



# Skills Framework for Marine and Offshore

A Guide to Occupations and Skills

An initiative of

**SKILLS***future*

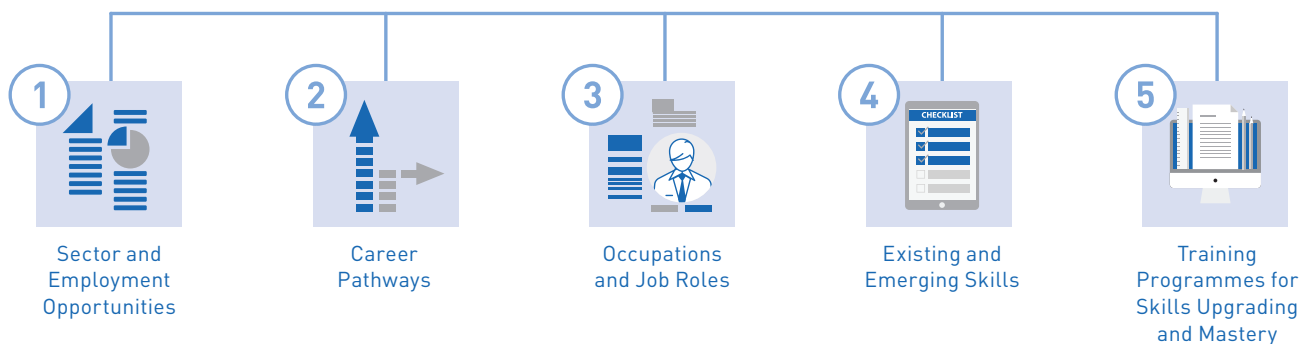
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# About the Skills Framework

The Skills Framework is a SkillsFuture initiative developed for the Singapore workforce to promote skills mastery and lifelong learning. Jointly developed by SkillsFuture Singapore, Workforce Singapore, the Singapore Economic Development Board and SPRING Singapore, together with employers, industry associations, education and training providers and unions, the Skills Framework for Marine and Offshore provides useful information on:



With the Skills Framework, individuals are equipped to make informed decisions about career choices, as well as take responsibility for skills upgrading and career planning.



Assess Career Interests



Prepare for Desired Jobs



Find Avenues to Close Skills Gap



Renew, Upgrade and Deepen Skills

- Discover employment opportunities
- Understand career pathways
- Recognise personal attributes required

- Understand skills and competencies required

- Identify relevant training programmes to equip oneself with the required skills and competencies
- Participate in on-the-job training opportunities provided by companies

- Plan for career development/transition
- Recognise skills and competencies required for the intended job role
- Identify training programmes to upgrade and deepen skills

# Singapore's Marine and Offshore Sector

Singapore is one of the top players in the global market for oil and gas drilling units and offshore support vessels. From humble beginnings as regional ship repair centres, our shipyards have become globally renowned names in the industry.

Today, Singapore is one of the largest manufacturers of high-specification rigs, and commands more than 50 per cent of the world market. Singapore also has close to 70 per cent of the global market for the conversion of floating production storage and offloading units.

Output  
S\$13.1B

Value Added  
S\$3.8B



Marine and offshore sector contributes between **1 to 2%** of Singapore's GDP



Accounts for more than **100,000 jobs**



Singapore hosts **more than 3,000 established marine and offshore companies**

While the sector outlook remains challenging in the near future, companies in Singapore are committed to exploring opportunities.

In the current market lull, companies in Singapore's marine and offshore sector have taken the opportunity to tap into new markets for growth and also prepare themselves for the upturn. Companies have intensified their efforts to build on existing capabilities to serve the alternative fuels market and the growing opportunities in renewables as well. Other than exploring opportunities in adjacent and new segments, companies are also committed to raising their productivity and exploring advanced manufacturing technologies to improve their competitiveness.



# Marine and Offshore: Charting Growth and Opportunity



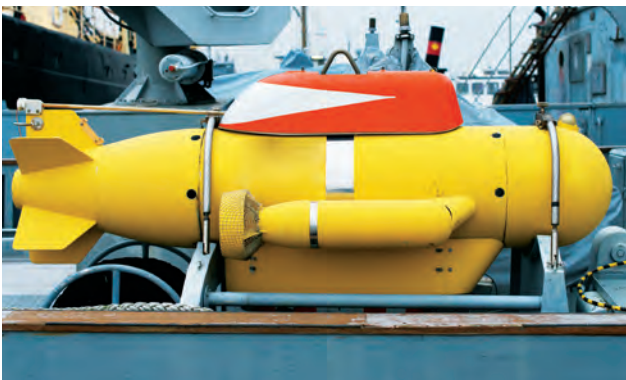
## **Liquefied Natural Gas (LNG) and Other Alternative Fuels**

Global demand and spending on LNG is expected to increase, driven by global transition to a lower carbon economy, advancement in technology for gas and increased alternative uses of LNG.



## **Renewable Solutions**

With the increased global interest in sustainable energy, the industry can leverage their offshore engineering capabilities to venture into areas such as project development, support structure, and logistics and installation for offshore wind and other renewable solutions.



## **Next-generation Products**

Investment in research and development to venture into future offshore systems, autonomous vessels and marine robotics.



## **Digital Products and Services**

Driven by the need for greater productivity, there is interest in smarter products, solutions and adoption of technology in production processes such as robotics and automation.

# Desired Attributes and Skills in Demand

A career in the marine and offshore sector provides diverse opportunities to individuals seeking rewarding and enriching careers. If you enjoy the challenge of working in a highly dynamic and technologically advanced sector, delight in formulating engineering solutions, and are keen in developing deep technical expertise, the marine and offshore sector offers opportunities to develop your passion and grow your career.

As the sector continues to transform, these are some examples of skills in demand now and in the future. Those seeking successful careers in the marine and offshore sector can set themselves apart by developing these attributes and acquiring these skills in demand.

