



# QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR STRATEGIC MANUFACTURING INDUSTRY

## What are Occupational Standards (OS)?

- OS describe what individuals need to do, know and understand in order to carry out a particular job role or function
- OS are performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding

### Contact Us:

**Strategic Manufacturing Sector Skill Council, 3rd Floor, 13 A, Palam Marg, Vasant Vihar, New Delhi - 110057**

### E mail

strategic.manufacturing@smsc.in



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## Introduction

### Qualifications Pack - Marine Fitter and Rigger

**SECTOR:** STRATEGIC MANUFACTURING

**SUB-SECTOR:** Ship Building & Ship Repair

**OCCUPATION:** Ship Building

**REFERENCE ID:** SMC/Q 3401

**ALIGNED TO:** NCO-2015/ 7233.2200, ISCO – NIL

**Brief Job Description: Marine Fitter & Rigger** fits components of machinery in fixed positions including fabrication of nonstandard parts needed for machine parts assembly. He also sets up ship’s equipment with ropes, pulleys, winches and cables. Also responsible for guiding the cargo through narrow spaces or into storage.

**Personal Attributes:** The individual must have responsibility to organize own work within defined limit. He should have basic communication (written and oral), arithmetic skills. Also, understanding the initiative to improve efficiency and effectiveness in work.



Qualifications Pack for Marine Fitter & Rigger



<b>Qualifications Pack Code</b>	<b>SMC/Q 3401</b>		
<b>Job Role</b>	<b>Marine Fitter &amp; Rigger</b>		
<b>Credits (NSQF)</b>	<b>TBD</b>	<b>Version number</b>	<b>1.0</b>
<b>Sector</b>	<b>Strategic Manufacturing</b>	<b>Drafted on</b>	<b>05/11/2016</b>
<b>Sub-sector</b>	<b>Ship Building and Ship Repair</b>	<b>Last reviewed on</b>	<b>13/09/2017</b>
<b>Occupation</b>	<b>Shipbuilding</b>	<b>Next review date</b>	<b>12/09/2020</b>
<b>NSQC Clearance on</b>	<b>NA</b>		

<b>Job Role</b>	<b>Marine Fitter &amp; Rigger</b>
<b>Role Description</b>	Marine Fitter & Rigger fits components of machinery in fixed positions including fabrication of nonstandard parts needed for machine parts assembly. He also sets up ship's equipment with ropes, pulleys, winches and cables. Also responsible for guiding the cargo through narrow spaces or into storage.
<b>NSQF level</b>	4
<b>Minimum Educational Qualifications</b>	12 <sup>th</sup> Standard
<b>Maximum Educational Qualifications</b>	N/A
<b>Prerequisite License or Training</b>	N/A
<b>Minimum Job Entry Age</b>	18 year
<b>Experience</b>	1 year experience in shipyard
<b>Applicable National Occupational Standards (NOS)</b>	<p><b>Compulsory NOS:</b></p> <ol style="list-style-type: none"> <li><a href="#">SMC/N 3401 Carry out fitting operations on ship</a></li> <li><a href="#">SMC/N 3402 Carry out rigging operations on ship</a></li> <li><a href="#">SMC/N 9103 Work effectively in a collaborative environment</a></li> <li><a href="#">SMC/N 9104 Maintain safe, hygiene and secure environment</a></li> </ol>
<b>Performance Criteria</b>	As described in the relevant OS units



## Qualifications Pack for Marine Fitter & Rigger

Definitions	Keywords /Terms	Description
	Sector	Sector is a conglomeration of different business operations having similar businesses and interest. 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 In an industry.
	Function	Function is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through analysis and form the basis of OS.
	Job Role	Job role defines a unique set of functions that together form a unique Employment opportunity in an organization.
	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 they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
	Performance Criteria	Performance Criteria are statements that together specify the standard of performance required when carrying out a task.
	NOS	NOS are Occupational Standards which apply uniquely in the Indian context.
	Qualifications Pack Code	Qualifications Pack Code is a unique reference code that identifies a qualifications pack.
	Qualifications Pack	Qualifications Pack comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification 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	
Knowledge and Understanding	Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to perform to the required standard.	
Organizational Context	Organizational Context includes the way the organization 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 or Generic Skills	Core Skills or Generic Skills are a group of skills that are key to learning and working 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.	



## Qualifications Pack for Marine Fitter & Rigger

### Acronyms

Keywords /Terms	Description
SMSSC	Strategic Manufacturing Sector Skill Council
NOS	National Occupational Standards
NSQF	National Skills Qualification Framework
NVEQF	National Vocational Educational Qualification Framework
NVQF	National Vocational Qualification Framework
OS	Occupational Standards
PC	Performance Criteria
QP	Qualification Pack
SSC	Sector Skills Council



# National Occupational Standard



## Overview

This unit is about carrying out fitting operations on ship



SMC/N 3401

Carry out fitting operations on ship

National Occupational Standard

<b>Unit Code</b>	<b>SMC/N 3401</b>
<b>Unit Title (Task)</b>	<b>Carry out fitting operations on ship</b>
<b>Description</b>	This unit is about carrying out fitting operations on ship
<b>Scope</b>	This unit/task covers the following: <ul style="list-style-type: none"> <li>Carry out fitting work</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Carry out fitting work</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC1. align and position parts on metals using scribe and hand tools like jacks, turnbuckles, clips, wedges, and mauls</p> <p>PC2. locate and mark reference lines such as center and line of center of gravity on all 3 axis</p> <p>PC3. install temporary fasteners to hold parts, in place for welding or riveting</p> <p>PC4. install packing, gaskets, liners, and structural accessories and members, such as doors, hatches, brackets and clips</p> <p>PC5. prepare molds and templates for fabrication of non - standard parts</p> <p>PC6. roll, bend, flange, cut, and shape plates, beams, and other heavy metal parts, using shop machinery, such as plate rolls, presses, bending brakes and joggle machines</p> <p>PC7. assemble coupling, gears, flanges, pulley, clutches, fitting and other similar equipment</p> <p>PC8. install different types of valves on board the vessel, structures and towers</p> <p>PC9. align various types of equipment, pump, gas turbines, weaponry equipment and radars</p> <p>PC10. set shift lines, rubber lines, blanks for installation or machining purposes</p> <p>PC11. make jigs, fixtures, pullers, etc. required for use in installation/repairs of mechanical systems and electric motors</p> <p>PC12. install weapon seating including minor fabrications as required</p> <p>PC13. install boring on board ship and aligning, levelling with master datum/other reference on board ships</p> <p>PC14. install master Datum on slipway/ dry dock</p> <p>PC15. align guns and antennae as per the blueprint in accordance to Work Plan Instructions (WPI)</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (Knowledge of the organization and its processes)	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. legislation, standards, policies, and procedures followed in the company relevant to own employment and performance conditions</p> <p>KA2. relevant occupational health and safety requirements applicable in the work place</p> <p>KA3. importance of working in clean and safe environment</p> <p>KA4. own job role and responsibilities and sources for information pertaining to</p>



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Carry out fitting operations on ship

