each element
- PC8..** compute allowed time using most production study for the entire job by adding elemental standard times considering frequency of occurrence of each part
- PC9..** repeat the whole procedure for all the shop floor activities and finally compute the TAKT time of the process

Compliance to allowance allocation standards

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

- PC10..** ensure that the allowances added for computation of standard time are as per the norms of time motion study

Knowledge and Understanding (KU)

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The individual on the job needs to know and understand:

- KU1.** company manufacturing processes
- KU2.** sequence of operations for each shop floor activity
- KU3.** norms established for time study
- KU4.** most production studies for computation of standard time
- KU5.** working of various tools , machines and gauges for shop floor activities
- KU6.** all factors involved in the activity like economic and human apart from technical

Generic Skills (GS)

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

- GS1.** calculate the time taken for each activity using stopwatch
- GS2.** compile all the data related to time study for all shop floor activities
- GS3.** communicate with shop floor workers for time motion study at shop floor
- GS4.** communicate with process design / validation engineers to share data related to method study for npd/ ci projects.
- GS5.** assist workers in doing their job as per the standards
- GS6.** share operation knowledge with co-workers
- GS7.** plan the execution of time study so that he can finish compilation of the data activity wise in the stipulated time
- GS8.** analyze the way in which job is being performed and think of some other suitable method in order to minimize the ineffective time taken in each activity

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Observation of the shop floor activities</i>	6	12	-	-
PC1.. select the shop floor activity for time study.	3	6	-	-
PC2.. obtain and record all the information available about the job, the operator and the working conditions likely to affect the time study work	3	6	-	-
<i>Calculation of time taken activity wise</i>	10	24	-	-
PC3.. breakdown the activity into distinct parts based on convenience of observation and timing	4	8	-	-
PC4.. measure the time taken by means of a stop watch taken by the operator to perform each element of the operation.	3	8	-	-
PC5.. at the same time, assess the operators effective speed of work relative to the observers concept of normal speed; known as performance rating	3	8	-	-
<i>Establishment of work standards</i>	12	28	-	-
PC6.. adjust the observed time by rating factor to obtain normal time for each element	3	8	-	-
PC7.. add the standard allowances suitably in order to compensate for fatigue, personal needs, contingencies etc. to give standard time for each element	4	7	-	-
PC8.. compute allowed time using most production study for the entire job by adding elemental standard times considering frequency of occurrence of each part	3	7	-	-
PC9.. repeat the whole procedure for all the shop floor activities and finally compute the TAKT time of the process	2	6	-	-
<i>Compliance to allowance allocation standards</i>	2	6	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10.. ensure that the allowances added for computation of standard time are as per the norms of time motion study	2	6	-	-
NOS Total	30	70	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	ASC/N6402
NOS Name	Measure the time taken for each activity and compute the TAKT time
Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Industrial Engineering
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	23/09/2013
Next Review Date	30/09/2015
NSQC Clearance Date	

Qualification Pack

ASC/N6403: Develop the work standards for each activity and maintain the system

Description

This OS unit is about the development of work standards for all shop floor activities by the industrial engineer through Method study in order to improve the efficiency of processes by eliminating unnecessary operations, avoidable delays and other forms of waste.

Scope

This unit/ task covers the following: Improvement of working conditions for increasing labor efficiency
Eliminating waste and NVA operations
Developing the works standards and updating in system

Elements and Performance Criteria

Improvement of working conditions

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

- PC1..** based on time motion study , identify the time consuming and high fatigue operations for the selected shop floor activity
- PC2..** arrange the material and tools if applicable to permit the best sequence of operator motions and thereby reduce searching
- PC3..** ensure provisions for adequate lightning, and a chair of type and height to permit good posture
- PC4..** if necessary, modify the height of workplace and seat to allow alternate standing and seating

Elimination of waste and ineffective operations

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

- PC5..** identify the repetitive and non-repetitive type of work for each shop floor activity during time study
- PC6..** based on most studies , identify the NVAoperations in each activity
- PC7..** evaluate alternatives for removal of NVA operations by developing economic and effective working methods for same
- PC8..** implement the best alternative and recalculate the TAKT time for the activity.
- PC9..** calculate the cycle time reduction after implementation of the developed method