## DESIRED ATTRIBUTES



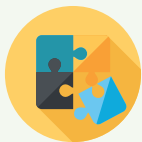
### **Safety Conscious**

Recognises the implicit responsibility for ensuring safe work practices and conditions



### **Analytical**

Enjoys analysing things from all angles to solve problems



### **Teammaker**

Understands that each person is part of a larger team working together to bring about success at the workplace



### **Meticulous**

Pays attention to details and accuracy



## SKILLS IN DEMAND



### **Marine Engineering Skills**

Design and build ships and rigs of varying specifications and functions



### **Commissioning Coordination Skills**

Conduct performance examinations to transit ships and rigs into operation



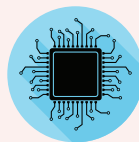
### **Safety and Risk Management in Engineering Skills**

Analyse system safety and qualitative process



### **Rapid Prototyping Skills**

Build prototypes and products using 3-dimensional rapid prototyping and manufacturing technology



### **Systems Engineering Skills**

Integrate computerised systems and equipment onboard ships and rigs to communicate through data transmission



### **Green Shipping Skills**

Enable ecological friendliness in ship designs and production processes through alternative fuels, enhancing fuel efficiency and reducing waste

# Take Your Career Further

A skilled workforce is essential in sustaining Singapore's global competitiveness as a leading marine and offshore hub. There is a wide range of initiatives and schemes available to both individuals and employers to promote skills acquisition and upgrading.



## FOR INDIVIDUALS

### Education and Career Guidance (ECG)

Education and Career Guidance (ECG) is about equipping students, as well as adults, with the necessary knowledge, skills and values to make informed education and career decisions. With the help of trained ECG counsellors, students will be exposed to a wide range of education and career options, and given the opportunities to make informed post-secondary education choices. Singaporeans in the workforce can benefit from career coaching, employability skills workshops, networking sessions through the Workforce Singapore (WSG) Career Centres and the Employment and Employability Institute (e2i).

### Enhanced Internships

The Enhanced Internships are designed to provide students with a more meaningful internship experience through more structured learning and support at the workplace. Participating companies will work closely with ITE and polytechnics to deliver a positive and meaningful internship experience. The features of the Enhanced Internships include baseline allowance of \$600 a month, structured training plan with clear learning outcomes, assigned mentors to provide guidance to interns and rotation to at least two departments per internship period.

### SkillsFuture Earn and Learn Programme

A work-learn programme for fresh ITE and polytechnic graduates so that they can be placed with an employer and have opportunities to learn through structured on-the-job and facilitated classroom learning. Those who successfully complete this programme will receive industry-recognised qualifications and a sign-on incentive.

### SkillsFuture Fellowships

The SkillsFuture Fellowships are awards that recognise Singaporeans who have achieved a significant depth in their skills and help them continue their pursuit of skills mastery. The Fellowship provides a cash award of \$10,000 to recipients.

### SkillsFuture Mid-Career Enhanced Subsidy

Singaporeans aged 40 and above will receive higher subsidies of up to 90% of course fees for over 8,000 SkillsFuture Singapore supported courses and at least 90% of programme costs for Ministry of Education (MOE)-subsidised full-time and part-time courses.



## FOR INDIVIDUALS

### **SkillsFuture Qualification Award**

This award encourages Singapore Citizens to attain full Workforce Skills Qualifications, which equip them with comprehensive and robust sets of skills to perform their jobs competently, pursue career progression and explore new job opportunities.

### **Young Talent Programme**

Students from ITE, polytechnics, and universities can embark on overseas internships to take on work and study programmes that will prepare them for international assignments in their future careers.

### **SkillsFuture Study Award**

A monetary award of \$5,000 for adults in their early and mid-career to develop and deepen their skills in future growth clusters.





## FOR INDIVIDUALS AND EMPLOYERS

### Career Support Programme

Singapore Citizens Professionals, Managers, Executives and Technicians (PMETs) who are made redundant and/or unemployed and actively looking for jobs or six months or more can take on new jobs paying \$3,600 or more.

### Professional Conversion Programme

PCPs are career conversion programmes targeted at Professionals, Managers, Executives and Technicians (PMETs) to undergo skills conversion and move into new occupations that have good prospects and opportunities for progression.

### MySkillsFuture

MySkillsFuture is a one-stop portal that enables Singaporeans to chart their own career and lifelong learning pathways through access to industry information and tools to search for training programmes to broaden and deepen skills. It incorporates the national Jobs Bank, presenting an integrated platform for users to access resources related to jobs, education and skills training.

### P-Max

Singaporeans or Singapore Permanent Residents can gain access to career opportunities with small and medium-sized enterprises (SMEs), and benefit from workshops and progressive HR practices designed to help them adapt to the working environment in an SME.

### SkillsFuture Leadership Development Initiative

Under this initiative, there will be increased collaborations with companies to design and enhance career opportunities for high-potential talents. It aims to support aspiring Singaporeans in developing the necessary capabilities to take on increased roles and responsibilities in their respective companies.

### Work Trial

Jobseekers can gain experience through a short-term work trial and be offered employment to receive incentives.

