Automotive Quality Control Lead Inspector

QP Code: ASC/Q6305

Version: 2.0

NSQF Level: 5

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

Contents

ASC/Q6305: Automotive Quality Control Lead Inspector

Brief Job Description

The individual is responsible for conducting validation and maintaining quality of the manufactured automotive products and related processes to deliver high quality products to customers.

Personal Attributes

The person should be patient, organised, team-oriented and have the ability to work for long hours in adverse conditions. They should be keen observers and have an eye for detail and quality.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. ASC/N9810: Manage work and resources (Manufacturing)
2. ASC/N9812: Interact effectively with team, customers and others
3. ASC/N6310: Calibrate and maintain the quality of parts and processes

Qualification Pack (QP) Parameters

Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Automotive Quality Assurance
Country	India
NSQF Level	5
Aligned to NCO/ISCO/ISIC Code	NCO-2015/1213.0101
Minimum Educational Qualification & Experience	Diploma (Mechanical/Production/Manufacturing Engineering/Tool Engineering/Automobile) from a recognized body with 4 Years of relevant experience OR B.E./B.Tech (Mechanical/ Instrumentation & control engineering) with 1 Year of experience OR Certificate-NSQF (Automotive Quality Control

	Inspector Level 4) with 3 Years of experience
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	22 Years
Last Reviewed On	29/07/2021
Next Review Date	29/07/2026
NSQC Approval Date	29/07/2021
Version	2.0

ASC/N9810: Manage work and resources (Manufacturing)

Description

This NOS unit is about implementing safety, planning work, adopting sustainable practices for optimising the use of resources.

Scope

The scope covers the following :

- Maintain safe and secure working environment
- Maintain Health and Hygiene
- Effective waste management practices
- Material/energy conservation practices

Elements and Performance Criteria

Maintain safe and secure working environment

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

PC1. identify hazardous activities and the possible causes of risks or accidents in the workplace

PC2. implement safe working practices for dealing with hazards to ensure safety of self and others

PC3. conduct regular checks of the machines with support of the maintenance team to identify potential hazards

PC4. 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

PC5. organise safety drills or training sessions to create awareness amongst others on the identified risks and safety practices

PC6. fill daily check sheet to report improvements done and risks identified

PC7. ensure that relevant safety boards/signs are placed on the shop floor for the safety of self and others

PC8. report any identified breaches in health, safety and security policies and procedures to the designated person

Maintain Health and Hygiene

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

PC9. ensure workplace, equipment, restrooms etc. are sanitized regularly

PC10. ensure team is aware about hygiene and sanitation regulations and following them on the shop floor

PC11. ensure availability of running water, hand wash and alcohol-based sanitizers at the workplace

PC12. report advanced hygiene and sanitation issues to appropriate authority

PC13. follow stress and anxiety management techniques and support employees to cope with stress, anxiety etc

PC14. wear and dispose PPEs regularly and appropriately

Effective waste management practices

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

PC15. ensure recyclable, non-recyclable and hazardous wastes are segregated as per SOP

PC16. ensure proper mechanism is followed while collecting and disposing of non-recyclable, recyclable and reusable waste

Material/energy conservation practices

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

PC17. ensure malfunctioning (fumes/sparks/emission/vibration/noise) and lapse in maintenance of equipment are resolved effectively

PC18. prepare and analyze material and energy audit reports to decipher excessive consumption of material and water

PC19. identify possibilities of using renewable energy and environment friendly fuels

PC20. identify processes where material and energy/electricity utilization can be optimized

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. organisation procedures for health, safety and security, individual role and responsibilities in this context

KU2. the organisation's emergency procedures for different emergency situations and the importance of following the same

KU3. evacuation procedures for workers and visitors

KU4. how and when to report hazards as well as the limits of responsibility for dealing with hazards

KU5. potential hazards, risks and threats based on the nature of work

KU6. various types of fire extinguisher

KU7. various types of safety signs and their meaning

KU8. appropriate first aid treatment relevant to different condition e.g. bleeding, minor burns, eye injuries etc.

