



# Model Curriculum

## Pre-Cleaning Technician – Shipbreaking

**SECTOR: STRATEGIC MANUFACTURING**  
**SUB-SECTOR: SHIP BUILDING & SHIP REPAIR**  
**OCCUPATION: SHIP BREAKING**  
**REF ID: SMC/Q 4601,v1.0**  
**NSQF LEVEL: 4**



  

**Certificate**

**CURRICULUM COMPLIANCE TO  
QUALIFICATION PACK – NATIONAL OCCUPATIONAL  
STANDARDS**

is hereby issued by the

**STRATEGIC MANUFACTURING SECTOR SKILL COUNCIL**

for the

**MODEL CURRICULUM**

Complying to National Occupational Standards of

**Job Role /Qualification Pack : Pre-Cleaning Technician - Shipbreaking, QP No. SMC/Q4601,  
Version 1.0, NSQF Level 4**

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Date of Issue: 13th September, 2017  
Valid Up to\* : 12th September, 2020

\*Valid upto to the next review date of the Qualification Pack or the  
Valid up to 'date mentioned above (whichever is earlier)

  
**Authorised Signatory**

**Strategic Manufacturing Sector Skill Council**



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# Pre-cleaning Technician – Shipbreaking

## CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Pre-cleaning Technician – Shipbreaking”, in the “Strategic Manufacturing” Sector/Industry and aims at building the following key competencies amongst the learner

<b>Program Name</b>	Lager Insulator		
<b>Qualification Pack Name &amp; Reference ID.</b>	SMC/Q 4601, v1.0		
<b>Version No.</b>	1.0	<b>Version Update Date</b>	13/ 09/2017
<b>Pre-requisites to Training</b>	12 <sup>th</sup> Standard		
<b>Training Outcomes</b>	<b>After completing this programme, participants will be able to:</b> <ul style="list-style-type: none"><li>• Identify the area containing hazardous materials on-board ships</li><li>• clean the identified areas</li><li>• use ship cleaning machines during the process.</li></ul>		



This course encompasses 4 out of 4 National Occupational Standards (NOS) of “Pre-cleaning technician – shipbreaking” Qualification Pack issued by “Strategic Manufacturing Sector Skill Council”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<b>Work out pre cleaning operations (Shipbreaking)</b> <b>Theory Duration</b> (hh:mm) 32:00 <b>Practical Duration</b> (hh:mm) 58:00  <b>Corresponding NOS Code</b> <b>SMC/N 4601</b>	The user/individual on the job needs to know/understand/ able to do: <ul style="list-style-type: none"><li>• work on hazardous waste handling and disposal plan</li><li>• identify hazardous materials including asbestos, mercury and radioactive</li><li>• identify operational substances including cargo residue and dry tank residue</li><li>• identify metals that are mixed with non-metals on material used onboard ship</li><li>• work towards removal of anti – freeze fluids, kerosene, fuel oil, diesel oil, grease, etc</li><li>• identify thinners, paint and rust stabilizers</li><li>• prepare processes for the removal of gaseous substances such as refrigerants, halon, CO2</li><li>• prepare and work out ancillary operational substances including boiler, feed</li><li>• water test re-agents, domestic water treatment chemical, lead acid batteries</li><li>• set up starting, controlling, adjusting and stopping pre cleaning machines</li><li>• work out layout and components of ship around ship deck, engine room, propeller</li><li>• prepare surfaces for cutting</li></ul>	1) Powerpoint Presentation on identifications of Hazardous Material. 2) Charts depicting colour identifications of hazardous material. 3) Charts depicting various type of paints, thinner and related liquid. 4) Charts depicting various type of chemical (liquid) and chemical powders form. 5) Charts depicting various type of oil and lubricants and method of identifications
2	<b>Carry out pre cleaning operations (Shipbreaking)</b> <b>Theory Duration</b> (hh:mm) 45:00  <b>Practical Duration</b> (hh:mm) 95:00  <b>Corresponding NOS Code</b> <b>SMC/N 4602</b>	The user/individual on the job needs to know/understand/ able to do: <ul style="list-style-type: none"><li>• cleaning and removal of hazardous components including arsenicpaints, freon in refrigerating pipelines, tank level indicator</li><li>• sampling of liquids and gases in the compartment that will be cut first</li><li>• removal of fuels, oils and other liquids that are mixed with bilge and ballast water</li><li>• removal of the water that may accumulate due to rain and firefighting activity</li><li>• removal of hazardous materials including asbestos, mercury radioactive material and toxic metals</li></ul>	1) Powerpoint presentation on removal/emptying procedure of tanks from ship and its compartments 2) Liquid Suction Pump (Small) 3) Wire brush. 4) Scrubbing machines with rotating brush. 5) Hand held scrubber. 6) Plastic Pipe (10mtr length X 1 inches dia)