#### Initiatives and Schemes by:

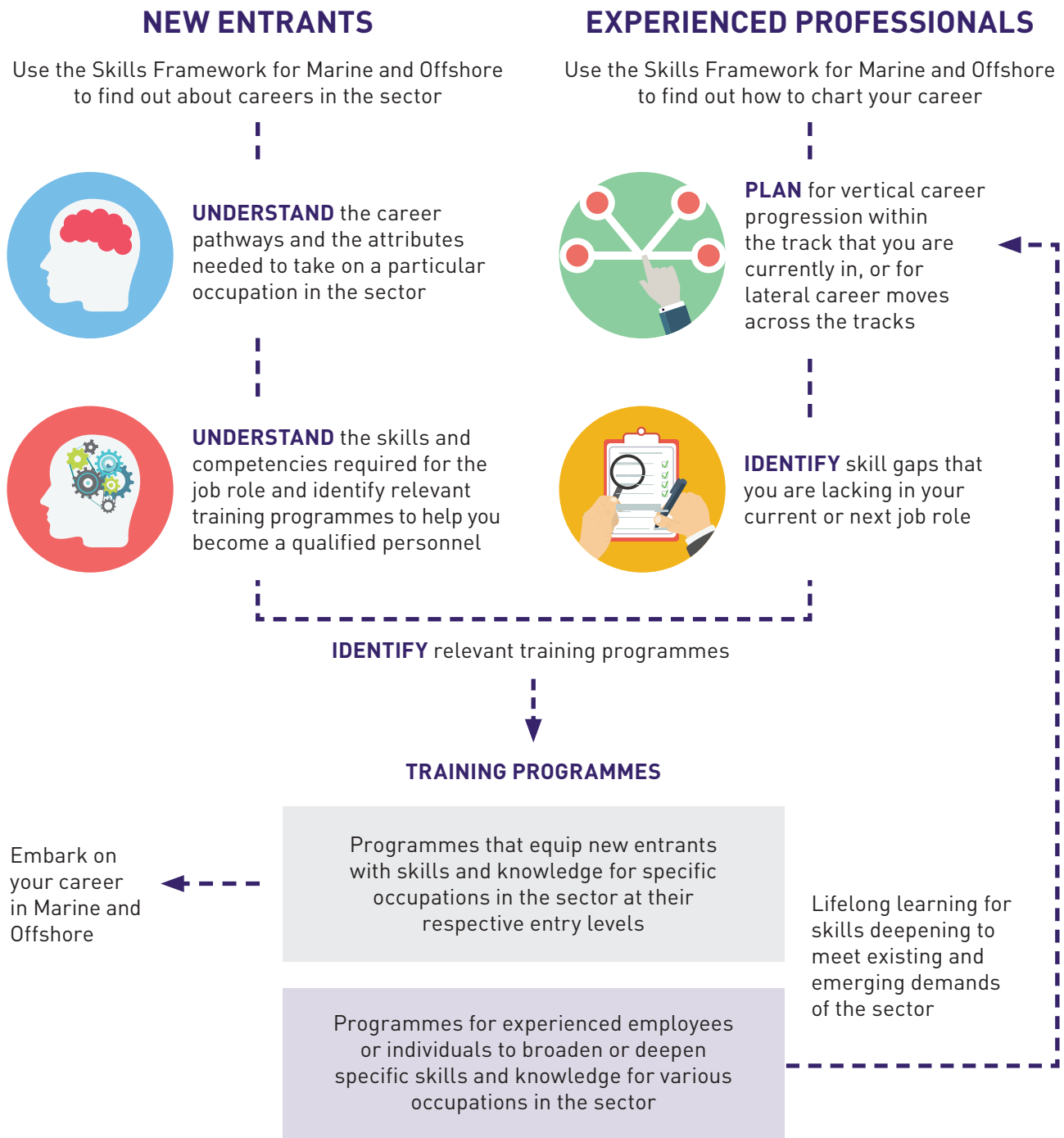
 SkillsFuture Singapore

 Workforce Singapore

For more information on the initiatives and schemes, please visit  
[skillsfuture.sg](https://skillsfuture.sg) | [wsg.gov.sg](https://wsg.gov.sg) | [edb.gov.sg](https://edb.gov.sg) | [spring.gov.sg](https://spring.gov.sg)

# Realise Your Potential - Take the Next Step Forward

Now that you have some idea of what a career in the marine and offshore sector can offer and the available government initiatives and schemes to support your career goals, you are ready to take the next step!



For a list of training programmes available for the marine and offshore sector, please visit: [skillsfuture.sg/skills-framework/marineandoffshore](https://skillsfuture.sg/skills-framework/marineandoffshore)

# Skills Maps

## Design and Engineering



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## Manufacturing, Building, Maintenance, Repair, Overhaul and Installation



Technician	22
Supervisor/Chargehand/Foreman	24
Master Trade Specialist/Senior Trade Specialist/ Trade Specialist	27
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## Procurement and Aftersales



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# Skills Maps

## Project Management



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## Workplace Safety and Health



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## General Management



Operations Manager	76
Deputy General Manager/Chief Operating Officer	78
Chief Executive Officer/General Manager/President	81





## Design Engineer

Lim Seop Ling  
Sembcorp Marine Ltd

“Different skills are required for different roles. You will be surprised at the wide range of jobs available in the marine and offshore sector.”

### DESIGNED FOR SUCCESS

Lim Seop Ling holds the success of a project in her hands. As a Design Engineer at Sembcorp Marine Ltd, she is responsible for the safety and architectural designs of her projects such as floating production units. She also liaises with owners, vendors and production teams on technical issues. She witnesses her designs come to fruition when they are built and approved for operations.

The game-changing developments Seop Ling has seen over the years in the marine and offshore sector is what drives her. “At Sembcorp Marine, I have witnessed the transition from repair and conversion work to building new jack-ups, semi-submersible structures and drill ships. We are now undertaking turnkey projects for floating production, storage and offloading vessels (FPSO), as well as offshore gas production and power plants. With these developments, you need to be willing to accept new challenges,” she says.

Seop Ling believes there are many opportunities available in the marine and offshore sector. “Working in the sector does not only involve being out on offshore rigs. It also includes conceptual design, construction, operation, and de-commissioning structures that are no longer in operation. Different skills are required for different roles. You will be surprised at the wide range of jobs available in this field,” she says. Seop Ling believes the Skills Framework for Marine and Offshore sector can provide new entrants with a clearer overview of what this sector is about, as well as the detailed skills needed for different roles.

An example of a memorable project she worked on was the FPSO *Pioneiro de Libra*, a vessel converted from an existing shuttle tanker. “We were new to designing FPSOs and faced a steep learning curve at the start. With the good teamwork between Sembcorp Marine, the owner and the engineering consultant, we achieved our goals together,” Seop Ling recalls proudly.

These moments of success show her that hard work pays off. Seop Ling looks forward to making more contributions to the sector and is working towards being recognised as an expert in design engineering in the future. With her passion and the support of her company, she is committed to realising her fullest potential.



# Assistant Design Engineer

## JOB ROLE DESCRIPTION

The Assistant Design Engineer is responsible for supporting design and engineering activities under instructions from more experienced engineers. He/She assists project teams by carrying out routine tasks in different aspects of product design; research, conceptualisation, drawing, testing and publication.