	<p>employment terms, entitlements, job role and responsibilities</p> <p>KA5. reporting structure, inter-dependent functions, lines and procedures in the work area</p> <p>KA6. importance and purpose of documentation in context of employment and work</p>
<b>B. Technical Knowledge</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. standard specification of pipes/metal sheets/deck fittings, fittings and flanges</p> <p>KB2. tools and equipment used in the cutting and preparing the pipes/metal sheets/deck fittings</p> <p>KB3. how to move heavy loads, such as cargo at port using rigging</p> <p>KB4. how to adjust the ship's sails to control course and speed while at sea</p> <p>KB5. material used to cement the joints, and how to recognise when the fitting is correctly secured</p> <p>KB6. types of measuring equipment: external micrometres, Vernier caliper, rules, trisquares, combination squares, protractor, feeler gauges, bore/hole gauges, radius/profile gauges, thread gauges</p> <p>KB7. the importance of leaving the work area and equipment in a safe and clean condition on completion of fitting activities</p> <p>KB8. material used in different types of pipe welding methods</p> <p>KB9. material and tools used for fuel brazing/soldering and cutting metal</p> <p>KB10. how to fill up the reports, checklists and complete documentation</p>
<b>Skills (S)</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Writing Skills</b>
	<p>The user/ individual on the job needs to know and understand how to:</p> <p>SA1. prepare and maintain documentation</p>
	<b>Reading Skills</b>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA2. read vernacular/english language</p> <p>SA3. read and understand manuals, health and safety instructions</p> <p>SA4. read various colour codes, as per standard electrical, mechanical and civil nomenclature</p>
<b>B. Professional Skills</b>	<b>Oral Communication (Listening and Speaking skills)</b>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SA5. express statements or information clearly so that others can hear and understand</p> <p>SA6. participate in and understand the main points of simple discussions</p> <p>SA7. communicate with peers, superiors and sub-ordinates</p>
	<b>Organisation skills</b>
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. organize work schedule to meet deadlines</p> <p>SB2. work constructively and collaboratively with others</p> <p>SB3. ask questions for better understanding</p>

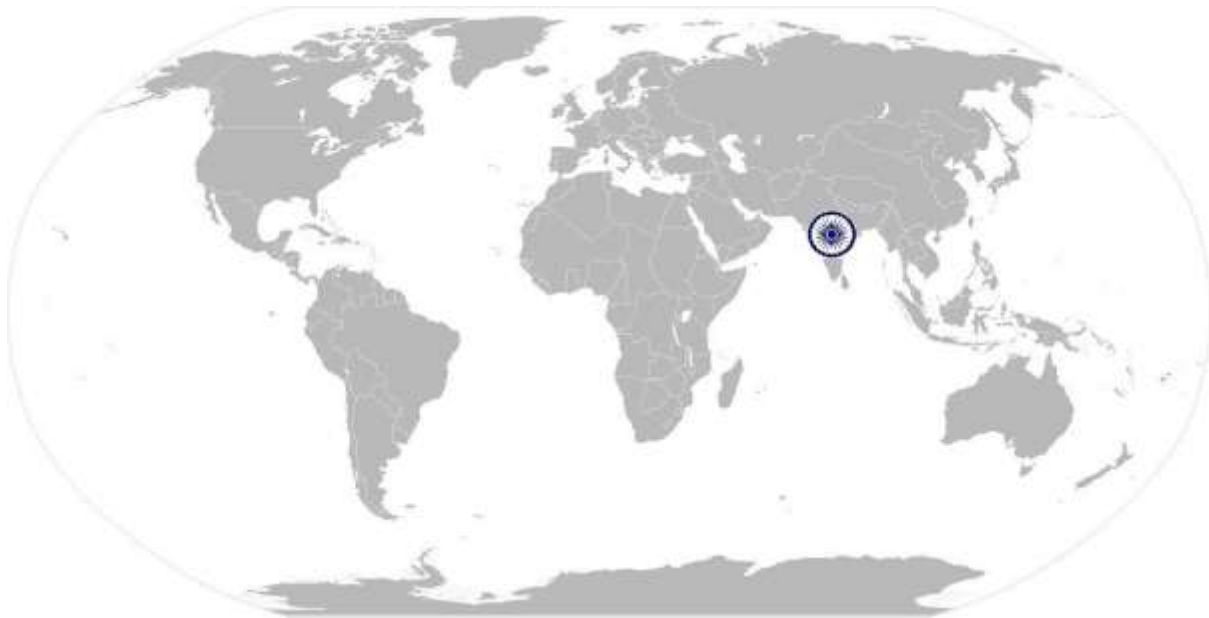




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Carry out fitting operations on ship

	<b>Analytical thinking</b>
	The user/individual on the job needs to know and understand how to: SB4. apply domain knowledge, observations and data to select course of action to perform tasks





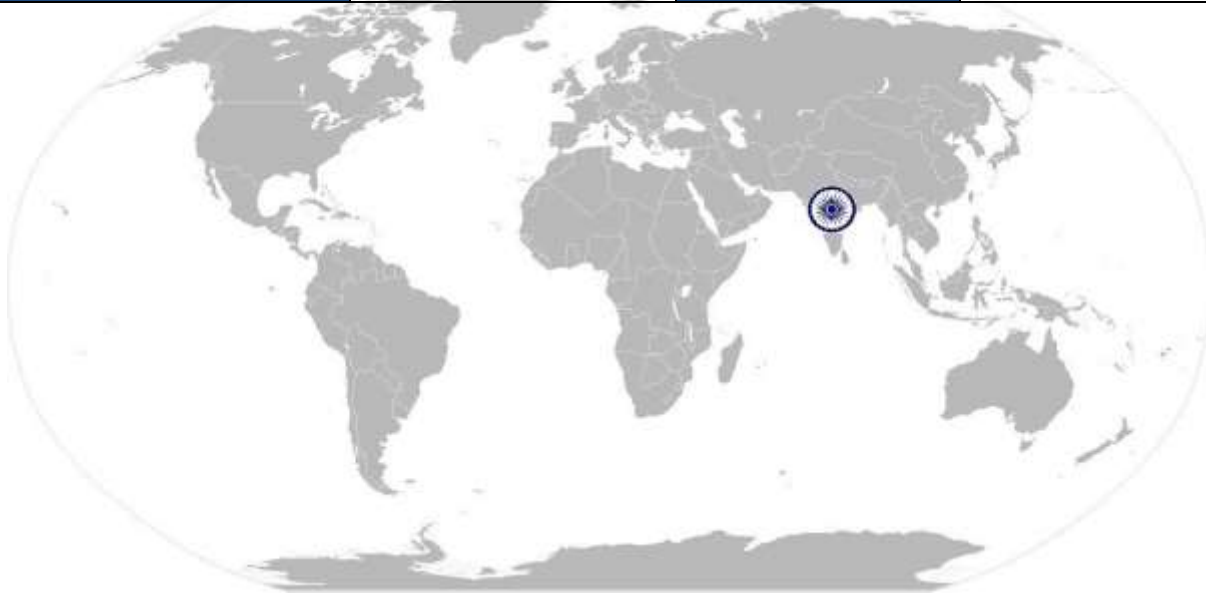


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Carry out fitting operations on ship

## NOS Version Control

<b>NOS Code</b>	<b>SMC/N 3401</b>		
<b>Credits (NSQF)</b>	<b>TBD</b>	<b>Version number</b>	<b>1.0</b>
<b>Industry</b>	<b>Strategic Manufacturing</b>	<b>Drafted on</b>	<b>05/11/2016</b>
<b>Industry Sub-sector</b>	<b>Ship Building &amp; Ship Repair</b>	<b>Last reviewed on</b>	<b>13/09/2017</b>
<b>Occupation</b>	<b>Ship Building</b>	<b>Next review date</b>	<b>12/09/2020</b>