Sr. No.	Module	Key Learning Outcomes	Equipment Required
		using shredders and separators <ul style="list-style-type: none"> <li>• removal of gaskets from piping systems and electrical systems</li> <li>• removal of paints from internal spaces &amp; external surfaces</li> <li>• decoating of primer paints from internal spaces (tank coatings) &amp; external surfaces (decks, wind strake plates, hull etc.)</li> <li>• removal of thinners, paint and rust stabilizer</li> </ul>	7) Capillary action pump 8) Hand held vacuum pump.
3	<b>Work effectively with others</b>  <b>Theory Duration</b> (hh:mm) 20:00  <b>Practical Duration</b> (hh:mm) 10:00 <b>Corresponding NOS Code</b> SMC/ N 9103	The user/individual on the job needs to know/understand/ able to do: <ul style="list-style-type: none"> <li>• define own work and responsibilities</li> <li>• understand individual goals</li> <li>• understand work requirements</li> <li>• collaborate and integrate own work with other people’s work</li> <li>• consult with others to achieve smooth workflow</li> <li>• work in a way that shows respect for others</li> <li>• carry out any commitments made to others</li> <li>• seek ways of improvement of work</li> <li>• learn skills from others that help in performing the work efficiently</li> <li>• ensure proper care is given to a fellow worker in case of an accident.</li> <li>• receive information and instructions accurately from the supervisor and colleagues</li> <li>• seek clarifications where required without disruption of own or others work</li> <li>• pass on accurate information to authorized persons who require it and within agreed timescale and confirm its receipt</li> <li>• communicate with other people clearly and effectively</li> <li>• use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism display active listening skills while interacting with others at work and receiving</li> </ul>	1) Training Kit (trainer guide, PPT) 2) Power point for general communication skills, power point for shipyard & factory. 3) Team Management - Posters. 4) Team building - Posters. 5) Team Organisation in Shipyards Posters.



Sr. No.	Module	Key Learning Outcomes	Equipment Required
4	<p><b>Maintain a healthy, safe and secure working environment</b></p> <p><b>Theory Duration</b> (hh:mm) 20:00</p> <p><b>Practical Duration</b> (hh:mm) 16:00</p> <p><b>Corresponding NOS Code</b> SMC/ N 9104</p>	<p>feedback</p> <p>The user/individual on the job needs to know and understand:</p> <ul style="list-style-type: none"> <li>• general rules on hygiene</li> <li>• correct clothing, footwear, safety masks, respiratory masks, gloves, loose cotton and headgear</li> <li>• understand the physical signs and reactions related to exposures to such hazards</li> <li>• knowledge of entry and exit of vessel and evacuation procedures in case of an emergency</li> <li>• method of disposing waste material in ship</li> <li>• awareness of work going on, in surrounding areas</li> <li>• awareness of gasses generated on board of ship</li> <li>• awareness of toxic gases in confined spaces</li> <li>• personal safety, health and dignity issues relating to the movement of a person by others</li> <li>• various types of safety signs and their meaning</li> <li>• maintain cleanliness and hygiene</li> <li>• importance of clean and appropriate clothing, footwear and headgear</li> <li>• importance of health and hygiene procedures</li> <li>• method to keep a watch on hazards in the workplace related to equipment, clothings, etc.</li> <li>• use of protective clothing such as gloves, safety glasses, etc for specific tasks &amp; work conditions</li> <li>• method of reporting any accidents quickly and accurately to the proper person and proper authority as per emergency procedures correctly</li> </ul>	<ol style="list-style-type: none"> <li>1) Training Kit ( Trainer Guide, PPT)</li> <li>2) Power point presentation of safety general</li> <li>3) Power point presentation of safety in shipyard / factory</li> <li>4) Leather apron</li> <li>5) Safety helmets</li> <li>6) Safety gloves</li> <li>7) Industrial safety shoes</li> <li>8) First aid kit</li> <li>9) Fire extinguisher (Soda &amp; Foam Type)</li> <li>10) Fire bucket with sand</li> <li>11) Protective visor / screen</li> <li>12) Fire safety – Posters</li> <li>13) Posters of safety in shipyards</li> </ol>
	<p><b>Theory Duration</b> <b>117:00</b></p>	<p><b>Unique Equipment Required: NIL</b></p>	