The Assistant Design Engineer should possess a meticulous nature to analyse various factors and calculations involved in ship and rig design. His duties may require working outdoors on the shop floor, within dry docks to support production work and alignment to design specifications. He must possess a level of physical fitness appropriate to the job requirements.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Develop technical drawings and design plans	<ul style="list-style-type: none"> <li>• Source design data from databases and/or existing designs</li> <li>• Execute system design calculations</li> <li>• Execute marine engineering calculations for dimensioning in technical drawings and support product and system designs</li> <li>• Translate hand sketches and tracing drawings into technical drawings</li> <li>• Modify sections of drawings and ensure compliance with international standards</li> </ul>	In accordance with: <ul style="list-style-type: none"> <li>• Classification Society regulations;</li> <li>• Workplace Safety and Health (WSH) Act</li> </ul>
	Employ advanced analytics and big data	<ul style="list-style-type: none"> <li>• Filter meaningless and unnecessary data to enhance data quality</li> <li>• Apply analytical techniques to process data</li> <li>• Interpret big data through analytical and visualisation techniques</li> <li>• Contribute to creating technical and business reports with analytical findings</li> </ul>	
	Drive innovation and research	<ul style="list-style-type: none"> <li>• Conduct research for green initiatives and other product innovations</li> </ul>	

# Assistant Design Engineer

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Big Data Analytics	Level 3	Digital Literacy	Intermediate
	Ballast System Design	Level 3	Problem Solving	Basic
	Cargo System Design	Level 3	Communication	Basic
	Control System Programming	Level 2	Service Orientation	Basic
	Cooling System Design	Level 3	Teamwork	Basic
	Electrical Drawing	Level 2		
	Emergency Response Management	Level 2		
	Equipment Drawing	Level 2		
	Fuel and Lubrication System Design	Level 3		
	Green Ship Design	Level 2		
	Heat Transfer System Design	Level 2		
	Heating, Ventilation and Air Conditioning System Design	Level 3		
	Instrumentation and Control System Design	Level 3		
	Interface Management	Level 3		
	Marine Design Customisation	Level 2		
	Marine Engineering Calculations	Level 2		
	Marine Equipment Material Selection	Level 3		
	Naval Architecture Calculations	Level 3		
	Pipeline Drawing	Level 2		
	Power Generation System Design	Level 3		
	Programme Management	Level 3		
	Propulsion System Design	Level 3		
	Pump and Piping Design	Level 3		
	Quality System Management	Level 2		
	Safety System Design	Level 3		
	Structural and Arrangement Drawing	Level 2		
	System Architecture Design	Level 3		
	System Configuration Management	Level 3		
	Systems Integration	Level 3		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Performance Management	Level 2		

# Design Engineer

## JOB ROLE DESCRIPTION

The Design Engineer is responsible for day-to-day designing and engineering activities. He/She develops models and conducts numerical simulations for prototypes and applies automation to concept designs.

The Design Engineer should possess a meticulous nature to analyse various factors and calculations involved in ship and rig design. His duties may require working outdoors on the shop floor, within dry docks to support production work and alignment to design specifications. He must possess a level of physical fitness appropriate to the job requirements.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Develop technical drawings and design plans	<ul style="list-style-type: none"> <li>• Execute system design calculations to ascertain equipment specifications</li> <li>• Validate design data collated by co-workers</li> <li>• Develop design plan sketches based on clients' requirements and engineering calculations</li> <li>• Create full scale technical drawings using 2D and 3D methods</li> <li>• Incorporate details of construction material to be used in production</li> <li>• Advise production department on design and engineering faults</li> </ul>	In accordance with: <ul style="list-style-type: none"> <li>• Classification Society regulations;</li> <li>• Workplace Safety and Health (WSH) Act</li> </ul>
	Develop remote operation capabilities	<ul style="list-style-type: none"> <li>• Analyse designs for degree of autonomy or remote operation capability required</li> <li>• Design control systems for a variety of applications</li> <li>• Review programming inputs and guide improvements</li> <li>• Conduct feasibility studies for new programmable equipment</li> </ul>	
	Employ advanced analytics and big data	<ul style="list-style-type: none"> <li>• Assist in establishing design-related hypotheses for testing through data analytics</li> <li>• Specify appropriate advanced analytical techniques to create information which supports decision-making</li> <li>• Evaluate analysis findings for technical and business reports</li> </ul>	
	Drive innovation and research	<ul style="list-style-type: none"> <li>• Identify areas of energy savings in existing operational processes</li> <li>• Conduct research for green initiatives and other product innovations</li> <li>• Recommend innovation initiatives</li> </ul>	
	Develop and test prototypes	<ul style="list-style-type: none"> <li>• Generate 2D and/or 3D models of prototype designs</li> <li>• Assist in carrying out tests on the numerical models against fundamental design failures</li> <li>• Assist in coordinating mechanical and electrical tests on prototype components</li> </ul>	

# Design Engineer

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Ballast System Design	Level 4	Digital Literacy	Intermediate
	Big Data Analytics	Level 4	Problem Solving	Basic
	Cargo System Design	Level 4	Computational Thinking	Intermediate
	Communication and Navigation System Design	Level 4	Teamwork	Basic
	Control System Programming	Level 3	Communication	Intermediate
	Cooling System Design	Level 4		
	Electrical Drawing	Level 3		
	Emergency Response Management	Level 2		
	Equipment Drawing	Level 3		
	Fuel and Lubrication System Design	Level 4		
	Green Ship Design	Level 3		
	Heat Transfer System Design	Level 3		
	Heating, Ventilation and Air Conditioning System Design	Level 4		
	Innovation Management	Level 3		
	Instrumentation and Control System Design	Level 4		
	Interface Management	Level 4		
	Marine Design Customisation	Level 3		
	Marine Engineering Calculations	Level 3		
	Marine Equipment Material Selection	Level 3		
	Naval Architecture Calculations	Level 4		
	Pipeline Drawing	Level 3		
	Power Generation System Design	Level 4		
	Programme Management	Level 4		
	Project Quality Management	Level 3		
	Propulsion System Design	Level 4		
	Pump and Piping Design	Level 4		
	Quality System Management	Level 3		
	Safety System Design	Level 4		
	Stakeholder Management	Level 3		
	Structural and Arrangement Drawing	Level 3		
	System Architecture Design	Level 4		
	System Configuration Management	Level 4		
	Systems Integration	Level 4		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Performance Management	Level 2		

# Senior Design Engineer

## JOB ROLE DESCRIPTION

The Senior Design Engineer oversees day-to-day design and engineering activities, conducts market analyses and suggests technologies for investment. He/She leads testing procedures for prototypes before they are passed to the production team.