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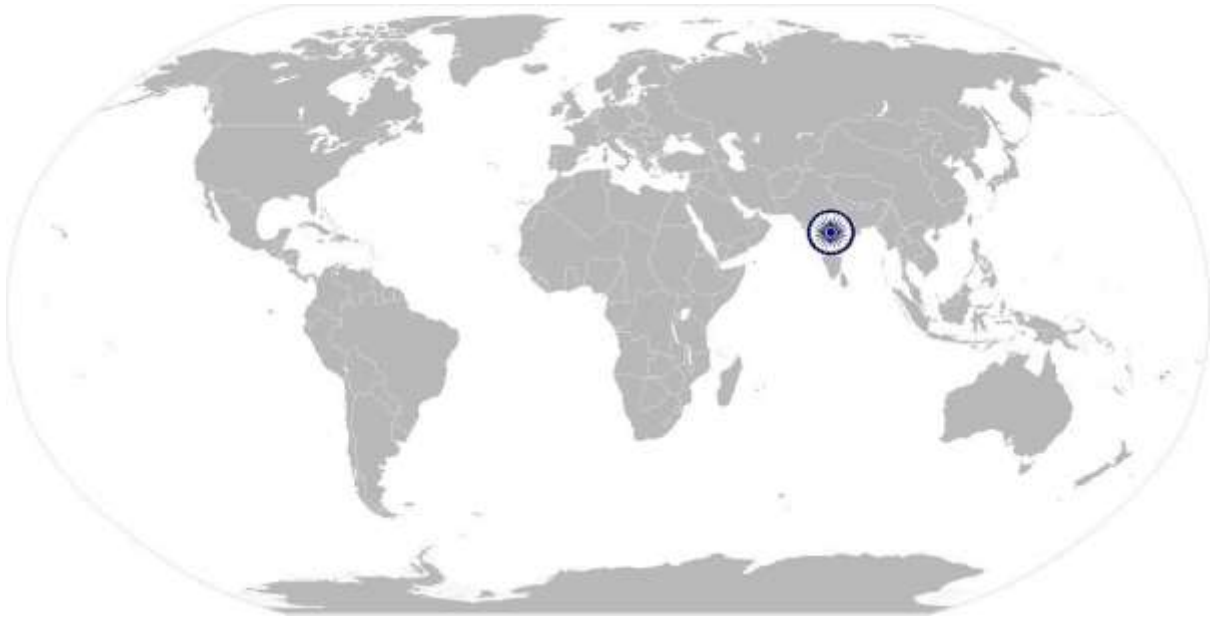


SMC/N 3402

Carry out rigging operations on ship

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# National Occupational Standard



## Overview

This unit is about carrying out rigging operations on ship.



SMC/N 3402

Carry out rigging operations on ship

National Occupational Standard

<b>Unit Code</b>	SMC/N 3402
<b>Unit Title (Task)</b>	Carry out rigging operations on ship
<b>Description</b>	This unit is about carrying out rigging operations on ship
<b>Scope</b>	This unit/task covers the following: <ul style="list-style-type: none"> <li>Carry out rigging operations</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Carry out rigging operations</b>	<p>To be competent, the user/ individual must be able to:</p> <p>PC1. manipulate rigging lines, hoists and pull gear to support materials such as heavy equipment and ships</p> <p>PC2. attach pulleys and blocks to fixed overhead structures such as beams, ceilings, and gin pole booms using bolts and clamps</p> <p>PC3. control movement of heavy equipment through narrow openings in ship deck using chain falls, gin poles and gallows frames</p> <p>PC4. tilt, dip and turn suspended loads to maneuver over/under obstacles using multi-point suspension techniques</p> <p>PC5. install ground rigging for yarding lines</p> <p>PC6. use a fid, a wooden spike to open the threads of fiber ropes in the process of splicing the rope</p> <p>PC7. attach loads to rigging to provide support using hand and power tools</p> <p>PC8. assemble and disassemble sheaves, blocks, shackles and boom</p> <p>PC9. pull and renew all of the working and standing rigging</p> <p>PC10. operate ship's equipment such as mooring winches, ship's cranes, and cargo gear to accomplish specified repairs</p> <p>PC11. tests cargo gear, which includes setting different angles and weight testing of all types</p> <p>PC12. dismantle and store rigging equipment after use</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (Knowledge of the organization and its processes)	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. legislation, standards, policies, and procedures followed in the company relevant to own employment and performance conditions</p> <p>KA2. all types of ships such as cargo ships, passenger ships, cruise ships, tankers, ferries, war ships, frigate, crew ships, etc</p> <p>KA3. types of fishing vessel – small, medium and large</p> <p>KA4. relevant occupational health and safety requirements applicable in the work place</p> <p>KA5. importance of working in clean and safe environment</p> <p>KA6. own job role and responsibilities and sources for information pertaining to employment terms, entitlements, job role and responsibilities</p>



SMC/N 3402

Carry out rigging operations on ship

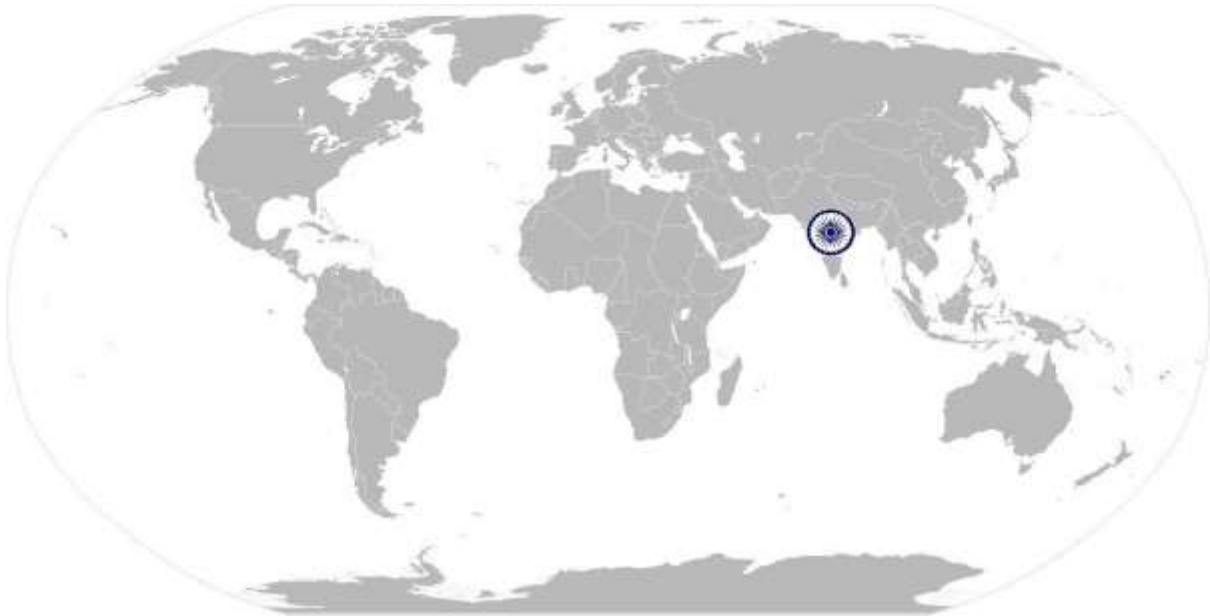
	<p>KA7. reporting structure, inter-dependent functions, lines and procedures in the work area</p> <p>KA8. documentation and related procedures applicable in the context of employment and work</p>
<b>B. Technical Knowledge</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. how to use equipment for rigging operations</p> <p>KB2. standard specification of pipes/metal sheets/deck fittings, fittings and flanges</p> <p>KB3. tools and equipment used in the cutting and preparing the pipes/metal sheets/deck fittings</p> <p>KB4. types of compression fittings; material required to seal the pipes/metal sheets/deck fittings</p> <p>KB5. types of push-fit connectors, and their advantages and disadvantages</p> <p>KB6. mechanical fastenings and joining material: non-permanent - nuts, bolts, studs, permanent -welded, soldered, brazed and riveted</p> <p>KB7. the importance of leaving the work area and equipment in a safe and clean condition on completion of fitting activities, material used in different types of pipe welding methods</p> <p>KB8. material and tools used for fuel brazing/soldering and cutting method</p> <p>KB9. how to fill up the reports, checklists and complete documentation</p>
<b>Skills (S)</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Writing Skills</b>
	The user/ individual on the job needs to know and understand how to:
	SA1. prepare and maintain documentation
	<b>Reading Skills</b>
	The user/individual on the job needs to know and understand how to:
SA2. read vernacular/english language	
SA3. read and understand health and safety instructions	
SA4. read various colour codes, as per standard electrical, mechanical and civil nomenclature	
<b>Oral Communication (Listening and Speaking skills)</b>	
The user/individual on the job needs to know and understand how to:	
SA5. express statements or information clearly so that others can hear and understand	
SA6. participate in and understand the main points of simple discussions	
SA7. respond appropriately to any queries	
SA8. communicate with peers, superiors and sub-ordinates	
<b>B. Professional Skills</b>	<b>Organization Skills</b>
	The user/individual on the job needs to know and understand how to:
	SB1. organize work schedule to meet deadlines
SB2. work constructively and collaboratively with others	
SB3. ask questions for better understanding	
<b>Analytical thinking</b>	
The user/individual on the job needs to know and understand how to:	



