

# Model curriculum

## Lab Assistant (Ceramics)

**SECTOR: HANDICRAFTS AND CARPET**  
**SUB-SECTOR: Handicrafts (Ceramics)**  
**OCCUPATION: Quality check**  
**REF ID: HCS/Q1002, V1.0**  
**NSQF LEVEL: 4**

 Skill India असतो मा सद्गमय	 Handicrafts and Carpet Sector Skill Council	 N · S · D · C National Skill Development Corporation Transforming the skill landscape
<h2>Certificate</h2>		
<b>COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS</b>		
is hereby issued by the		
<b>HANDICRAFTS AND CARPET SECTOR SKILL COUNCIL</b>		
for		
<b>SKILLING CONTENT : PARTICIPANT HANDBOOK</b>		
Complying to National Occupational Standards of		
Job Role/ Qualification Pack: <b>"Lab Assistant"</b> QP No. <b>"HCS/Q 1002, NSQF Level 4"</b>		
		
<p>Date of issuance: Valid up to*: April 10<sup>th</sup>, 2018 <small>*Valid up to the next review date of the Qualification Pack or the "Valid up to" date mentioned above (whichever is earlier)</small></p>		<p>Authorised Signatory ( Handicrafts and Carpet Sector Skill Council)</p>

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# Lab Assistant (Ceramics)

## CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Lab Assistant (Ceramics)”, in the “Handicrafts and Carpet” Sector/Industry and aims at building the following key competencies amongst the learner

<b>Program Name</b>	<b>Lab Assistant (Ceramics)</b>		
<b>Qualification Pack Name &amp; Reference ID. ID</b>	HCS/Q1002, v1.0		
<b>Version No.</b>	1.0	<b>Version Update Date</b>	10/04/18
<b>Pre-requisites to Training</b>	Graduate in science		
<b>Training Outcomes</b>	<p><b>After completing this programme, participants will be able to:</b></p> <ul style="list-style-type: none"> <li>• Receive the appropriate parameters</li> <li>• Understand the various defects</li> <li>• Understand the various tests</li> <li>• Understand the acceptance criteria</li> <li>• Understand the sampling plan</li> <li>• Understand reporting and recording</li>   <li>• Taking the appropriate samples</li> <li>• Testing the samples</li> <li>• Documentation of the testing process and findings</li> <li>• Ensure quality and productivity standards</li> <li>• Interact with supervisor or superior</li> <li>• Work as a team by coordinating with colleagues within and outside the department</li> <li>• Report and Document</li>   <li>• Follow safety procedure and practices</li> <li>• Achieve safety standards</li> </ul>		

This course encompasses 5 out of 5 National Occupational Standards (NOS) of “Lab Assistant (Ceramics)” Qualification Pack issued by “Handicrafts and Carpet Sector Skill Council”.

Sr. No	Module	Key Learning Outcomes	Equipment Required
1	<p><b>Introduction to trade</b></p> <p><b>Theory Duration</b> (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 00:00</p> <p><b>Corresponding NOS Code</b> Bridge Module</p>	<ul style="list-style-type: none"> <li>• Ceramics sector in India</li> <li>• Raw materials used</li> </ul>	Laptop, PowerPoint & Hand-outs, posters, film clips, white board, marker, projector
2	<p>Receive and understand the associated procedures (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 70:00</p> <p><b>Corresponding NOS Code</b> HCS/N1003</p>	<ul style="list-style-type: none"> <li>• Communicate with the technical director</li> <li>• Receive the defects, tests, acceptance criteria and sampling plan list from technical director and understand the same</li> <li>• Discuss the above parameters with the lab team</li> <li>• Clarify any doubts on the above parameters with the technical director</li> <li>• Highlight any discrepancies if observed</li> <li>• Highlight missing/required parameters</li> <li>• Understand material-wise list of defects</li> <li>• Map defects like difference in residue, colour changes, variation in melting point, litre weight, flow per second for various materials</li> <li>• Understand when typically these</li> <li>• Analyze the causes of defects</li> <li>• Map the effects of the defects</li> </ul>	Laptop, white board, marker, projector, PPTs, Handbook, clay, varnish, sand paper, brush, acid cleaner, PPE