He possesses technical knowledge and skills relating to the design of various ship and rig components, systems and equipment. He should possess a meticulous nature to analyse various factors and calculations involved in ship and rig design. His expertise is essential to his responsibilities to provide technical guidance to his team and lead projects of moderate complexity or less-routine in nature.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Develop technical drawings and design plans	<ul style="list-style-type: none"> <li>• Perform feasibility analysis on design plans</li> <li>• Review design drawings bases for practicability, completion timeframe and research capabilities</li> <li>• Incorporate equipment, systems, ship, rig and/or conversion components and safety features in design plans</li> </ul>	In accordance with: <ul style="list-style-type: none"> <li>• Classification Society regulations;</li> <li>• Workplace Safety and Health (WSH) Act</li> </ul>
	Employ advanced analytics and big data	<ul style="list-style-type: none"> <li>• Establish design-related hypotheses for testing through data analytics</li> <li>• Specify appropriate advanced analytical techniques to create information to support decision-making</li> <li>• Evaluate analysis findings for technical and business reports</li> </ul>	
	Drive innovation and research	<ul style="list-style-type: none"> <li>• Implement approved green initiatives in design processes</li> <li>• Conduct research for green initiatives and other product innovations</li> <li>• Record implementation progress of innovation initiatives</li> </ul>	
	Develop and test prototypes	<ul style="list-style-type: none"> <li>• Conduct tests on numerical models against fundamental design failures of prototypes</li> <li>• Coordinate mechanical and electrical tests on prototype components</li> </ul>	
	Develop intellectual property (IP) strategy	<ul style="list-style-type: none"> <li>• Develop IP management processes for designs</li> <li>• Define categories for organisation's existing IP to allow ease of access to necessary information</li> <li>• Determine possible business applications of IP to support organisation's strategies and objectives</li> <li>• Evaluate IP infringements</li> </ul>	
	Manage people and organisational function	<ul style="list-style-type: none"> <li>• Develop resource planning strategies</li> <li>• Analyse viability of workplace improvements and change management initiatives</li> <li>• Participate in negotiations with key stakeholders</li> <li>• Analyse financial implications of business strategies</li> </ul>	



# Senior Design Engineer

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Ballast System Design	Level 4	Problem Solving	Intermediate
	Big Data Analytics	Level 4	Teamwork	Intermediate
	Business Negotiation	Level 4	Computational Thinking	Intermediate
	Business Presentation Delivery	Level 3	Digital Literacy	Intermediate
	Cargo System Design	Level 4	Decision Making	Intermediate
	Change Management	Level 3		
	Communication and Navigation System Design	Level 4		
	Control System Programming	Level 4		
	Cooling System Design	Level 4		
	Crisis Management	Level 3		
	Electrical Drawing	Level 4		
	Emergency Response Management	Level 2		
	Equipment Drawing	Level 4		
	Financial Planning	Level 3		
	Fuel and Lubrication System Design	Level 4		
	Green Ship Design	Level 4		
	Heat Transfer System Design	Level 4		
	Heating, Ventilation and Air Conditioning System Design	Level 4		
	Innovation Management	Level 3		
	Instrumentation and Control System Design	Level 4		
	Intellectual Property Management	Level 3		
	Interface Management	Level 4		
	Marine Design Customisation	Level 4		
	Marine Engineering Calculations	Level 3		
	Marine Equipment Material Selection	Level 4		

# Senior Design Engineer

SKILLS & COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES	
	Market Research	Level 3
	Naval Architecture Calculations	Level 5
	Operational Risk Management	Level 3
	Organisational Performance Management	Level 3
	Pipeline Drawing	Level 4
	Power Generation System Design	Level 4
	Programme Management	Level 5
	Propulsion System Design	Level 4
	Pump and Piping Design	Level 4
	Quality System Management	Level 3
	Robotics and Automation Application	Level 4
	Safety System Design	Level 4
	Staff Performance Management	Level 3
	Stakeholder Management	Level 4
	Structural and Arrangement Drawing	Level 4
	System Architecture Design	Level 4
	System Configuration Management	Level 4
	Systems Integration	Level 4
	Workplace Safety and Health Culture Development	Level 2
	Workplace Safety and Health Performance Management	Level 2

# Design Section Manager/Head of Department

## JOB ROLE DESCRIPTION

The Design Section Manager/Head of Department leads the organisation's design department and is in charge of overseeing the design of new products and models. He/She provides innovative and customised design services to clients by aligning existing models to client needs, with the objective of improving the organisation's existing portfolio.