SMC/N 3402

Carry out rigging operations on ship

	SB4. apply domain knowledge, observations and data to select course of action to perform tasks
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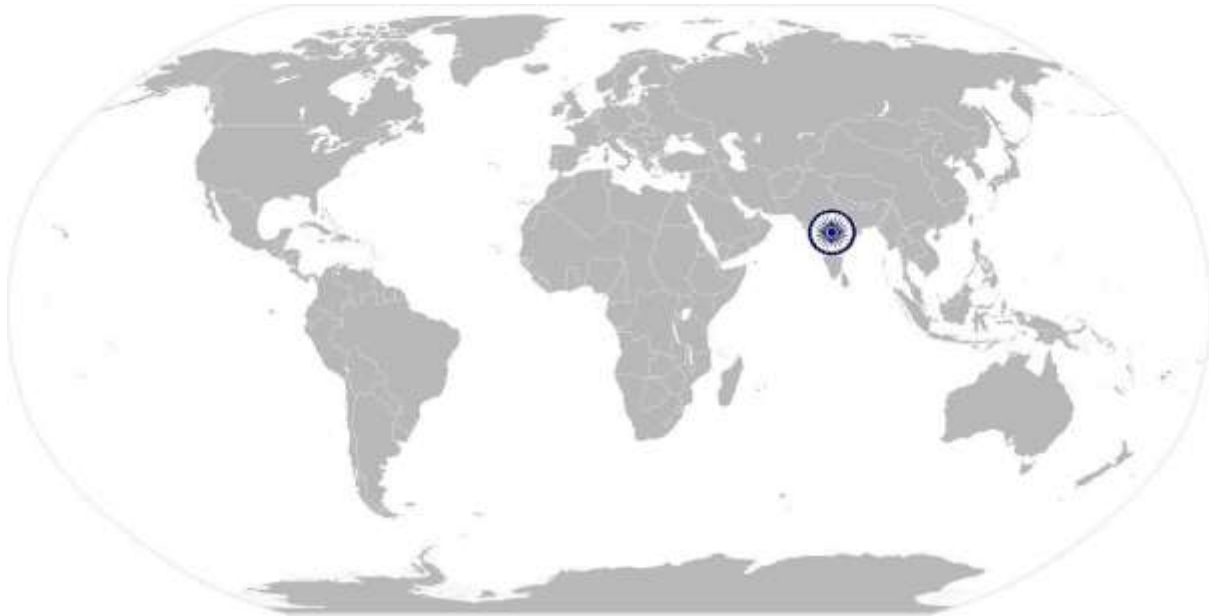


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Carry out rigging operations on ship

## NOS Version Control

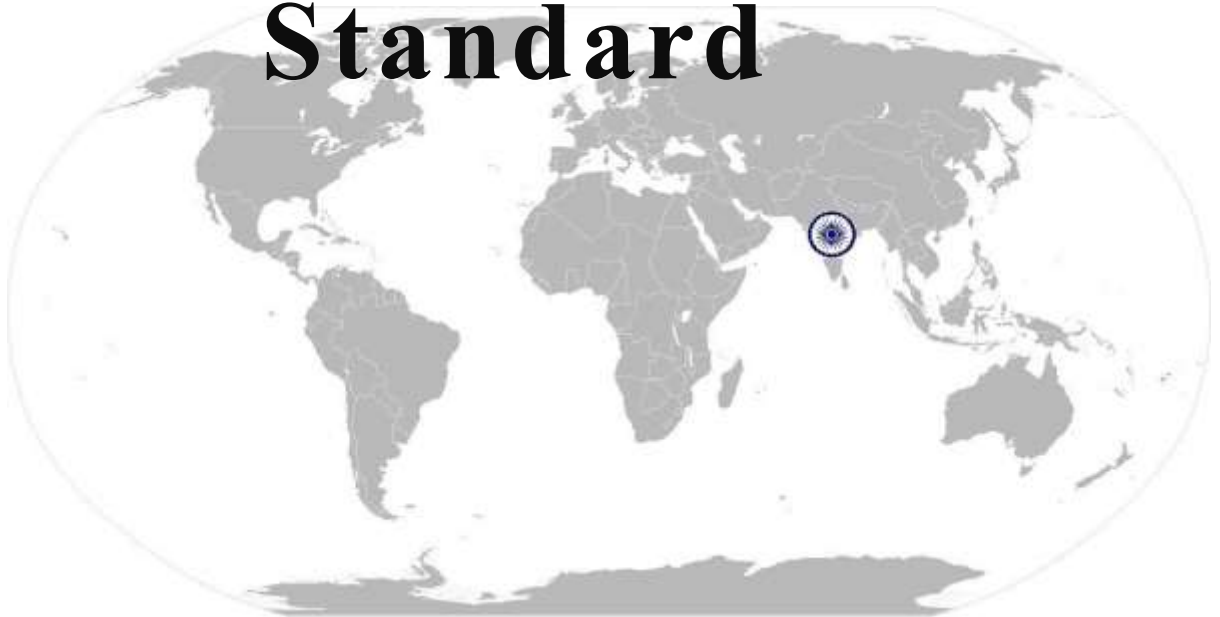
<b>NOS Code</b>	<b>SMC/N 3402</b>		
<b>Credits (NSQF)</b>	<b>TBD</b>	<b>Version number</b>	<b>1.0</b>
<b>Industry</b>	<b>Strategic Manufacturing</b>	<b>Drafted on</b>	<b>05/11/2016</b>
<b>Industry Sub-sector</b>	<b>Ship Building &amp; Ship Repair</b>	<b>Last reviewed on</b>	<b>13/09/2017</b>
<b>Occupation</b>	<b>Ship Building</b>	<b>Next review date</b>	<b>12/09/2020</b>



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# National Occupational Standard



## Overview

This unit covers basic practices for working effectively with others in a collaborative environment, such as team work and cooperation, awareness of team and organisational goals, sharing of information, communicating effectively using appropriate etiquettes and behaviours, and interpersonal relations.





