

# Model Curriculum

## Incharge Material Testing

**SECTOR: AUTOMOTIVE**  
**SUB-SECTOR: R & D SUPPORT**  
**OCCUPATION: TESTING AND VALIDATION**  
**REF ID: ASC/Q 6504 V 1.0**  
**NSQF LEVEL: 6**



## Certificate

### CURRICULUM COMPLIANCE TO QUALIFICATION PACK - NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

**AUTOMOTIVE SKILLS DEVELOPMENT COUNCIL**

for

**MODEL CURRICULUM**

Complying to National Occupational Standards of  
Job Role/Qualification Pack "**Incharge Material Testing**" QP No: "**ASC/Q6504 Level 6**"

Date of Issuance: January 10th, 2018

Valid up to: January 10th, 2020\*

\*Valid up to the next review date of the Qualification Pack



**Authorised Signatory**  
(Automotive Skills Development Council)

## TABLE OF CONTENTS

1. Curriculum	01
2. Trainer Prerequisites	05
3. Annexure: Assessment Criteria	06









## Trainer Prerequisites for Job role: “Incharge Material Testing” mapped to Qualification Pack: “ASC/Q6504, Version 1.0”

Sr. No.	Area	Details
1	<b>Description</b>	To deliver accredited training service, mapping to the curriculum detailed above, in accordance with the Qualification Pack “ASC/Q6504, Version 1.0”.
2	<b>Personal Attributes</b>	<p>Aptitude for conducting training, and pre/ post work to ensure competent, employable candidates at the end of the training.</p> <ul style="list-style-type: none"> <li>• Strong communication skills, interpersonal skills, ability to work as part of a team; a passion for quality and for developing others; well-organised and focused.</li> <li>• Eager to learn and keep oneself abreast of the latest developments and newer technologies used in the various systems of the vehicle and its aggregates is highly desirable.</li> <li>• Should be able to demonstrate the usage of workshop equipment, instruments, special instruments and tools.</li> <li>• Should have sharp diagnostic abilities for identifying reasons of problems in vehicles and troubleshoot.</li> <li>• Should be hands-on with material testing to provide experiential training.</li> </ul>
3	<b>Minimum Educational Qualifications</b>	M. Tech in Polymer/Chemical Technology
4a	<b>Domain Certification</b>	Certified for Job Role: “Incharge Material Testing” mapped to QP: “ASC/Q6504, Version 1.0”. Minimum accepted qualifying score - 80% as per ASDC Guidelines.
4b	<b>Platform Certification</b>	Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “MEP/ Q0102”. Minimum accepted score as per SSC guidelines is 80%.
5	<b>Experience</b>	7 years for M.Tech degree holder





	requirements.				
	PC4. Monitor the procedures for performing tests being done by associates and ensure strict compliance to HSE requirements.		5	2	3
	PC5. Discuss with each associate the test findings and ensure its documentation & communication.		6	2	4
	PC6. Coordinate with the process owner and establish traceability up to the validation samples so that results can be co-related.		4	1	3
	PC7. Ensure that the testing and validation results are being documented as per the ISO/IEC17025/NABL requirements.		5	2	3
	PC8. In case, the material is non-conforming, then quarantine it and participate to perform failure analysis of the material in its manufacturing process.		4	1	3
	PC9. Ensure that the data pertaining to the suspected material for field failures has been collated properly for further analysis.		6	2	4
	PC10. ensure that the associates are having all the process documents pertaining to the suspected material like PFMEAs, Failure reports, Material inspection reports etc.		4	1	3
	PC11. Based on the criticality and failure occurrence of the suspected failed part/component, decide the method of failure analysis; destructive testing or Non Destructive Testing (NDT).		6	2	4
	PC12. in case of destructive testing , ensure the cutting of a section of the suspected part and perform the testing like corrosion analysis, stress analysis etc.		6	2	4