He applies both technical and managerial skills to fulfill the responsibilities of managing both operations and employees within the department to meet the organisational business goals. He interacts with others frequently on the job, to direct and motivate a team to achieve operational goals.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Develop technical drawings and design plans	<ul style="list-style-type: none"> <li>• Devise process workflows to execute system designs</li> <li>• Evaluate performance specification analyses on components and systems</li> <li>• Evaluate efficiency of components and systems</li> <li>• Evaluate applicability of industry standards and international conventions in drawings</li> <li>• Verify final design drawings to be provided to production department</li> </ul>	In accordance with: <ul style="list-style-type: none"> <li>• Classification Society regulations;</li> <li>• Workplace Safety and Health (WSH) Act</li> </ul>
	Employ advanced analytics and big data	<ul style="list-style-type: none"> <li>• Conceptualise new data models and evaluate existing models for suitability in the marine and offshore context</li> <li>• Define areas of focus that can be analysed using advanced methods to support research and development (R&amp;D) in design processes</li> <li>• Provide leadership and guidance for analysis of both internal and external data</li> <li>• Motivate subordinates to utilise data analytics in making strategic decisions</li> <li>• Devise ways of incorporating advanced analytical findings into business development opportunities</li> </ul>	
	Drive innovation and research	<ul style="list-style-type: none"> <li>• Develop implementation plans for various innovation initiatives</li> <li>• Track effectiveness of innovation initiatives</li> </ul>	
	Develop intellectual property (IP) strategy	<ul style="list-style-type: none"> <li>• Develop and refine organisation's IP policies</li> <li>• Identify impact of new designs on organisation's IP management strategies</li> <li>• Champion IP strategies</li> <li>• Report IP infringements in accordance with organisational procedures</li> </ul>	
	Manage people and organisational function	<ul style="list-style-type: none"> <li>• Manage organisation's design and engineering function</li> <li>• Oversee talent recruitment and talent development for design engineering function</li> <li>• Develop resource planning strategies</li> <li>• Analyse viability of workplace improvements and change management initiatives</li> <li>• Participate in negotiations with key internal and external stakeholders</li> <li>• Analyse financial implications of business strategies</li> </ul>	

# Design Section Manager/Head of Department

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Ballast System Design	Level 5	Decision Making	Advanced
	Big Data Analytics	Level 5	Communication	Advanced
	Business Negotiation	Level 5	Problem Solving	Advanced
	Business Presentation Delivery	Level 4	Teamwork	Advanced
	Cargo System Design	Level 5	Resource Management	Intermediate
	Change Management	Level 4		
	Communication and Navigation System Design	Level 5		
	Conflict Resolution	Level 4		
	Cooling System Design	Level 5		
	Corporate Governance	Level 4		
	Crisis Management	Level 4		
	Emergency Response Management	Level 2		
	Financial Planning	Level 4		
	Fuel and Lubrication System Design	Level 5		
	Green Ship Design	Level 5		
	Heating, Ventilation and Air Conditioning System Design	Level 5		
	Innovation Management	Level 4		
	Instrumentation and Control System Design	Level 4		
	Intellectual Property Management	Level 4		
	Interface Management	Level 5		
	Manpower Forecasting	Level 4		
	Marine Design Customisation	Level 5		
	Marine Engineering Calculations	Level 3		
	Market Research	Level 4		
	Naval Architecture Calculations	Level 5		
	Operational Risk Management	Level 4		
	Organisational Performance Management	Level 4		
	Power Generation System Design	Level 5		
	Programme Management	Level 5		
	Propulsion System Design	Level 5		
	Pump and Piping Design	Level 5		
	Quality System Management	Level 4		
	Robotics and Automation Application	Level 5		
	Safety System Design	Level 5		
	Service Excellence	Level 4		
	Staff Performance Management	Level 4		
	Stakeholder Management	Level 5		
	Strategy Development	Level 4		
	System Architecture Design	Level 5		
	System Configuration Management	Level 5		
	Systems Integration	Level 5		
	Technical Writing	Level 4		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Performance Management	Level 2		



## Senior Supervisor, Electrical

Suparhan Bin Salim  
Singapore Technologies Marine Ltd

“I can gauge my current skills and proactively plan out my course of upgrading with the Skills Framework.”

### MAKING HIS MARK

Suparhan Bin Salim joined the marine and offshore sector to follow in his father's footsteps. His father was working in a shipyard and challenged him to join the sector as well. As an engineering graduate from Singapore Polytechnic, Suparhan took up the challenge after he finished his full-time national service. 10 years later, his father has since retired, but Suparhan remains dedicated to his job. He is currently the Senior Supervisor of the Electrical department at Singapore Technologies Marine Ltd (ST Marine), a subsidiary of Singapore Technologies Engineering.

His daily responsibilities include assigning job tasks, going through risk assessment with his workers, and meeting with clients to review job quality reports and update on project progression. A memorable moment for him was when he was voted Best Supervisor in his first year at ST Marine. “I was taking care of a repair vessel and I was thrilled to be given this recognition. This was very encouraging for a newbie like me, as I could see that my hard work and contribution was appreciated by my team,” he recalls proudly.

Since being awarded that honour, he has worked hard especially with the changes that have occurred in the sector during the past decade. “Job requirements are getting more challenging, as standards and requirements have risen across the board. There is a more pressing need to complete our work fast, to produce good quality work while being safe. Compliance is kept at a high level, and rightfully so.” These high standards keep him striving to do his best.

He says that the Skills Framework for Marine and Offshore is a tool that he can use to maintain the high standard of work required of him. “I can gauge my current skills and proactively plan out my course of upgrading with the Skills Framework. I am able to benchmark my current skills against the sector standard, and am able to identify my gaps or new learning opportunities.” In the future, he aims to make his mark by moving into a management role or moving laterally to another department, by upgrading himself through a part-time degree.



# Technician

## JOB ROLE DESCRIPTION

The Technician performs activities related to manufacturing, installation, calibration, repair and maintenance of electrical circuits and components and/or mechanical equipment. He/She possesses technical knowledge necessary for interpreting technical design drawings and specifications.

The Technician's duties require him to work outdoors on the shop floor, within dry docks and onboard ships. He must possess a level of physical fitness appropriate to the job requirements, and is also required to work in shifts based on operations schedules. He is adaptable to working under different job demands to handle new build projects that require meticulous attention to detail and repair jobs which emphasise quick response and turnaround.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Manufacture marine components	<ul style="list-style-type: none"> <li>• Identify job requirements based on manufacturing requirements</li> <li>• Select and calibrate tools for production</li> <li>• Carry out operational dry runs to identify and mitigate possible errors</li> <li>• Operate manufacturing machinery and tools to manufacture required components</li> </ul>	In accordance with: <ul style="list-style-type: none"> <li>• Classification Society regulations;</li> <li>• Workplace Safety and Health (WSH) Act</li> </ul>
	Assemble ships, rigs and marine equipment	<ul style="list-style-type: none"> <li>• Use appropriate tools for assembly work according to drawings, instructions and workflow plans</li> <li>• Perform marine equipment installation in accordance to assembly workflows and design specifications</li> <li>• Check accuracy of functional dynamic components according to work instructions</li> <li>• Assist in conduct of system testing and commissioning</li> </ul>	
	Plan surface preparation and protection	<ul style="list-style-type: none"> <li>• Set up machines for blasting, priming and/or application of paint and other protection media</li> <li>• Set up components for surface protection and finishing operations according to job requirements</li> <li>• Apply surface preparation and/or protection techniques according to work plans and instructions</li> </ul>	
	Execute maintenance and repair of ships, rigs, equipment and systems	<ul style="list-style-type: none"> <li>• Carry out machinery service and overhauls</li> <li>• Carry out troubleshooting to maintain equipment operating levels</li> <li>• Monitor and adjust machinery parameters in marine equipment and systems to acceptable operating ranges</li> <li>• Document maintenance reports containing service and overhaul information</li> </ul>	