SMC/N 9103

Work effectively in a collaborative environment

National Occupational Standard	<b>Unit Code</b>	SMC/N 9103
	<b>Unit Title (Task)</b>	Work effectively in a collaborative environment
	<b>Description</b>	This unit covers basic practices for working effectively with others in a collaborative environment, such as team work and cooperation, awareness of team and organisational goals, sharing of information, communicating effectively using appropriate etiquettes and behaviours, and interpersonal relations.
	<b>Scope</b>	<p>This unit/task covers the following:</p> <p>Activities covered:</p> <ul style="list-style-type: none"> <li>• Working effectively in a team</li> <li>• Etiquettes and behaviors for:             <ul style="list-style-type: none"> <li>• understanding &amp; sharing information with others to enable efficient delivery of work</li> <li>• communicating with other members and people internal or external to the organization</li> </ul> </li> <li>• Interpersonal relations</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>		
<b>Element</b>	<b>Performance Criteria</b>	
<b>Working effectively in a team</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. define own work and responsibilities</p> <p>PC2. understand work requirements</p> <p>PC3. collaborate and integrate own work with other people's work</p> <p>PC4. consult with others to achieve smooth workflow and help in maximising effectiveness and efficiency in carrying out tasks</p> <p>PC5. discuss with the appropriate authority or person, any problems that arise, which may affect the work and remain unresolved</p> <p>PC6. work in a way that shows respect for others</p> <p>PC7. carry out any commitments made to others</p> <p>PC8. seek ways of improvement of work</p> <p>PC9. learn skills from others that help in performing the work efficiently and share own skills with them, which may benefit their work</p> <p>PC10. work together as a single unit to ensure efficiency in work</p> <p>PC11. ensure proper care is given to a fellow worker in case of an accident</p>	



SMC/N 9103

**Work effectively in a collaborative environment**

<b>Etiquettes and behaviors for sharing information and communicating effectively</b>	To be competent, the user/ individual must be able to: PC12. receive information and instructions accurately from the supervisor and colleagues PC13. seek clarifications where required without disruption of own or others work PC14. communicate with other people clearly and effectively PC15. use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism PC16. display active listening skills while interacting with others at work and receiving feedback
<b>Interpersonal relations</b>	To be competent, the user/ individual must be able to: PC17. develop understanding, goodwill and trust PC18. resolve individual disagreements with the concerned person PC19. follow the organisation's policies and procedures to resolve conflicts
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (Knowledge of the organization and its processes)	The user/individual on the job needs to know and understand: KA1. legislation, standards, policies, and procedures followed in the company relevant to own employment and performance conditions KA2. organisational chart and project schedules KA3. reporting structure, inter-dependent functions, lines and procedures in the work area KA4. effective working relationships with both internal and external the people with which the individual is required to interact
<b>B. Technical Knowledge</b>	The user/individual on the job needs to know and understand: KB1. organizational goals and objectives, individual and team performance KB2. various components of effective communication KB3. importance of tone and pitch in effective communication KB4. value and importance of active listening and assertive communication KB5. importance of avoiding casual expletives and unpleasant terms while communicating in professional circles KB6. how poor communication practices can disturb people and environment KB7. importance of ethics for professional success KB8. importance of communicating clearly and effectively with people face-to-face, by telephone and in writing KB9. importance of effective working relationships and how these contribute towards effective working relationships on a day-to-day basis KB10. importance of discipline for professional success KB11. what constitutes disciplined behavior for a working professional KB12. common reasons for interpersonal conflicts KB13. importance and ways of managing interpersonal conflict effectively KB13. expressing and addressing grievances appropriately and effectively



SMC/N 9103

Work effectively in a collaborative environment

Skills (S)	
<b>A. Core Skills/ Generic Skills</b>	<b>Writing Skills</b>
	The user/ individual on the job needs to know and understand how to: SA1. prepare and maintain documentation
	<b>Reading Skills</b>
	The user/individual on the job needs to know and understand how to: SA2. read vernacular/English language SA3. read and understand manuals, health and safety instructions SA4. read various colour codes, as per standard electrical, mechanical and civil nomenclature
<b>B. Professional Skills</b>	<b>Oral Communication (Listening and Speaking skills)</b>
	The user/individual on the job needs to know and understand how to: SA5. express statements or information clearly so that others can hear and understand SA6. participate in and understand the main points of simple discussions
<b>B. Professional Skills</b>	<b>Team Working Skills</b>
	The user/individual on the job needs to know and understand how to: SB1. work constructively and collaboratively with others SB2. build rapport and cooperative relationships with internal team members and other departments for effective completion of work SB3. resolve conflicts within teams

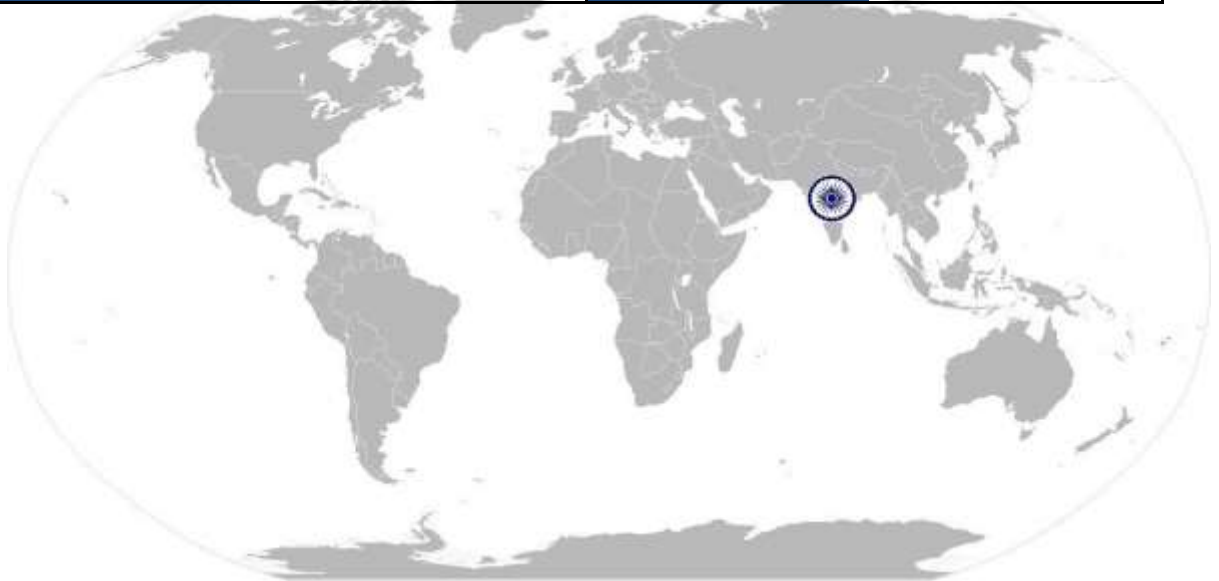


SMC/N 9103

Work effectively in a collaborative environment

## NOS Version Control

NOS Code	SMC/N 9103		
Credits (NSQF)	TBD	Version number	1.0
Industry	Strategic Manufacturing	Drafted on	05/11/2016
Industry Sub-sector	Common	Last reviewed on	13/09/2017
Occupation	Common	Next review date	12/09/2020