Development of work standards and updating in system

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

- PC10..** based on the inputs from time motion study, devise the standard working method and establish the procedure for all the shop floor activities
- PC11..** calculate the new takt time for the modified activities and update the same in system in ERP /SAP and PLM
- PC12..** also update the most timings for all activities process wise and link it with ERP/SAP system.
- PC13..** link the most timings to sap routings and release the same for production costing and entry in system

Qualification Pack

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** company manufacturing processes
- KU2.** sequence of operations for each shop floor activity
- KU3.** norms established for time motion study
- KU4.** method study procedures followed in organization
- KU5.** SAP modules being followed in the organization
- KU6.** most production studies for computation of standard time
- KU7.** working of various tools , machines and gauges for shop floor activities
- KU8.** all the factors involved in the activity like economic and human apart from technical
- KU9.** work content reduction techniques
- KU10.** all arithmetic calculations for determining productivity and cost of manufacturing
- KU11.** proficiency of working with sap module for costing and production entry purposes

Generic Skills (GS)

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

- GS1.** record the observations of the time motion study
- GS2.** read and understand the work instructions if displayed at shop floor
- GS3.** SAP software and its data usability for all production related entry and costing calculations
- GS4.** communicate with shop floor workers for time motion study at shop floor
- GS5.** communicate with production/ process engineering engineers for work related to NPD / CI projects.
- GS6.** assist workers in doing their job as per the standards
- GS7.** share operation knowledge with co-workers
- GS8.** coordinate and take inputs from the workers for devising alternative methods for work content reduction
- GS9.** plan the execution of time study so that he can finish compilation of the data activity wise in the stipulated time & at appropriate stage of the project timeline.
- GS10.** workplace arrangements for reduction of human effort
- GS11.** identification of the nva operations
- GS12.** selection of the best work content reduction technique to be followed
- GS13.** defining the linkages of work standards to production data in sap system
- GS14.** assess the problem, evaluate the possible solution(s) and use an optimum /best possible solution(s)
- GS15.** identify immediate or temporary solutions to resolve delays and crisis situations
- GS16.** how to learn from past mistakes to resolve technical and nontechnical problems

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Improvement of working conditions</i>	12	24	-	-
PC1.. based on time motion study , identify the time consuming and high fatigue operations for the selected shop floor activity	3	6	-	-
PC2.. arrange the material and tools if applicable to permit the best sequence of operator motions and thereby reduce searching	3	6	-	-
PC3.. ensure provisions for adequate lightning, and a chair of type and height to permit good posture	3	6	-	-
PC4.. if necessary, modify the height of workplace and seat to allow alternate standing and seating	3	6	-	-
<i>Elimination of waste and ineffective operations</i>	10	26	-	-
PC5.. identify the repetitive and non-repetitive type of work for each shop floor activity during time study	2	6	-	-
PC6.. based on most studies , identify the NVAoperations in each activity	2	5	-	-
PC7.. evaluate alternatives for removal of NVA operations by developing economic and effective working methods for same	2	5	-	-
PC8.. implement the best alternative and recalculate the TAKT time for the activity.	2	5	-	-
PC9.. calculate the cycle time reduction after implementation of the developed method	2	5	-	-
<i>Development of work standards and updating in system</i>	8	20	-	-
PC10.. based on the inputs from time motion study, devise the standard working method and establish the procedure for all the shop floor activities	3	6	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11.. calculate the new takt time for the modified activities and update the same in system in ERP /SAP and PLM	2	5	-	-
PC12.. also update the most timings for all activities process wise and link it with ERP/SAP system.	1	4	-	-
PC13.. link the most timings to sap routings and release the same for production costing and entry in system	2	5	-	-
NOS Total	30	70	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	ASC/N6403
NOS Name	Develop the work standards for each activity and maintain the system
Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Industrial Engineering
NSQF Level	5
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 % aggregate for QP : 75

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ASC/N0006.Maintain a safe and healthy working environment	25	75	-	-	100	10
ASC/N0021.Maintain 5S at the work premises	25	75	-	-	100	10
ASC/N6401.Analyze the work movement of operator for each shop floor activity	30	70	-	-	100	30

Qualification Pack

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ASC/N6402.Measure the time taken for each activity and compute the TAKT time	30	70	-	-	100	25
ASC/N6403.Develop the work standards for each activity and maintain the system	30	70	-	-	100	25
Total	140	360	-	-	500	100