Sr. No	Module	Key Learning Outcomes	Equipment Required
-		<ul style="list-style-type: none"> <li>• Assess the impact of the defects in the production</li> <li>• Understand material-wise list of tests</li> <li>▪ Map tests like %residue colour, %residue mesh, setting time find, initial residue, etc for various materials</li> <li>▪ Understand when the tests have to be performed</li> <li>▪ Understand what the tests are supposed to reveal</li> <li>▪ Map the impact of the test on the overall material quality</li> <li>▪ Understand material-wise list of acceptance criteria</li> <li>▪ Comprehend the rationale behind the determination of the acceptance criteria</li> <li>▪ Make note of the typical sampling quantities</li> <li>▪ Understand how to handle the samples</li> <li>▪ Deduce how to access the samples</li> <li>▪ Comprehend how to dispose the samples</li> <li>▪ Understand the manner in which test data has to be recorded</li> <li>▪ Analyze the implications of test reporting</li> <li>▪ Help in creation of the appropriate templates</li> <li>• Fill the template with correct data and interpretation</li> </ul>	

Sr. No	Module	Key Learning Outcomes	Equipment Required
3	Perform the tests (hh:mm) 20:00  <b>Practical Duration</b> (hh:mm) 60:00  <b>Corresponding NOS Code</b> HCS/N1004	<ul style="list-style-type: none"> <li>• Understand the reason for the sampling</li> <li>• Recall the sample amount for the respective material</li> <li>• Apply the appropriate sampling methodology</li> <li>• Take the appropriate amount of sample after weighing</li> <li>• Handle the samples carefully</li> <li>• Replace the materials in location after taking the samples</li> <li>• Correlate the testing methodology according to the materials</li> <li>• Correlate the sampling plan according to the material and test</li> <li>• Place the samples appropriately on the equipments</li> <li>• Perform the appropriate tests on the samples</li> <li>• Use the various testing equipment appropriately</li> <li>• Observe the test process</li> <li>• Observe the defects</li> <li>• Understand why the defects arises</li> </ul>	Laptop, white board, marker, projector, PPTs, Handbook, sand paper, brush, acid cleaner, PPE

Sr. No	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> <li>• Know what defects can be observed in the test process make notes during the process</li> <li>• Retire the equipments after the test</li> <li>• Remove the samples after test</li> <li>• Clean the equipment after the test record details of the batch</li> <li>• Record the details of the samples</li> <li>• Record the details on the product lines</li> <li>• Compute the percentages required</li> <li>• Compute details for achieving the acceptance criteria</li> <li>• Compute any other details required note the same appropriately</li> <li>• Interpret the results when required</li> <li>• Ensure all results recorded are in line with the template alert about any recurrent issue</li> </ul>	



Sr. No	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> <li>• liaison with various internal teams on various testing issues</li> <li>• Avoid overall production losses due to quality</li> <li>• Communicate where rework is required</li> <li>• Perform testing on the targeted number per day</li> <li>• Complete all activities as per internal standards</li> </ul>	
4	<p><b>Coordinate with colleagues and work as a team</b> <b>Theory</b> Duration (hh:mm) 10:00</p> <p><b>Practical</b> Duration (hh:mm) 20:00</p> <p><b>Corresponding NOS Code</b> HCS/N9901</p>	<ul style="list-style-type: none"> <li>• Receive job order and instructions from reporting supervisor</li> <li>• Understand the work output requirements, targets, performance indicators and incentives</li> <li>• Deliver quality work on time and report any anticipated reasons for delays</li> <li>• Report on any grievances, production defects and any potential hazards</li> <li>• Communicate on process flow improvements</li> <li>• Communicate maintenance and repair schedule proactively to the supervisor</li> <li>• Receive feedback on work standards</li> <li>• Interact and clarify doubts on design, usage of materials &amp; tools, quality &amp; standards compliance, etc</li> <li>• Report in time for shortage or</li> </ul>	Laptop, white board, marker, projector, PPTs, Handbook, paper, brush, acid cleaner, PPE, temperature sensor, cleaning cloth