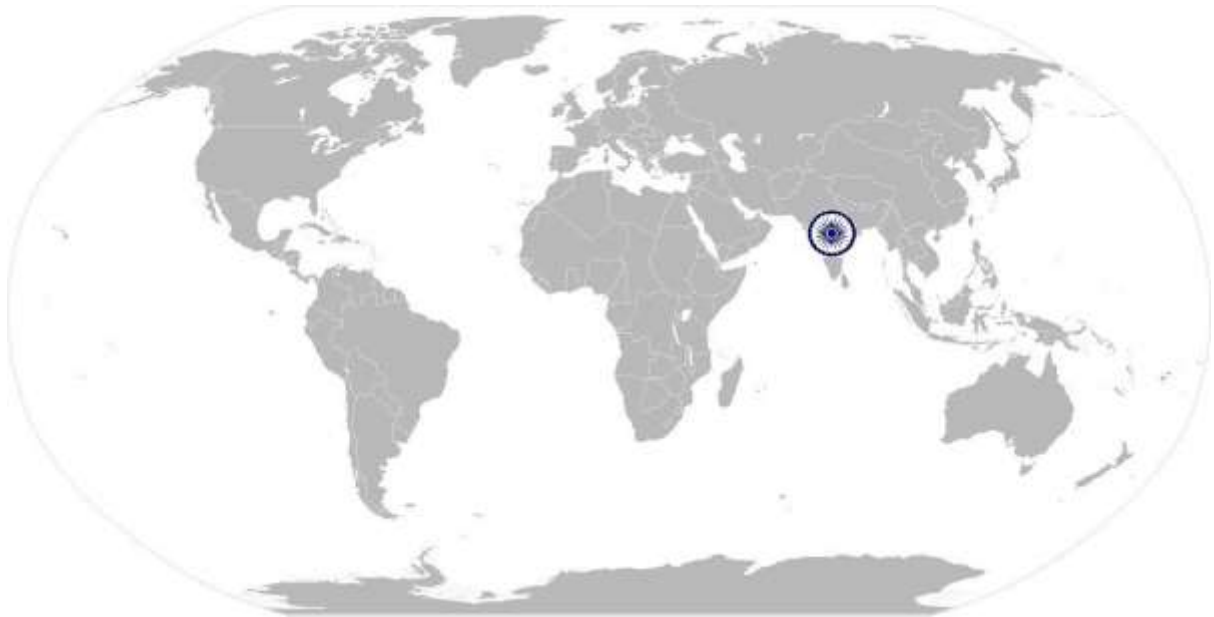
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SMC/N 9104 Maintain a healthy, safe and secure working environment

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# National Occupational Standard



## Overview

This unit covers procedures and practices to be followed to maintain a healthy, safe and secure work environment.



SMC/N 9104 Maintain a healthy, safe and secure working environment

National Occupational Standard

<b>Unit Code</b>	<b>SMC/N 9104</b>
<b>Unit Title (Task)</b>	<b>Maintain a healthy, safe and secure working environment</b>
<b>Description</b>	This unit is about maintaining a healthy, safe and secure work environment. It covers responsibilities towards self, others, assets and the environment.
<b>Scope</b>	<p>This unit/task covers the following:</p> <p>Activities covered:</p> <ul style="list-style-type: none"> <li>• maintain healthy workplace environment</li> <li>• maintain safe and secure environment</li> <li>• fire safety</li> <li>• emergencies, rescue and first-aid procedures</li> </ul>
<b>Performance Criteria(PC) w.r.t. the Scope</b>	
<b>Element</b>	<b>Performance Criteria</b>
<b>Maintain healthy workplace</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC1. maintain cleanliness and hygiene</p> <p>PC2. wear clean and appropriate clothing, footwear and headgear</p> <p>PC3. follow health and hygiene procedures in all the work at all times</p> <p>PC4. identify common health hazards and symptoms for self related to exposure of pyrolysis products, anti – fouling and anti – rust additives, radiant energy, etc</p>
<b>Maintain safe and secure environment</b>	<p>To be competent, the user/individual on the job must be able to:</p> <p>PC5. use protective clothing/equipment for specific tasks &amp; work conditions</p> <p>PC6. keep a lookout for following accommodation related safety aspects</p> <ul style="list-style-type: none"> <li>• all emergency lights operational, color coded and marked with "E"</li> <li>• life jackets, immersion suits &amp; EEBDs correctly stowed &amp; marked</li> <li>• internal communications equipment tested and operating correctly</li> </ul> <p>PC7. keep a lookout for the following machinery spaces related safety aspects</p> <ul style="list-style-type: none"> <li>• all handrails, guard-rails and safety guards correctly fitted and secured to protect against fall</li> <li>• “No Hot Work” stenciled on all fuel and lubricant oil tanks in E/R</li> <li>• all portable fire extinguishers correctly stowed, accessible and inspection dated</li> <li>• all fixed fire-fighting equipment unobstructed and in good condition</li> <li>• shielding of high pressure fuel pipes in place, steam pipes properly insulated</li> <li>• self-closing device on sounding pipes and glass level gauges functional &amp; not tied in open position</li> <li>• approved First Aid supplies readily available, accessible and clearly marked</li> </ul> <p>PC8. keep a lookout for the following deck Area related safety aspects</p>






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	<ul style="list-style-type: none"> <li>• all hand-rails and guard-rails correctly fitted and secure, all ladderways guarded by railings</li> <li>• “Hydraulic Release Units” for life rafts and EPIRB's correctly fitted (incl. weak link) and within expiry date</li> <li>• piping systems on deck are properly clamped</li> <li>• all weather tight hatches closing properly with packing in good condition</li> <li>• provision and easy accessibility of Material Safety Data Sheet (MSDS)</li> </ul> <p>PC9. report any accidents or near accidents quickly and accurately to the proper person</p> <p>PC10. practice emergency procedures correctly</p>
<b>Fire safety</b>	<p>To be competent ,the user/individual on the job must be able to:</p> <p>PC11. use appropriate fire extinguishers like CO2, chemical powder, etc on different types of fire caused by heating metal, spontaneous ignition, etc</p> <p>PC12. ensure all portable fire extinguishers &amp; stowage locations numbered, in place &amp; inspection dated for safety reasons</p>
<b>Emergencies, rescue and first-aid procedures</b>	<p>To be competent ,the user/individual on the job must be able to:</p> <p>PC13. administer appropriate first aid to victims where required eg. in case of bleeding, burns, choking, electric shock, poisoning etc.</p> <p>PC14. demonstrate basic techniques of bandaging</p> <p>PC15. respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments</p> <p>PC16. participate in emergency procedures and move injured people and others during an emergency</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organizational Context</b> (Knowledge of the organization and its processes)	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. responsibilities under the organization’s health, safety and security standards</p> <p>KA2. why it is important to work in a healthy, safe and hygienic way</p> <p>KA3. names of all the people responsible for health and safety in a workplace</p>
<b>B. Technical Knowledge</b>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. general rules on hygiene that one must follow</p> <p>KB2. why correct clothing, footwear, safety masks, respiratory masks, gloves, loose cotton and headgear should be worn at all times</p> <p>KB3. understand the physical signs and reactions related to exposures to such hazards</p> <p>KB4. knowledge of what personal protective equipment is needed for safe entry into and exit from the space</p> <p>KB5. how to dispose waster material in ship</p> <p>KB6. knowledge of methods of prevention of fire like proper and safe disposal of inflammable material</p> <p>KB7. awareness of work going on in surrounding areas</p>