PC13. While in case of NDT, ensure usage of techniques like electromagnetic radiation, spectroscopy, sound etc. for examining the suspected material.	4	1	3
PC14. In both cases, jointly analyse, validate and ensure the documentation of the results.	5	2	3
PC15. Discuss the findings with R&D department and seek their inputs.	4	1	3
PC16. Based on the discussions inform the concerned process department and ensure that in case of rejection , the complete batch of the rejected material part is quarantined/ recalled.	4	1	3
PC17. In case of rejection , internally with team perform testing and decide the most conforming material for the part in discussions with Sourcing and R&D.	4	1	3
PC18. Finalize the material and accordingly based on validation, approve the material of sample part and generate a process change note (PCN) in SAP/ERP for implementation of the new material part.	4	1	3
PC19. Recruit sufficient amount of staff in coordination with HR department for carrying out the various activities in material lab department.	4	1	3
PC20. Ensure that the new joiners are trained by the existing staff members in an efficient and timely manner and talent to practice various techniques are available.	4	1	3
PC21. Follow up with QA/ senior management for requirement of new testing equipment.	4	1	3

	PC22. Procure new equipment as per requirement and monitor the working, calibration and maintenance of existing equipment.		4	1	3
	PC23. Be in touch with new developments in evaluation techniques, materials etc. and factor these at appropriate stages viz new developments, recruitments.		4	1	3
	<b>Total</b>		<b>100</b>	<b>30</b>	<b>70</b>
<b>2. ASC/N6504 Develop alternate material for improving the product quality</b>	PC1. Ensure the collection of data pertaining to the field failures of various parts/components due to material, NPD- customer requirements, SOR etc. from Marketing and R&D department.	100	4	1	3
	PC2. Analyse the failure data and identify the part, type of material failed and frequency of failure.		4	1	3
	PC3. Based on analysis of failure data, prepare the list of non-conforming parts and select the most frequent and high cost value part.		6	2	4
	PC4. Keeping in view the customer requirements, prepare a database of the most conforming material for the part in consideration based on the application.		7	2	5
	PC5. Compare the identified materials with respect to physical, chemical properties, unit cost, performance improvement, availability etc. and select the most viable material for the part.		6	2	4
	PC6. With support from the design team re-develop the drawings/ specifications of the part considering the results on the new material.		7	2	5
	PC7. Collaborate with Sourcing		6	2	4

	department and convene a meeting with the part supplier.				
	PC8. Share with the supplier the new drawing of the part in SAP/ERP/PLM and communicate the requirements.		7	2	5
	PC9. If required, seek inputs from supplier and finalize the drawings of the new material part.		7	2	5
	PC10. Discuss with the supplier the cost implications and accordingly finalize the commercial terms.		7	2	5
	PC11. Accordingly finalize a schedule for new material development and ensure its strict adherence.		6	2	4
	PC12. Coordinate with Sourcing department and ensure the development of the sample part with the new material.		7	2	5
	PC13. In coordination with team, perform the various tests as per the standard operating procedures complying with the HSE requirements.		6	2	4
	PC14. Validate the results obtained and in coordination with supplier ensure the resolution of the discrepancies.		6	2	4
	PC15. Document the results for the validation and share it with the R&D department and senior management; participate in decision making process.		6	2	4
	PC16. Participate, co-ordinate in the documentation/ release process with the Design team with appropriate inputs.		4	1	3
	PC17. Monitor the new material performance by regularly analyzing the performance of the part during process and field by capturing the data from concerned departments.		4	1	3
	<b>Total</b>		<b>100</b>	<b>30</b>	<b>70</b>
<b>3. ASC/N0006 Maintain a safe, clean</b>	PC1. Identify activities which can cause potential injury through sharp objects, burns, fall, electricity, gas leakages,	100	7	2	5