Sr. No	Module	Key Learning Outcomes	Equipment Required
-		<p>need of raw materials</p> <ul style="list-style-type: none"> <li>• Handover completed work to supervisor</li> <li>• Communicate to the colleagues from within and other departments, clearly and effectively on all aspects to carry out the work among the team</li> <li>• Maintain the etiquettes, use polite language, demonstrate responsible and disciplined behaviours to the colleagues</li> <li>• Interact with colleagues from different functions and understand the nature of their work</li> <li>• Put team over individual goals and multi task or share work where necessary supporting the colleagues</li> <li>• Resolve conflicts and ensure smooth workflow</li> <li>• Interact and understand the production requirement for the day from the previous and successive processing department and work accordingly</li> <li>• Communicate and discuss work flow related difficulties in order to find solutions with mutual agreement</li> <li>• Receive feedback from Quality Control and rework in order to complete work on time</li> <li>• Share information with colleagues to enable efficient delivery of work</li> <li>• Highlight any errors of colleagues, help to rectify and ensure quality output</li> </ul>	

Sr. No	Module	Key Learning Outcomes	Equipment Required
-		<ul style="list-style-type: none"> <li>• Work with cooperation, coordination, communication and collaboration, with shared goals and supporting each others performance</li> <li>• document all the details accurately relating to one's role as required</li> <li>• Report on the work completed and keep it in records</li> </ul>	
5	<p><b>Maintain safe work environment</b></p> <p><b>Theory Duration</b> (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 20:00</p> <p><b>Corresponding NOS Code</b> <b>HCS/N9902</b></p>	<ul style="list-style-type: none"> <li>• Comply with safety procedures while on work to prevent accidents</li> <li>• Take adequate safety measures while handling materials, chemicals and tools</li> <li>• Wear appropriate personal protective gears such as gloves, protective goggles, masks etc. while working</li> <li>• Undertake basic safety checks before operation of all tools and electrical equipments</li> <li>• Wear appropriate and recommended clothing as per the work environment (eg: working in a furnace area )</li> <li>• Follow recommended material handling procedure to control material and personal damage</li> <li>• Perform all procedures as per company's work instructions for controlling operational risk</li> <li>• perform the duties in a</li> </ul>	Laptop, white board, marker, projector, Protective gears like goggles, mask, gloves. Cleaning tools, electricity tester, accident report sheet

Sr. No	Module	Key Learning Outcomes	Equipment Required
		<p>manner which minimizes environmental damage</p> <ul style="list-style-type: none"> <li>• Dispose of waste safely and correctly in a designated area as per company's SOP</li> <li>• Report any accidents, incidents or problems without delay to the supervisor and take necessary immediate action to reduce further danger</li> <li>• Ensure zero accident at workplace</li> <li>• Adhere to safety standards and ensure no material damage</li> </ul>	
6	<p>Maintain personal health (hh:mm) 10:00</p> <p><b>Practical Duration</b> (hh:mm) 20:00</p> <p><b>Corresponding NOS Code</b> HCS/N9903</p>	<ul style="list-style-type: none"> <li>• Always cover the mouth and nose with a dust mask while working and keep on changing when it gets blocked with dust</li> <li>• Follow work instructions strictly to reduce the amount of pollution at the work place e.g. wet the rock / craft material before working on it</li> <li>• Wear protective goggles over eyes and replace them when scratches on it obscure the vision</li> <li>• Wear gloves as per the materials used for making handicraft to avoid blisters; scratches and cuts</li> <li>• Undergo preventive health checkups at regular intervals</li> <li>• Take prompt treatment from the doctor in case of illness</li> <li>• Follow SOPs for dealing with blisters; scratches; accidental fires or any other type of emergencies at work</li> </ul>	<p>Laptop, white board, marker, projector, PPE for chemical work and machining, Fire Extinguisher, First-Aid Kit</p>