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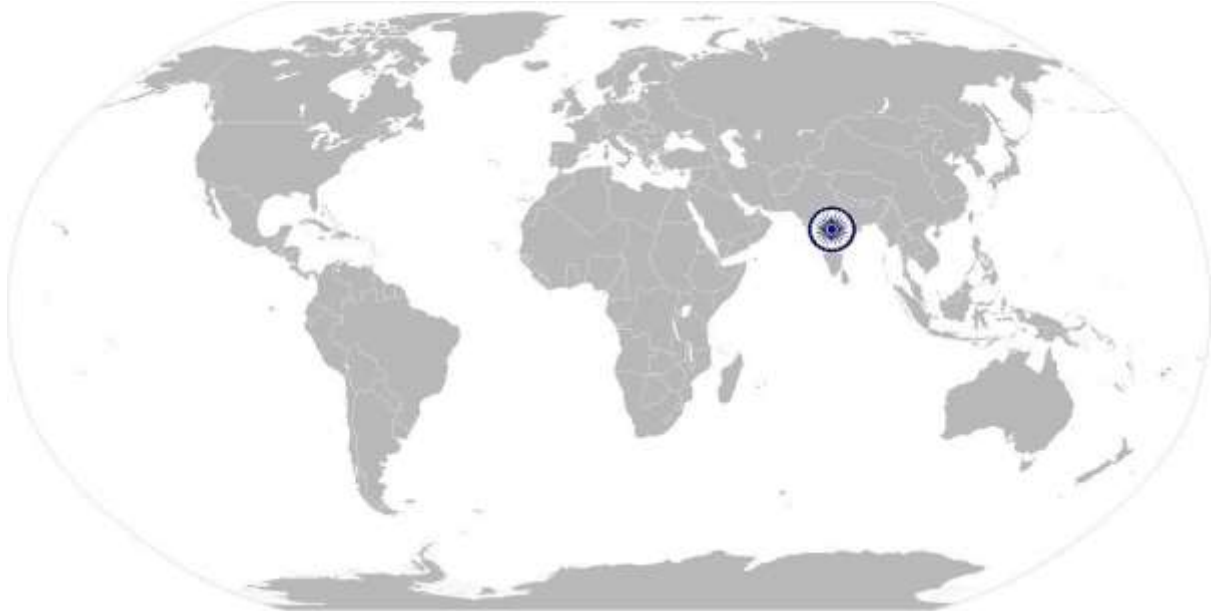
	<p>KB8. how to read indicators like oxygen level indicator          KB9. knowledge of precautions to be taken while sand blasting &amp; painting          KB10. meaning of “hazards” and “risks”          KB11. health and safety hazards commonly present in the work environment and related precautions          KB12. hazards one can deal with oneself and hazards that must be reported to someone else          KB13. how to warn other people about hazards and why this is important          KB14. precautionary activities to minimize the risk of fire and prevent fire accidents          KB15. where to find fire alarms and how to set them off          KB16. importance of using protective clothing/equipment while working          KB17. various types of safety signs and what they mean          KB18. appropriate basic first aid treatment relevant to the condition          KB19. content of written accident report</p>
<b>Skills (S)</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Writing Skills</b>
	<p>SA1. The user/ individual on the job needs to know and understand how to:          SA2. prepare and maintain documentation </p>
	<b>Reading Skills</b>
	<p>SA3. The user/individual on the job needs to know and understand how to:          SA4. read vernacular/english language          SA5. read various colour codes, as per standard electrical, mechanical and civil nomenclature</p>
	<b>Oral Communication (Listening and Speaking skills)</b>
<p>The user/individual on the job needs to know and understand how to:          SA6. express statements or information clearly so that others can hear and understand          SA7. participate in and understand the main points of simple discussions          SA8. communicate with employees</p>	
<b>B. Professional Skills</b>	<b>Teamwork</b>
	<p>The user/individual on the job needs to know and understand how to:          SB1. work constructively and collaboratively with others          SB2. ask questions for better understanding</p>
	<b>Analytical thinking</b>
<p>The user/individual on the job needs to know and understand how to:          SB3. apply domain knowledge, observations and data to select course of action to perform tasks</p>	



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## NOS Version Control

NOS Code	SMC/N 9104		
Credits (NSQF)	TBD	Version number	1.0
Industry	Strategic Manufacturing	Drafted on	05/11/2016
Industry Sub-sector	Common	Last reviewed on	13/09/2017
Occupation	Common	Next review date	12/09/2020



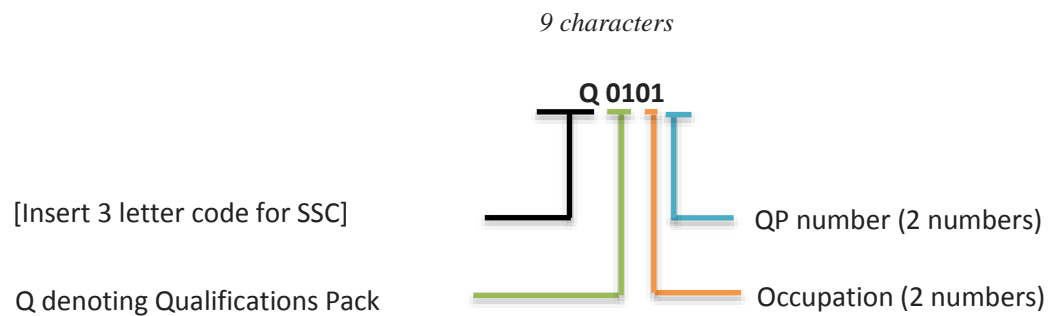
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## Annexure

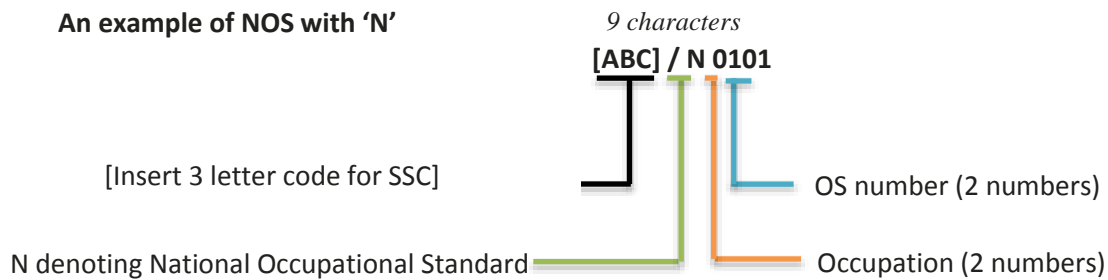
### Nomenclature for QP and NOS

#### Qualifications Pack



#### Occupational Standard

##### An example of NOS with 'N'



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The following acronyms/codes have been used in the nomenclature above:

Sub sectors	Range of occupation numbers
Defence Equipment - Land & Naval Systems	01-30
Ship building & Ship breaking	31-60
Electronic Security Equipment Manufacturing	61-75
Safety & Fire Fighting Equipment	76-90
Common	91-94

Sequence	Description	Example
Three letters	Industry name	SMC
Slash	/	/
Next letter	Whether QP or NOS	Q or N
Next two numbers	Occupation code	1
Next two numbers	OS number	1

Note :

- The range of occupation numbers have been decided based on the number of existing and future occupations in a segment



**CRITERIA FOR ASSESSMENT OF TRAINEES**

**Job Role:** Marine Fitter and Rigger

**Qualification Pack:** SMC/Q 3401

**Sector Skill Council:** Strategic Manufacturing Sector Skill Council

**Guidelines for Assessment**

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, as well as the selected elective NOS/set of NOS.
- OR**
3. Assessment will be conducted for all compulsory NOS, as well as the selected optional 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 criteria
  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 *unsuccessful completion*, the trainee may seek reassessment on the Qualification Pack