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Sr. No.	Module	Key Learning Outcomes	Equipment Required
	<b>Practical Duration 179:00</b>		

Grand Total Course Duration: **296 Hours, 0 Minutes**

(This syllabus/ curriculum has been approved by [Strategic Manufacturing Sector Skill Council](#))





## Trainer Prerequisites for Job role: “Pre-Cleaning – Technician Shipbreaking” mapped to Qualification Pack: “SMC/ Q 4601, v1.0”

Sr. No.	Area	Details
1	<b>Description</b>	A Pre-Cleaning Technician identifies the area containing hazardous materials on-board ships. He is responsible for cleaning the identified areas including usage of ship cleaning machines.
2	<b>Personal Attributes</b>	The individual has to organize work, which may be predictive and routine in nature involving basic degree of making choices, for responsible execution of familiar tasks. He should have basic communication (written and oral), arithmetic skills. Also, understanding the initiative to improve efficiency and effectiveness in work.
3	<b>Minimum Educational Qualifications</b>	12 <sup>th</sup> Standard
4a	<b>Domain Certification</b>	Certified for Job Role: “ <u>Pre-Cleaning Technician – Shipbreaking</u> ” mapped to QP: SMC/ Q 4601”. Minimum accepted score is 70%.
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 is 80%.
5	<b>Experience</b>	5years experience in shipyard



## Annexure: Assessment Criteria

<b>Assessment Criteria</b>	
<b>Job Role</b>	<b>Pre-Cleaning Technician – Shipbreaking</b>
<b>Qualification Pack</b>	<b>SMC/Q4601, v1.0</b>
<b>Sector Skill Council</b>	<b>Strategic Manufacturing</b>

<b>Sr. No.</b>	<b>Guidelines for Assessment</b>
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 Theory and Skills Practical for each 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 this criterion.
6	To pass the Qualification Pack , every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.
7	In case of <i>unsuccessful completion</i> , the trainee may seek reassessment on the Qualification Pack.



Complusory NOS Total Marks: 400				Marks Allocation	
Assessment outcomes	Assessment criteria for outcomes	Total Marks	Out of	Theory	Skills/ Practical
<b>SMC/N 4601</b> (Work out pre cleaning operations (Shipbreaking))	PC1. work on hazardous waste handling and disposable plan	<b>100</b>	9	3	6
	PC2. identify hazardous materials		9	3	6
	PC3. identify operational substances		9	3	6
	PC4. identify metals that are mixed with nonmetals		9	3	6
	PC5. work towards removal of anti – freeze fluids		9	3	6
	PC6. identify thinners, paint and rust stabilizers		9	3	6
	PC7. prepare processes for the removal of gaseous substances		9	3	6
	PC8. prepare and work out ancillary operational substances		9	3	6
	PC9. set up starting, controlling, adjusting and stopping pre cleaning machines		9	3	6
	PC10. work out layout and components of ship around ship deck, engine room, propeller, etc		9	2	7
	PC11. prepare surfaces for cutting		10	3	7
		<b>100</b>	<b>32</b>	<b>68</b>	
<b>SMC/N 4602</b> (Carry out pre cleaning operations (Shipbreaking))	PC1.remove fuels, oils and other liquids that are mixed with bilge and ballast water		10	4	6
	PC2. remove the water that may accumulate due to rain, firefighting activity, or use of hot work cooling water, and will have to be properly removed		10	4	6
	PC3. carry out cleaning and removal of hazardous components including arsenic paints, freon in refrigerating pipelines, tank level indicator		10	4	6
	PC4. carry out sampling of liquids and gases in the compartment that will be cut first		10	4	6