Sr. No	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> <li>• Ensure no productivity loss or absenteeism from work due to illness</li> <li>• Ensure no long term ill effect on the personal health</li> </ul>	
	<p><b>Total Duration- 260</b></p> <p><b>Theory Duration 70:00</b></p> <p><b>Practical Duration 190:00</b></p>	<p><b>Unique Equipment Required:</b> Laptop, white board, marker, projector, PPTs, Handbook, clay, Cutting Knife, , Metal Structures, paint, measuring tape, cutting table Protective gears like goggles, mask, gloves. Cleaning tools, electricity tester, accident report sheet, Fire Extinguisher, First-Aid Kit</p>	

Grand Total Course Duration: **260Hours, 0 Minutes**

*(This syllabus/ curriculum has been approved by Handicrafts and Carpet Sector Skill Council)*

## Trainer Prerequisites for Job role: “Lab assistant (Ceramics)” mapped to Qualification Pack: “HCS/Q1002, v1.0”

Sr. No.	Area	Details
1	<b>Description</b>	The lab assistant receives and understands the incoming materials tests, defects and acceptance parameters after which he/she performs the associated tests on the materials to determine the acceptance.
2	<b>Personal Attributes</b>	The job requires the individual to have: high concentration, excellent vision, eye for detail, chemistry understanding, logical mind and patience.
3	<b>Minimum Educational Qualifications</b>	10 <sup>th</sup> Pass
4a	<b>Domain Certification</b>	Certified for Job Role: “ <u>Lab Assistant (Ceramics)</u> ” mapped to QP: “ <u>HCS/Q1002, v1.0</u> ”. Minimum accepted score is 80%
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 % as per respective SSC guidelines is 80%.
5	<b>Experience</b>	<ul style="list-style-type: none"> <li>• Total 3 Years experience</li> <li>• 2 Years of sector-specific experience,</li> <li>• Min. 1 year of teaching experience.</li> </ul>

## CRITERIA FOR ASSESSMENT OF TRAINEES

**Job Role :** Lab Assistant (Ceramics)

**Qualification Pack :** HCS/Q1002

**Sector Skill Council :** Handicrafts and Carpet

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 proportion of marks for each PC.
2. Each NOS will be assessed both for theoretical knowledge and practical
3. The assessment will be based on knowledge bank of questions created by the SSC.
4. Individual assessment agencies will create unique question papers for theory and skill practical part for each candidate at each examination/training center
5. To pass the Qualification Pack, every trainee should score a minimum of 70% in every NOS
6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack

		Total Marks (500)			
<b>HCS/N1003</b>	<b>Receive and understand the associated procedures</b>				
<b>NOS Element</b>	Performance Criteria		<b>Out of</b>	<b>Theory</b>	<b>Skills Practical</b>
<b>Receive the appropriate parameters</b>	PC1. communicate with the technical director	100	3	1	2
	PC2. receive the defects, tests, acceptance criteria and sampling plan list from technical director and understand the same		3	1	2
	PC3. discuss the above parameters with the lab team		3	1	2
	PC4. clarify any doubts on the above parameters with the technical director		3	1	2
	PC5. highlight any discrepancies if observed		3	1	2
	PC6. highlight missing/required parameters		3	1	2
<b>Understand the various defects</b>	PC7. understand material-wise list of defects		4	1	3
	PC8. map defects like difference in residue, colour changes, variation in melting point, litre weight, flow per second for various materials		4	1	3
	PC9. understand when typically these defects will be displayed		4	1	3
	PC10. analyze the causes of defects		4	1	3
	PC11. map the effects of the defects		4	1	3
	PC12. assess the impact of the defects in the production		4	1	3
<b>Understand the various tests</b>	PC13. understand material-wise list of tests		4	1	3
	PC14. map tests like %residue colour, %residue mesh, setting time find, initial residue, etc for various materials		4	1	3
	PC15. understand when the tests have to be		4	1	3