KU9. relevant standards, procedures and policies related to 5S followed in the company

KU10. the various materials used and their storage norms

KU11. importance of efficient utilisation of material and water

KU12. basics of electricity and prevalent energy efficient devices

KU13. common practices of conserving electricity

KU14. common sources and ways to minimize pollution

KU15. categorisation of waste into dry, wet, recyclable, non-recyclable and items of single-use plastics

KU16. waste management techniques

KU17. significance of greening

Generic Skills (GS)

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

GS1. read safety instructions/guidelines
GS2. modify work practices to improve them
GS3. work with supervisors/team members to carry out work related tasks
GS4. complete tasks efficiently and accurately within stipulated time
GS5. inform/report to concerned person in case of any problem
GS6. make timely decisions for efficient utilization of resources
GS7. write reports such as accident report, in at least English/regional language

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Maintain safe and secure working environment	20	13	-	8
PC1. identify hazardous activities and the possible causes of risks or accidents in the workplace	4	2	-	2
PC2. implement safe working practices for dealing with hazards to ensure safety of self and others	3	1	-	2
PC3. conduct regular checks of the machines with support of the maintenance team to identify potential hazards	2	2	-	1
PC4. 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	3	2	-	1
PC5. organise safety drills or training sessions to create awareness amongst others on the identified risks and safety practices	2	-	-	-
PC6. fill daily check sheet to report improvements done and risks identified	2	2	-	-
PC7. ensure that relevant safety boards/signs are placed on the shop floor for the safety of self and others	2	2	-	1
PC8. report any identified breaches in health, safety and security policies and procedures to the designated person	2	2	-	1
Maintain Health and Hygiene	13	7	-	5
PC9. ensure workplace, equipment, restrooms etc. are sanitized regularly	3	2	-	1
PC10. ensure team is aware about hygiene and sanitation regulations and following them on the shop floor	2	1	-	-
PC11. ensure availability of running water, hand wash and alcohol-based sanitizers at the workplace	2	2	-	1
PC12. report advanced hygiene and sanitation issues to appropriate authority	1	1	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. follow stress and anxiety management techniques and support employees to cope with stress, anxiety etc	2	1	-	1
PC14. wear and dispose PPEs regularly and appropriately	3	-	-	1
Effective waste management practices	6	4	-	1
PC15. ensure recyclable, non-recyclable and hazardous wastes are segregated as per SOP	3	2	-	-
PC16. ensure proper mechanism is followed while collecting and disposing of non-recyclable, recyclable and reusable waste	3	2	-	1
Material/energy conservation practices	11	6	-	6
PC17. ensure malfunctioning (fumes/sparks/emission/vibration/noise) and lapse in maintenance of equipment are resolved effectively	2	2	-	1
PC18. prepare and analyze material and energy audit reports to decipher excessive consumption of material and water	3	2	-	1
PC19. identify possibilities of using renewable energy and environment friendly fuels	3	1	-	2
PC20. identify processes where material and energy/electricity utilization can be optimized	3	1	-	2
NOS Total	**50**	**30**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	ASC/N9810
NOS Name	Manage work and resources (Manufacturing)
Sector	Automotive
Sub-Sector	Generic
Occupation	Generic
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	29/07/2021
Next Review Date	29/07/2026
NSQC Clearance Date	29/07/2021

ASC/N9812: Interact effectively with team, customers and others

Description

This unit is about communicating with team members, superior and others.

Scope

The scope covers the following :

- Communicate effectively with team members
- Interact with superiors
- Respect gender and ability differences

Elements and Performance Criteria

Communicate effectively with team members

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

PC1. implement ways to share information with team members in line with organisational requirements

PC2. ensure that work requirements are clearly communicated to the team members through all means including face-to-face, telephonic and written

PC3. manage and co-ordinate with team members to integrate work as per requirements

PC4. work in a way that show respect for all team members and customers

PC5. carry out commitments made to team members and let them know in good time if there is any discrepancy with reasons

PC6. resolve conflicts within the team members at work to achieve smooth workflow

PC7. guide the team members to follow the organisation's policies and procedures

PC8. ensure team goals are given preference over individual goals

PC9. respect personal space of colleagues and customers

Interact with superiors

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

PC10. report progress on job allocated and team performance to the superiors

PC11. escalate problems to superiors that cannot be handled

PC12. train the team members to report completed work and receive feedback on work done

PC13. encourage team members to rectify errors as per feedback and minimize mistakes in future

Respect gender and ability differences

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

PC14. ensure team shows sensitivity towards all genders and PwD

PC15. adjust communication styles to reflect gender sensitivity and sensitivity towards person with disability

PC16. help PwD team members to overcome the challenges, if asked

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. the importance of effective communication and establishing good working relationships with team members and superiors
KU2. different methods of communication as per the circumstances
KU3. gender based concepts, issues and legislation
KU4. organisation standards and guidelines to be followed for PwD
KU5. rights and duties at workplace with respect to PwD
KU6. organisation policies and procedures pertaining to written and verbal communication

Generic Skills (GS)

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

GS1. read safety instructions/guidelines
GS2. modify work practices to improve them
GS3. work with supervisors/team members to carry out work related tasks
GS4. complete tasks efficiently and accurately within stipulated time
GS5. make timely decisions for efficient utilization of resources
GS6. read instructions/guidelines/procedures
GS7. write in English/any one language