Compulsory NOS Total Marks: 400				Marks Allocation	
Assessment outcomes	Assessment criteria for outcomes	Total Marks	Out of	Theory	Skills/ Practical
<b>SMC/N 3401</b> Carry out fitting operations	PC1. align and position parts on metal, working from blueprints or templates and using scribe and hand tools like jacks, turnbuckles, clips, wedges, and mauls	<b>100</b>	6	2	4
	PC2. locate and mark reference lines such as center and line of center of gravity on all 3 axis		6	2	4
	PC3. install temporary fasteners to hold parts, in place for welding or riveting		6	2	4



Compulsory NOS Total Marks: 400				Marks Allocation	
Assessment outcomes	Assessment criteria for outcomes	Total Marks	Out of	Theory	Skills/ Practical
	PC4. install packing, gaskets, liners, and structural accessories and members, such as doors, hatches, brackets, and clips		6	2	4
	PC5. prepare mold and templates for fabrication of nonstandard parts		6	2	4
	PC6. roll, bend, flange, cut, and shape plates, beams, and other heavy metal parts, using shop machinery, such as plate rolls, presses, bending brakes, and joggle machines		6	2	4
	PC7. assemble coupling, gears, flanges, pulleys and other similar nature of associated work		7	2	5
	PC8. install different types of valves on board the vessel, structures, towers etc.		7	2	5
	PC9. align various types of equipment, pump, gas turbines, weaponry equipment, radars etc.		6	2	4
	PC10. set shift lines, rubber lines, derving of center lines for shafts, blanks for installation or machining purposes.		6	2	4
	PC11. make jigs, fixtures, puller etc. as required for use in installation/repairs to mechanical systems, equipment, and electrical motors etc. as the case may be for accomplishing the given task.		7	2	5



Compulsory NOS Total Marks: 400				Marks Allocation	
Assessment outcomes	Assessment criteria for outcomes	Total Marks	Out of	Theory	Skills/ Practical
	PC12. install weapon, seating including minor fabrications as required.		8	2	6
	PC13. install boring/planning etc on board ship, aligning, levelling with master datum/other reference on board ships. Machining of seats, such as Gun mounting, Main Engine, Capstan, tool grinding, tool setting. achieving final dimensions as per drawing./specifications.		8	3	5
	PC14. install, grinding of master Datum on slipway/D.Dock alignment of guns, antennas etc. with respect to distant fixed objects (like star)		8	3	5
	PC15. align guns and antennae as per the blueprint		7	2	5
	<b>Total</b>		<b>100</b>	<b>32</b>	<b>68</b>
<b>SMC/N 3402</b> Carry out rigging operations	PC1. manipulate rigging lines, hoists and pull gear to support materials such as heavy equipment and ships	<b>100</b>	9	3	6
	PC2. attach pulleys and blocks to fixed overhead structures such as beams, ceilings, and gin pole booms, using bolts and clamps		8	2	6
	PC3. control movement of heavy equipment through narrow openings in ship deck or dry dock or confined spaces, using chain falls, gin poles, gallows frames, and other equipment		8	2	6





Compulsory NOS Total Marks: 400				Marks Allocation	
Assessment outcomes	Assessment criteria for outcomes	Total Marks	Out of	Theory	Skills/ Practical
	PC4. tilt, dip, and turn suspended loads to maneuver over, under, or around obstacles, using multi-point suspension techniques		8	3	5
	PC5. install ground rigging for yarding lines, attaching chokers to logs and to the lines		9	3	6
	PC6. use a fid, wooden spike to open the threads of fibre ropes in the process of splicing the rope		8	3	5
	PC7. attach loads to rigging to provide support or prepare them for moving, using hand and power tools.		8	2	6
	PC8. assemble and disassemble sheaves, blocks, shackles, and boom		9	3	6
	PC9. pull and renew all of the working and standing rigging.		8	3	5
	PC10. operate ship's equipment such as mooring winches, ship's cranes, and cargo gear to accomplish specified repairs		8	2	6
	PC11. tests cargo gear, which includes setting different angles and weight testing of all types		9	3	6
	PC12. dismantle and store rigging equipment after use		8	3	5
		<b>Total</b>	<b>100</b>	<b>32</b>	<b>68</b>



Compulsory NOS Total Marks: 400				Marks Allocation	
Assessment outcomes	Assessment criteria for outcomes	Total Marks	Out of	Theory	Skills/ Practical
<b>SMC/N 9103</b> Work effectively in a collaborative environment	PC1. define own work and responsibilities	<b>100</b>	6	2	4
	PC2. understand work requirements and assigned targets		6	2	4
	PC3. collaborate and integrate own work with other people's work		6	2	4
	PC4. consult with others to achieve smooth workflow and help in maximising effectiveness and efficiency in carrying out tasks		6	2	4
	PC5. discuss with the appropriate authority or person, any problems that arise, which may affect the work and remain unresolved		6	2	4
	PC6. work in a way that shows respect for others		5	2	3
	PC7. carry out any commitments made to others		5	2	3
	PC8. seek ways of improvement of work		5	2	3
	PC9. learn skills from others that help in performing the work efficiently and share own skills with them, which may benefit their work		5	2	3
	PC10. work together as a single unit to ensure efficiency in work		5	2	3



Compulsory NOS Total Marks: 400				Marks Allocation	
Assessment outcomes	Assessment criteria for outcomes	Total Marks	Out of	Theory	Skills/ Practical
	PC11. ensure proper care is given to a fellow worker in case of an accident		5	2	3
	PC12. receive information and instructions accurately from the supervisor and colleagues		5	2	3
	PC13. seek clarifications where required without disruption of own or others work		5	1	4
	PC14. communicate with other people clearly and effectively		5	1	4
	PC15. use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism		5	1	4
	PC16. display active listening skills while interacting with others at work and receiving feedback		5	1	4
	PC17. develop understanding, goodwill and trust with team members		5	1	4
	PC18. resolve individual disagreements with the concerned person		5	1	4
	PC19. follow the organisation's policies and procedures to resolve conflicts		5	2	3
		<b>Total</b>	<b>100</b>	<b>32</b>	<b>68</b>



Compulsory NOS Total Marks: 400				Marks Allocation	
Assessment outcomes	Assessment criteria for outcomes	Total Marks	Out of	Theory	Skills/ Practical
<b>SMC/N 9104</b> Maintain a healthy, safe and secure working environment	PC1. maintain cleanliness and hygiene	<b>100</b>	7	3	4
	PC2. wear clean clothing		7	3	4
	PC3. follow health procedures		7	3	4
	PC4. identify common health hazards		7	3	4
	PC5. use protective clothing/equipment		6	2	4
	PC6. keep a lookout for accommodation for safety		6	2	4
	PC7. keep a lookout for the Machinery		6	2	4
	PC8. keep a lookout for the Deck		6	2	4
	PC9. report any accidents or near accidents quickly and accurately to the proper person		6	2	4
	PC10. practice emergency procedures		6	2	4
	PC11. use appropriate fire extinguishers on different types of fires correctly causes of fires		6	2	4
	PC12. ensure all portable fire extinguishers & stowage locations numbered, in place & inspection dated and for safety reasons, fire station not locked but only sealed		6	2	4
	PC13. respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments		6	2	4



Compulsory NOS Total Marks: 400				Marks Allocation	
Assessment outcomes	Assessment criteria for outcomes	Total Marks	Out of	Theory	Skills/ Practical
	PC14. participate in emergency procedures and move injured people and others in correct method during an emergency		6	2	4
	PC15. administer appropriate first aid to victims where required eg. in case of bleeding, burns, choking, electric shock, poisoning etc.		6	2	4
	PC16. demonstrate basic techniques of bandaging		6	2	4
		<b>Total</b>	<b>100</b>	<b>36</b>	<b>64</b>