	performed				
	PC16. understand what the tests are supposed to reveal		4	1	3
	PC17. analyze the test results		3	1	2
	PC18. map the impact of the test on the overall material quality		3	1	2
<b>Understand the acceptance criteria</b>	PC19. understand material-wise list of acceptance criteria		4	1	3
	PC20. comprehend the rationale behind the determination of the acceptance criteria		4	1	3
<b>Understand the sampling plan</b>	PC21. make note of the typical sampling quantities		4	1	3
	PC22. understand how to handle the samples		4	1	3
	PC23. deduce how to access the samples		4	1	3
	PC24. comprehend how to dispose the samples		3	1	2
<b>Understand reporting and recording</b>	PC25. understand the manner in which test data has to be recorded		3	1	2
	PC26. analyze the implications of test reporting		4	1	3
	PC27. help in creation of the appropriate templates		3	1	2
	PC28. fill the template with correct data and interpretation		3	1	2
	<b>Total</b>		<b>100</b>	<b>28</b>	<b>72</b>

		<b>Total Marks (500)</b>			
<b>HCS / N 1004</b>	<b>Perform the tests</b>				
<b>NOS Element</b>	<b>Performance Criteria</b>		<b>Out of</b>	<b>Theory</b>	<b>Skills Practical</b>
<b>Taking the appropriate samples</b>	PC1. understand the reason for the sampling	100	3	1	2
	PC2. recall the sample amount for the respective materials		3	1	2
	PC3. apply the appropriate sampling methodology		3	1	2
	PC4. take the appropriate amount of sample after weighing		3	1	2
	PC5. handle the samples carefully		3	1	2
	PC6. replace the materials in location after taking the samples		3	1	2
<b>Testing the samples</b>	PC7. correlate the testing methodology according to the material		3	1	2
	PC8. correlate the sampling plan according to the material and test		3	1	2
	PC9. place the samples appropriately on the equipments		3	1	2
	PC10. perform the appropriate tests on the samples		3	1	2
	PC11. use the various testing equipment appropriately		3	1	2
	PC12. observe the test process		3	1	2



	PC13. observe the defects		3	1	2
	PC14. understand why the defects arise		3	1	2
	PC15. know what defects can be observed in the test process		3	1	2
	PC16. make notes during the process		3	1	2
	PC17. retire the equipments after the test		3	1	2
	PC18. remove the samples after test		3	1	2
	PC19. clean the equipment after the test		3	1	2
<b>Documentation of the testing process and findings</b>	PC20. Record details of the batch		3	1	2
	PC21. record the details of the samples		3	1	2
	PC22. record the details on the product lines		3	1	2
	PC23. compute the percentages required		3	1	2
	PC24. compute details for achieving the acceptance criteria		3	1	2
	PC25. compute any other details required		3	1	2
	PC26. note the same appropriately		3	1	2
	PC27. interpret the results when required		3	1	2
<b>Ensure quality and productivity standards</b>	PC28. ensure all results recorded are in line with the template		3	1	2
	PC29. alert about any recurrent issue		3	1	2
	PC30. liaison with various internal teams on various testing issues		3	1	2
	PC31. avoid overall production losses due to quality		3	1	2
	PC32. communicate where rework is required		2	1	1
	PC33. perform testing on the targeted number per day		3	1	2
	PC34. complete all activities as per internal standards		2	1	1
	<b>Total</b>		<b>100</b>	<b>34</b>	<b>66</b>

HCS/N9901	Coordinate with colleagues and work as a team				
NOS Element	Performance Criteria		Out of	Theory	Skills Practical
<b>Interact with supervisor</b>	PC1. receive job order and instructions from reporting supervisor	100	4	3	1
	PC2. understand the work output requirements, targets, performance indicators and incentives		5	4	1
	PC3. deliver quality work on time and report any anticipated reasons for delays		5	1	4
	PC4. report on any grievances, production defects and any potential hazards		4	2	2
	PC5. communicate on process flow improvements		4	2	2
	PC6. communicate maintenance and repair schedule proactively to the supervisor		4	1	3
	PC7. receive feedback on work standards		4	2	2
	PC8. interact and clarify doubts on design, usage of materials & tools, quality & standards compliance, etc		5	2	3