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Communicate effectively with team members	20	14	-	8
PC1. implement ways to share information with team members in line with organisational requirements	2	2	-	-
PC2. ensure that work requirements are clearly communicated to the team members through all means including face-to-face, telephonic and written	2	2	-	2
PC3. manage and co-ordinate with team members to integrate work as per requirements	2	1	-	2
PC4. work in a way that show respect for all team members and customers	3	1	-	2
PC5. carry out commitments made to team members and let them know in good time if there is any discrepancy with reasons	2	2	-	-
PC6. resolve conflicts within the team members at work to achieve smooth workflow	3	2	-	-
PC7. guide the team members to follow the organisation's policies and procedures	2	1	-	-
PC8. ensure team goals are given preference over individual goals	2	1	-	-
PC9. respect personal space of colleagues and customers	2	2	-	2
Interact with superiors	18	10	-	7
PC10. report progress on job allocated and team performance to the superiors	4	3	-	2
PC11. escalate problems to superiors that cannot be handled	4	2	-	1
PC12. train the team members to report completed work and receive feedback on work done	5	2	-	2
PC13. encourage team members to rectify errors as per feedback and minimize mistakes in future	5	3	-	2

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Respect gender and ability differences	12	6	-	5
PC14. ensure team shows sensitivity towards all genders and PwD	4	2	-	2
PC15. adjust communication styles to reflect gender sensitivity and sensitivity towards person with disability	4	2	-	2
PC16. help PwD team members to overcome the challenges, if asked	4	2	-	1
NOS Total	**50**	**30**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	ASC/N9812
NOS Name	Interact effectively with team, customers and others
Sector	Automotive
Sub-Sector	Generic
Occupation	Generic
NSQF Level	5
Credits	TBD
Version	1.0
Last Reviewed Date	29/07/2021
Next Review Date	29/07/2026
NSQC Clearance Date	29/07/2021

ASC/N6310: Calibrate and maintain the quality of parts and processes

Description

This OS unit is about performing inspection and calibration of testing and measuring equipment and maintaining the quality of the parts and processes

Scope

The scope covers the following :

- Perform calibration of measuring and testing equipment
- Perform audit of product and process
- Layout inspection by conventional method or 3D CMM(Coordinate Measuring Machine)

Elements and Performance Criteria

Perform calibration of measuring and testing equipment

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

PC1. receive the measuring and testing equipment from vendors safely and ensure that they are validated and calibrated

PC2. prepare plan for the calibration, verification and validation of all the testing and measuring equipment as per the drawing and standards

PC3. select standard instruments to be used for measurement based on the range, precision levels and any limitations of profile of the equipment parts

PC4. conduct Measurement Systems Analysis (MSA) and Repeatability and Reproducibility (R&R) studies for all the measuring equipment to analyze the variation in measurement of equipment

PC5. inspect the details of dimensions, marking, material etc. as per the drawing by using higher accuracy methods for the specified range

PC6. review MSA and R&R readings, inspection reports and discard/ repair the measuring equipment which does not adhere to the required specification

PC7. discuss with the team and ensure that the countermeasures for equipment having R&R outside the acceptable range are implemented

Perform audit of product and process

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

PC8. prepare annual plan for process and product audit and execute it on time

PC9. use appropriate validation techniques for audit of the regular and new parts and processes

PC10. resolve non-conformities identified in validation by discussion with manufacturing process owners and then correct or re-verify/re-validate the parts and processes

PC11. report to the senior management about issues and seek support/feedback from them as per the requirements

Layout inspection by conventional method or 3D CMM(Coordinate Measuring Machine)

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

PC12. select appropriate first principle method for verification of dimensions, profiles, parameters like surface finish, GD&T parameters e.g. roundness, concentricity etc., CMM, gauges like bore/air/ dial, slip gauges, etc., machine/fixture parameters in situ and mounted condition

PC13. conduct layout inspection of parts and processes as per the WI/SOP

PC14. observe, analyze and co-relate the inspection results/defects with part results

PC15. coordinate with the process owners for discussing the counter measures for rectification of defects and re-inspection

PC16. coordinate with NPD department and prepare the schedule for gauge verification/validation based on the requirements of the gauge

PC17. inspect and validate the gauges/jigs as per the drawing and confirms that fit and tolerance, function usage are within the specified range or not

PC18. maintain and update the records of inspection and validation process done as per SOP

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. company's quality inspection standards and processes

KU2. classification of testing and measuring equipment such as direct/indirect, precision/non-precision etc.