	PC5. remove hazardous materials including asbestos, mercury and radioactives		10	4	6
	PC6. remove toxic metals using shredders and separators		10	4	6
	PC7. remove gaskets from piping systems and electrical systems		10	3	7
	PC8. remove paints from internal spaces & external surfaces		10	4	6
	PC9. carry out decoating of primer paints from internal spaces (tank coatings) & external surfaces (decks, wind strake plates, hull etc.)		10	3	7
	PC10. remove thinners, paint and rust stabilizer		10	4	6
	<b>Total</b>	<b>100</b>	<b>38</b>	<b>62</b>	
<b>SMC/N 9103</b> (Working effectively in a collaborative environment)	PC1. define own work and responsibilities	<b>100</b>	5	2	3
	PC2. understand work requirements		5	2	3
	PC3. collaborate and integrate own work with other people's work		5	2	3
	PC4. consult with others to achieve smooth workflow and help in maximising effectiveness and efficiency in carrying out tasks		5	2	3
	PC5. discuss with the appropriate authority or person, any problems that arise, which may affect the work and remain unresolved		5	1	4
	PC6. carry out any commitments made to others		5	1	4
	PC7. seek ways of improvement of work		5	1	4
	PC8. learn skills from others that help in performing the work efficiently and share own skills with them, which may benefit their work		5	1	4



	PC9. work together as a single unit to ensure efficiency in work		5	1	4
	PC10. ensure proper care is given to a fellow worker in case of an accident		5	1	4
	PC11. receive information and instructions accurately from the supervisor and colleagues		5	1	4
	PC12. seek clarifications where required		5	1	4
	PC13. pass on accurate information to authorized persons who require it and within agreed timescale and confirm its receipt		4	2	2
	PC14. make sure that information being provided is within the purview of own authority and responsibility		4	2	2
	PC15. communicate with other people clearly and effectively		3	1	2
	PC16. use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism		3	1	2
	PC17. exhibit proper work etiquettes		3	1	2
	PC18. display active listening skills while interacting with others at work and receiving feedback		3	1	2
	PC19. demonstrate responsible and disciplined behavior		5	2	3
	PC20. develop understanding, goodwill and trust		5	2	3
	PC21. resolve individual disagreements with the concerned person		5	2	3
	PC22. escalate unresolved grievances to appropriate authority		5	2	3
		<b>Total</b>	<b>100</b>	<b>32</b>	<b>68</b>
<b>SMC/N 9104</b> (Maintain a healthy, safe	PC1. maintain cleanliness and hygiene		8	2	6
	PC2. wear clean clothing		8	2	6



and secure working environment)	PC3. follow health procedures	<b>100</b>	9	4	5
	PC4. identify common health hazards		9	2	7
	PC5. keep a look out for hazards		8	2	6
	PC6. keep a lookout for accommodation for safety		8	2	6
	PC7. keep a lookout for the machinery		8	2	6
	PC8. keep a lookout for the deck		8	2	6
	PC9. report any accidents or near accidents quickly and accurately to the proper person		8	4	4
	PC10. use appropriate fire extinguishers on different types of fires correctly causes of fires		9	5	4
	PC11. administer appropriate first aid to victims where required eg. in case of bleeding, burns, choking, electric shock, poisoning etc.		9	5	4
	PC12. demonstrate basic techniques of bandaging		8	6	2
	<b>Total</b>	<b>100</b>	<b>38</b>	<b>62</b>	
	<b>Minimum Pass % To Qualify (Aggregate)</b>	<b>70%</b>			