# Technician

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Additive Manufacturing	Level 2	Leadership	Basic
	Component Assembly	Level 1	Teamwork	Basic
	Computer Numeric Control Operations	Level 1	Managing Diversity	Basic
	Emergency Response Management	Level 2	Service Orientation	Basic
	Forming	Level 1	Interpersonal Skills	Basic
	Installation Planning and Execution	Level 1		
	Instrumentation and Control System Design	Level 2		
	Joining and Welding	Level 1		
	Laser and Optics Application	Level 2		
	Lift Planning and Management	Level 1		
	Machining	Level 1		
	Marine Auxiliary System Maintenance	Level 1		
	Marine Equipment and System Maintenance	Level 2		
	Non-destructive Testing	Level 2		
	Programme Management	Level 1		
	Quality System Management	Level 2		
	Robotics and Automation Application	Level 2		
	Scaffolding	Level 2		
	Surface Preparation and Protection	Level 1		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Performance Management	Level 2		

# Supervisor/Chargehand/Foreman

## JOB ROLE DESCRIPTION

The Supervisor/Chargehand/Foreman oversees workers to ensure completion of individual tasks relating to manufacturing, servicing and repairs, troubleshooting and/or machinery calibration. He/She monitors assigned tasks, ensures tasks are appropriately staffed and supervised to meet schedules, budget and client requirements. He provides directions for continuous process improvement activities within assigned tasks.

The Supervisor/Chargehand/Foreman requires an aptitude for people and diversity management, as well as empathy to appreciate the challenges to communication and understanding arising from the cultural differences of his workers. He should be adaptable to work under different job demands to handle new build projects that require attention to detail and repair jobs which emphasise quick response and turnaround.

His duties require working outdoors on the shop floor, within dry docks and onboard ships, and must possess a level of physical fitness appropriate to the job requirements. He is also required to work in shifts based on operation schedules and project timelines.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Manufacture marine components	<ul style="list-style-type: none"> <li>• Check operational readiness of production equipment and machinery</li> <li>• Carry out in-process quality checks</li> <li>• Supervise workers for appropriate use of materials, machining techniques and compliance with work instructions and Workplace Safety and Health (WSH) requirements</li> <li>• Verify correctness of final manufactured components against specifications</li> <li>• Ensure upkeep of production work areas</li> </ul>	In accordance with: <ul style="list-style-type: none"> <li>• Classification Society regulations;</li> <li>• Workplace Safety and Health (WSH) Act</li> </ul>
	Assemble ships, rigs and marine equipment	<ul style="list-style-type: none"> <li>• Measure manufactured components for conformance with specifications before assembly</li> <li>• Ensure correct work materials are used and components are assembled in accordance with drawings, instructions and workflow plans</li> <li>• Check machining parameters for assembly jobs</li> <li>• Coordinate erection of supports for assembly works</li> <li>• Formulate lift plans for hull blocks</li> <li>• Test assembled devices for functionality</li> <li>• Coordinate installation processes with other production teams</li> <li>• Establish equipment connections with other marine equipment and systems in accordance to design specifications</li> <li>• Troubleshoot problems during assembly or installation processes and highlight practical issues about unfeasible designs or drawings</li> </ul>	
	Plan surface preparation and protection	<ul style="list-style-type: none"> <li>• Coordinate movement of hull blocks into designated work areas</li> <li>• Monitor operations and make adjustments to achieve desired quality</li> <li>• Check finished components for defects and compliance with required specifications</li> <li>• Dispose post-operation wastes in accordance with safe working practices and approved procedures</li> </ul>	

# Supervisor/Chargehand/Foreman

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Execute maintenance and repair of ships, rigs, equipment and systems	<ul style="list-style-type: none"> <li>• Schedule servicing, overhaul and replacement jobs</li> <li>• Raise request orders for spare parts</li> <li>• Coordinate classification society surveys in presence of ship owners</li> </ul>	
	Execute launching operations	<ul style="list-style-type: none"> <li>• Coordinate construction of launching cradles</li> <li>• Coordinate fastening of loose items onboard ships and rigs before launch</li> <li>• Prepare launch ways</li> <li>• Transfer ship and rig loads to launch ways</li> <li>• Prepare drag weights to manage launch speed</li> <li>• Reinstall and restore slipways after launch</li> </ul>	

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Additive Manufacturing	Level 2	Leadership	Basic
	Commissioning Coordination	Level 2	Teamwork	Intermediate
	Component Assembly	Level 2	Managing Diversity	Intermediate
	Computer Numeric Control Operations	Level 2	Service Orientation	Intermediate
	Electrical Testing	Level 2	Interpersonal Skills	Intermediate
	Emergency Response Management	Level 2		
	Forming	Level 2		
	Incident and Accident Investigation	Level 2		
	Installation Planning and Execution	Level 2		
	Instrumentation and Control System Design	Level 2		
	Joining and Welding	Level 2		
	Laser and Optics Application	Level 2		
	Launch Planning and Management	Level 3		
	Lift Planning and Management	Level 3		
	Machining	Level 2		
	Marine Auxiliary System Maintenance	Level 2		
	Marine Equipment and System Maintenance	Level 3		
	Non-destructive Testing	Level 3		
	Programme Management	Level 2		
	Quality System Management	Level 2		
	Robotics and Automation Application	Level 2		
	Scaffolding	Level 3		

# Supervisor/Chargehand/Foreman

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES	
	Structural Testing	Level 2
	Surface Preparation and Protection	Level 2
	Technical Inspection	Level 2
	Technical Writing	Level 2
	Value Engineering	Level 2
	Workplace Safety and Health Culture Development	Level 2
	Workplace Safety and Health Performance Management	Level 2



# Master Trade Specialist/Senior Trade Specialist/Trade Specialist

## JOB ROLE DESCRIPTION

The Master Trade Specialist/Senior Trade Specialist/Trade Specialist carries out complex electrical, electronic and/or mechanical work under the supervision of engineers. He/She is a technical expert and an experienced worker, who is able to perform or supervise the execution of activities related to installation, calibration, repair and maintenance of electrical circuits and components and/or mechanical equipment.