<b>and secure working environment</b>	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.		7	2	5
	PC3. Inform the concerned authorities about damages which can potentially harm man/ machine during operations.		10	3	7
	PC4. Create awareness amongst other by sharing information on the identified risks.		10	3	7
	PC5. Follow the instructions given on the equipment manual describing the operating process of the equipment.		10	3	7
	PC6. Follow the Safety, Health and Environment related practices developed by the organization.		10	3	7
	PC7. Operate the machine using the recommended Personal Protective Equipment (PPE).		10	3	7
	PC8. Maintain a clean and safe working environment near the work place and ensure there is no spillage of chemicals, waste, oil, solvents etc.		10	3	7
	PC9. Maintain high standards of personal hygiene at the work place.		9	3	6
	PC10. Ensure that the waste disposal takes place in the designated area as per organization SOP.		9	3	6
	PC11. Inform the medical officer/ HR in case of self or an employee's illness of contagious nature so that preventive actions can be planned for others.		8	2	6
	<b>Total</b>		<b>100</b>	<b>30</b>	<b>70</b>
<b>4. ASC/N0022 Ensure implementation of 5S activities at the shop floor &amp; the office area</b>	PC1. Ensure all recyclable materials are put in designated containers.	100	3	1	2
	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.		3	1	2
	PC3. Ensure that the operators and other team members are segregating the waste in hazardous/ Non Hazardous waste as per the sorting work instructions		3	1	2
	PC4. Ensure that all the operators are		3	1	2

	following the technique of waste disposal and waste storage in the designated bins			
	PC5. Segregate the items which are labeled at red tag items for the process area and keep them in the correct places.	3	1	2
	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.	3	1	2
	PC7. Check for return of any type of extra material and tools to the designated sections and make sure that no additional material/ tool are lying near the work area.	5	2	3
	PC8. Oversee removal of unnecessary equipment, storage, furniture, unneeded inventory, supplies, parts and material.	4	1	3
	PC9. Ensure that areas of material storage areas are not overflowing.	4	1	3
	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.	4	1	3
	PC11. Ensure that the team follows the given instructions and checks for labeling of fluids, oils, lubricants, solvents, chemicals etc. and proper storage of the same to avoid spillage, leakage, fire etc.	3	1	2
	PC12. Make sure that all material and tools are stored in the designated places and in the manner indicated in the 5S instructions.	4	1	3
	PC13. Ensure that organizing the workplace takes place with due considerations to the principles of wasted motions, ergonomics, work & method study.	4	1	3
	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 indicates potential safety hazards.	4	1	3

PC15. Ensure workbenches and work surfaces are clean and in good condition.	3	1	2
PC16. Ensure adherence to the cleaning schedule for the lighting system to ensure proper illumination.	4	1	3
PC17. Ensure self-cleanliness - clean uniform, clean shoes, clean gloves, clean helmets, personal hygiene.	3	1	2
PC18. Ensure that daily cleaning standards and schedules to create a clean working environment are followed across the plant.	4	1	3
PC19. Oversee that various cleaning and organizing tasks have been developed and assigned for the work area.	3	1	2
PC20. Ensure logical and user friendly documentation and file management for all activities across the plant and create guidelines around standardization of processes.	3	1	2
PC21. Ensure timely creation and sharing of the 5S checklists.	4	1	3
PC22. Ensure that the 5S manual are available as per the timelines.	3	1	2
PC23. Ensure team cooperation during the audit of 5S activities.	4	1	3
PC24. Ensure that workmen are periodically trained to address challenges related to 5S	3	1	2
PC25. Participate actively in employee work groups on 5S and encourage team members for active participation.	3	1	2
PC26. Oversee that the staff/ operators are trained and fully understand 5S procedures	3	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.	4	1	3
PC28. Ensure continuous training of the team members on 5S in order to increase their awareness and support implementation.	3	1	2
PC29. Ensure that all visual controls, notice boards, symbols etc. at the manufacturing place are created,	3	1	2