KU3. Standard Operating Procedures (SOP) recommended by OEM for using testing equipment, gauges and measuring instruments such as vernier, Micrometers, height gauge, surface plate and other precision equipment like surface roughness & CMM etc.

KU4. QMS system guidelines followed in the organization such as IATF-16949

KU5. how to check the calibration of measuring instruments, gauges etc.

KU6. manufacturing process being followed for each product

KU7. how to prepare preparing audit plan for parts and processes including Cp and Cpk studies

KU8. appropriate validation techniques

KU9. R&R and MSA gauge study procedures

KU10. APQP (Advanced Product Quality Planning) and PPAP (Production Part Approval Process) for new parts development

KU11. inspection checkpoints for the parts, product and process

KU12. documentation required regarding quality inspection process

KU13. basic operation of software such as SAP, ERP etc.

KU14. use of appropriate PPE, material handling equipment and tools for completing the inspection tasks

Generic Skills (GS)

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

GS1. read quality process related standard documents

GS2. communicate the inspection and validation activities requirements to the supervisor and co-workers

GS3. prepare reports related to inspection process in English/regional language

GS4. recognise a workplace problem and take suitable action

GS5. analyse and apply the information gathered from observation, experience, reasoning or communication to act efficiently

GS6. complete the assigned tasks as per schedule

GS7. plan and organise work according to the work requirements

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Perform calibration of measuring and testing equipment	12	19	-	8
PC1. receive the measuring and testing equipment from vendors safely and ensure that they are validated and calibrated	1	1	-	-
PC2. prepare plan for the calibration, verification and validation of all the testing and measuring equipment as per the drawing and standards	2	3	-	1
PC3. select standard instruments to be used for measurement based on the range, precision levels and any limitations of profile of the equipment parts	1	2	-	1
PC4. conduct Measurement Systems Analysis (MSA) and Repeatability and Reproducibility (R&R) studies for all the measuring equipment to analyze the variation in measurement of equipment	3	5	-	2
PC5. inspect the details of dimensions, marking, material etc. as per the drawing by using higher accuracy methods for the specified range	2	3	-	2
PC6. review MSA and R&R readings, inspection reports and discard/ repair the measuring equipment which does not adhere to the required specification	2	3	-	1
PC7. discuss with the team and ensure that the countermeasures for equipment having R&R outside the acceptable range are implemented	1	2	-	1
Perform audit of product and process	7	11	-	3
PC8. prepare annual plan for process and product audit and execute it on time	2	2	-	1
PC9. use appropriate validation techniques for audit of the regular and new parts and processes	2	4	-	1
PC10. resolve non-conformities identified in validation by discussion with manufacturing process owners and then correct or re-verify/re-validate the parts and processes	2	3	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. report to the senior management about issues and seek support/feedback from them as per the requirements	1	2	-	-
Layout inspection by conventional method or 3D CMM(Coordinate Measuring Machine)	11	20	-	9
PC12. select appropriate first principle method for verification of dimensions, profiles, parameters like surface finish, GD&T parameters e.g. roundness, concentricity etc., CMM, gauges like bore/air/ dial, slip gauges, etc., machine/fixture parameters in situ and mounted condition	2	3	-	2
PC13. conduct layout inspection of parts and processes as per the WI/SOP	2	3	-	1
PC14. observe, analyze and co-relate the inspection results/defects with part results	2	3	-	2
PC15. coordinate with the process owners for discussing the counter measures for rectification of defects and re-inspection	1	2	-	1
PC16. coordinate with NPD department and prepare the schedule for gauge verification/validation based on the requirements of the gauge	2	3	-	1
PC17. inspect and validate the gauges/jigs as per the drawing and confirms that fit and tolerance, function usage are within the specified range or not	1	4	-	1
PC18. maintain and update the records of inspection and validation process done as per SOP	1	2	-	1
NOS Total	**30**	**50**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	ASC/N6310
NOS Name	Calibrate and maintain the quality of parts and processes
Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Automotive Quality Assurance
NSQF Level	5
Credits	TBD
Version	2.0
Last Reviewed Date	29/07/2021
Next Review Date	29/07/2026
NSQC Clearance Date	29/07/2021

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down the proportion of marks for Theory and Skills Practical for each PC.

2. The assessment for the theory part will be based on the 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 the 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. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Minimum Aggregate Passing % at QP Level : 70

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

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ASC/N9810.Manage work and resources (Manufacturing)	50	30	-	20	100	15
ASC/N9812.Interact effectively with team, customers and others	50	30	-	20	100	10
ASC/N6310.Calibrate and maintain the quality of parts and processes	30	50	-	20	100	75
Total	**130**	**110**	**-**	**60**	**300**	**100**

Acronyms

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

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.
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.