

SKILLS FRAMEWORK FOR MARINE AND OFFSHORE SKILLS MAP - PRODUCTION ENGINEER					
Sector	Marine and Offshore				
Track	Production Engineering				
Occupation	Marine Production Engineer				
Job Role	Production Engineer				
Job Role Description	<p>The Production Engineer oversees the steelwork processes in shipyards, as well as the manufacture of components and equipment on-site. He/She ensures that the processes being followed are in line with product designs, and that the relevant production methods are being applied to the manufacturing tasks and processes.</p> <p>His duties entail working outdoors on the shop floor, within dry docks and on-board ships. He must possess a level of physical fitness appropriate to the job requirements, and is also required to work in shifts based on operation schedules. He should be adaptable to working under different job demands to handle new build projects that require attention to detail and repair jobs which emphasise quick response and turnaround.</p> <p>In the marine equipment sub-sector, the Production Engineer also serves as a product specialist who assists in testing, carries out preventive maintenance schedules and overhauls machinery and lends support to the project management team for aftersales services. He is responsible for component preservation over the working life of products.</p>				
Critical Work Functions and Key Tasks	Critical Work Functions	Key Tasks	Performance Expectations (For legislated / regulated occupations)		
				<p>In accordance with:</p> <ul style="list-style-type: none"> • Classification Society regulations; • Workplace Safety and Health (WSH) Act 	
	Manufacture marine components	Implement manufacturing workflows and processes for projects			<p>In accordance with:</p> <ul style="list-style-type: none"> • Classification Society regulations; • Workplace Safety and Health (WSH) Act
		Develop in-process defect control and testing plans			
		Liaise with procurement department to carry out quality checks on received materials in line with quality management system (QMS) procedures			
		Coordinate on-site manufacturing processes to meet project schedules			
		Advise production workers on measurement scales and requirements of tolerances in projects			
		Oversee use of new technologies in production			
		Prepare production status reports			
		Enforce workplace safety and health (WSH) compliance during manufacturing processes			
	Assemble ships, rigs and marine equipment	Establish assembly job requirements and sequence of operations			<p>In accordance with:</p> <ul style="list-style-type: none"> • Classification Society regulations; • Workplace Safety and Health (WSH) Act
		Coordinate transfer of sub-assemblies and/or work pieces across work stations			
		Plan appropriate methods and schedules for installation of specific machinery, equipment and/or systems			
		Carry out vibration and thermal analysis on test beds to evaluate performance in operating conditions			
		Select suitable non-destructive testing (NDT) methods for post-assembly testing			
		Review current assembly activities and present ideas for work improvement			
	Plan surface preparation and protection	Develop surface preparation and protection plans			<p>In accordance with:</p> <ul style="list-style-type: none"> • Classification Society regulations; • Workplace Safety and Health (WSH) Act
Conduct feasibility studies of recommended surface preparation and protection application techniques					
Plan location, climate control and other factors for surface preparation and protection					
Execute launching operations	Ensure alignment of guides, rollers, airbags and other launching devices according to launch plans	<p>In accordance with:</p> <ul style="list-style-type: none"> • Classification Society regulations; • Workplace Safety and Health (WSH) Act 			
	Oversee disconnection of ships and rigs from shore-based auxiliaries prior to launch				
	Oversee loading of underwater marine components and equipment to specified capacity for stability upon launching				
	Enforce adherence to WSH and quality assurance and quality control (QA/QC) policies				
	Coordinate reinstatement of slipways after launch				
	Prepare berths for new production operation after launch				

	Coordinate commissioning	Conduct pre-commissioning inspections		
		Coordinate survey inspections by owners, classification societies and other stakeholders		
		Coordinate rectification of defects and issues found		
		Assist in handover of operational equipment to approved personnel		
	Develop prototypes	Select materials and production processes to be used for prototype production		
		Generate prototypes based on technical drawings and specifications		
		Chart manufacturing processes for prototypes		
	Coordinate maintenance and repair of equipment	Schedule preventive maintenance schedules for marine equipment		
		Diagnose machinery faults and defects for repairs and servicing		
Document maintenance reports containing servicing and repair information				
Skills & Competencies	Technical Skills and Competencies		Generic Skills and Competencies (Top 5)	
	Additive Manufacturing	Level 4	Teamwork	Intermediate
	Big Data Analytics	Level 4	Communication	Intermediate
	Business Presentation Delivery	Level 3	Problem Solving	Intermediate
	Commissioning Coordination	Level 3	Interpersonal Skills	Intermediate
	Component Assembly	Level 4	Transdisciplinary Thinking	Intermediate
	Computer Numeric Control Operations	Level 4		
	Continuous Quality Improvement	Level 3		
	Electrical Testing	Level 3		
	Emergency Response Management	Level 2		
	Incident and Accident Investigation	Level 2		
	Innovation Management	Level 3		
	Installation Planning and Execution	Level 4		
	Instrumentation and Control System Design	Level 4		
	Interface Management	Level 4		
	Laser and Optics Application	Level 4		
	Launch Planning and Management	Level 4		
	Manufacturing Workflow Management	Level 4		
	Marine Design Customisation	Level 2		
	Marine Engineering Calculations	Level 3		
	Marine Equipment and System Maintenance	Level 4		
	Marine Equipment Material Selection	Level 3		
	Materials Inspection	Level 3		
	Naval Architecture Calculations	Level 4		
	Non-destructive Testing	Level 4		
	Procurement Coordination and Policy Development	Level 3		
	Programme Management	Level 4		
	Quality System Management	Level 3		
	Robotics and Automation Application	Level 4		
	Scaffolding	Level 4		
	Service Excellence	Level 3		
	Stakeholder Management	Level 3		
	Structural Testing	Level 3		
	System Architecture Design	Level 4		
System Configuration Management	Level 4			
Systems Integration	Level 4			
Technical Inspection	Level 3			
Technical Writing	Level 3			
Value Engineering	Level 4			
WSH Culture Development	Level 2			
WSH Performance Management	Level 2			
Programme Listing	For a list of Training Programmes available for the Marine and Offshore sector, please visit: www.skillsfuture.sg/skills-framework/marineandoffshore			

The information contained in this document serves as a guide.