	PC9. report in time for shortage or need of raw materials		4	1	3
	PC10. handover completed work to supervisor		4	2	2
<b>Work as a team by coordinating with colleagues within and outside the department</b>	PC11. communicate to the colleagues from within and other departments, clearly and effectively on all aspects to carry out the work among the team		5	2	3
	PC12. maintain the etiquettes, use polite language, demonstrate responsible and disciplined behaviours to the colleagues		5	2	3
	PC13. interact with colleagues from different functions and understand the nature of their work		4	2	2
	PC14. put team over individual goals and multi task or share work where necessary supporting the colleagues		4	2	2
	PC15. resolve conflicts and ensure smooth workflow		4	1	3
	PC16. interact and understand the production requirement for the day from the previous and successive processing department and work accordingly		4	1	3
	PC17. communicate and discuss work flow related difficulties in order to find solutions with mutual agreement		4	1	3
	PC18. receive feedback from Quality Control and rework in order to complete work on time		5	1	4
	PC19. share information with colleagues to enable efficient delivery of work		6	3	3
	PC20. highlight any errors of colleagues, help to rectify and ensure quality output		4	2	2
	PC21. work with cooperation, coordination, communication and collaboration, with shared goals and supporting each others performance		4	1	3
<b>Report and Document</b>	PC22. document all the details accurately relating to one's role as required		4	1	3
	PC23. report on the work completed and keep it in records		4	1	3
	<b>TOTAL POINTS</b>		100	40	60

HCS/N9902	Maintain safe work environment				
NOS Element	Performance Criteria		Out of	Theory	Skills Practical
<b>Follow safety procedure and practices</b>	PC1. comply with safety procedures while on work to prevent accidents	100	8	2	6
	PC2. take adequate safety measures while handling materials, chemicals and tools		8	2	6
	PC3. wear appropriate personal protective gears such as gloves, protective goggles, masks etc. while working		8	2	6
	PC4. undertake basic safety checks before		9	2	7

	operation of all tools and electrical equipments				
	PC5. wear appropriate and recommended clothing as per the work environment (eg: working in a furnace area )		9	2	7
	PC6. follow recommended material handling procedure to control material and personal damage		8	2	6
	PC7. perform all procedures as per company's work instructions for controlling operational risk		8	4	4
	PC8. perform the duties in a manner which minimizes environmental damage		6	2	4
	PC9. dispose of waste safely and correctly in a designated area as per company's SOP		8	2	6
	PC10. report any accidents, incidents or problems without delay to the supervisor and take necessary immediate action to reduce further danger		8	4	4
<b>Achieve safety standards</b>	PC11. ensure zero accident at workplace		10	2	8
	PC12. adhere to safety standards and ensure no material damage		10	2	8
	<b>TOTAL POINTS</b>		<b>100</b>	<b>28</b>	<b>72</b>

HCS/N9903	Maintain personal health				
NOS Element	Performance Criteria		Out of	Theory	Skills Practical
<b>Adopt healthy work practices</b>	PC1. always cover the mouth and nose with a dust mask while working and keep on changing when it gets blocked with dust	100	12	4	8
	PC2. follow work instructions strictly to reduce the amount of pollution at the work place e.g. wet the rock / craft material before working on it		10	2	8
	PC3. wear protective goggles over eyes and replace them when scratches on it obscure the vision		10	2	8
	PC4. wear gloves as per the materials used for making handicraft to avoid blisters; scratches and cuts		10	2	8
	PC5. undergo preventive health checkups at regular intervals		10	2	8
	PC6. take prompt treatment from the doctor in case of illness		11	3	8
	PC7. follow SOPs for dealing with blisters; scratches; accidental fires or any other type of emergencies at work		11	4	7
<b>Achieve work</b>	PC8. ensure no productivity loss or absenteeism from work due to illness		13	3	10

<b>productivity while maintaining health</b>	PC9. ensure no long term ill effect on the personal health		13	3	10
	<b>TOTAL POINTS</b>		100	25	75