He assists in the development of technical documents relating to work processes and procedures and task reports and may engage the organisation's management and clients on technical aspects of projects. He should be adaptable to work under different job demands to handle new build projects that require attention to detail and repair jobs which emphasise quick response and turnaround.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Manufacture marine components	<ul style="list-style-type: none"> <li>• Translate technical drawings and specifications into manufacturing requirements</li> <li>• Manage Computer Numerical Control (CNC) engineering projects</li> <li>• Oversee use of new technologies in production</li> <li>• Advise on alternative materials and processes to resolve production constraints</li> <li>• Review equipment, structural and arrangement drawings to identify appropriate methods for equipment installation</li> <li>• Review work specifications to identify waste and cost reduction opportunities</li> <li>• Enforce Workplace Safety and Health (WSH) compliance during manufacturing processes</li> </ul>	In accordance with: <ul style="list-style-type: none"> <li>• Classification Society regulations;</li> <li>• Workplace Safety and Health (WSH) Act</li> </ul>
	Assemble ships, rigs and marine equipment	<ul style="list-style-type: none"> <li>• Establish assembly job requirements and sequence of operations</li> <li>• Coordinate transfer of sub-assemblies and/or work pieces across work stations</li> <li>• Review current assembly activities and present ideas for work improvement</li> </ul>	
	Plan surface preparation and protection	<ul style="list-style-type: none"> <li>• Develop surface preparation and protection plans</li> <li>• Conduct feasibility studies of recommended surface preparation and protection application techniques</li> <li>• Plan locations, climate control and other factors for surface preparation and protection</li> </ul>	
	Execute launching operations	<ul style="list-style-type: none"> <li>• Ensure alignment of guides, rollers, airbags and other launching devices according to launch plans</li> <li>• Oversee disconnection of ships and rigs from shore-based auxiliaries prior to launch</li> <li>• Oversee loading of underwater marine components and equipment to specified capacity for stability upon launching</li> <li>• Enforce adherence to WSH and quality assurance and quality control (QA/QC) policies</li> <li>• Coordinate reinstatement of slipways after launch</li> <li>• Prepare berths for new production operation after launch</li> </ul>	

# Master Trade Specialist/Senior Trade Specialist/ Trade Specialist

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Additive Manufacturing	Level 3	Leadership	Intermediate
	Component Assembly	Level 3	Teamwork	Intermediate
	Computer Numeric Control Operations	Level 3	Problem Solving	Advanced
	Electrical Testing	Level 2	Service Orientation	Intermediate
	Emergency Response Management	Level 2	Interpersonal Skills	Intermediate
	Forming	Level 3		
	Incident and Accident Investigation	Level 2		
	Installation Planning and Execution	Level 3		
	Instrumentation and Control System Design	Level 3		
	Joining and Welding	Level 3		
	Laser and Optics Application	Level 2		
	Launch Planning and Management	Level 4		
	Marine Auxiliary System Maintenance	Level 3		
	Marine Engineering Calculations	Level 2		
	Marine Equipment and System Maintenance	Level 4		
	Marine Equipment Material Selection	Level 3		
	Non-destructive Testing	Level 3		
	Procurement Coordination and Policy Development	Level 3		
	Programme Management	Level 3		
	Quality System Management	Level 2		
	Robotics and Automation Application	Level 2		
	Scaffolding	Level 4		
	Service Excellence	Level 2		
	Structural Testing	Level 2		
	Surface Preparation and Protection	Level 3		
	Technical Inspection	Level 3		
	Technical Writing	Level 2		
	Value Engineering	Level 3		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Performance Management	Level 2		

# Assistant Production Engineer

## JOB ROLE DESCRIPTION

The Assistant Production Engineer assists project teams involved in different aspects of mechanical, structural and/or piping production, layout, installation and testing. He/She works actively on-site with other engineers to oversee manufacturing processes and ensures implementation of safe working practices.

The Assistant Production Engineer's duties require him to work outdoors on the shop floor, within dry docks and on board ships. He must possess a level of physical fitness appropriate to the job. He is also required to work in shifts based on operation schedules and project timelines. He should be adaptable to work under different job demands to handle new build projects that require attention to detail and repair jobs which emphasise quick response and turnaround.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Manufacture marine components	<ul style="list-style-type: none"> <li>• Assist in drafting production workflows for projects</li> <li>• Advise manufacturing teams on-site to facilitate workflow implementation</li> <li>• Evaluate feasibility of machining techniques over alternatives by studying design requirements, time constraints and expertise required</li> <li>• Oversee use of new technologies in production</li> <li>• Assist in material selection, technical specifications preparation and material inspection for received spares and stores</li> <li>• Assist in equipment coding to ease segregation of products and equipment in production workflows</li> <li>• Raise shortcomings in material quality or machinery performance</li> <li>• Review work specifications to identify waste and cost reduction opportunities</li> </ul>	In accordance with: <ul style="list-style-type: none"> <li>• Classification Society regulations;</li> <li>• Workplace Safety and Health (WSH) Act</li> </ul>
	Assemble ships, rigs and marine equipment	<ul style="list-style-type: none"> <li>• Establish assembly job requirements and sequence of operations</li> <li>• Coordinate transfer of sub-assemblies and/or work pieces across work stations</li> <li>• Plan appropriate methods and schedules for installation of specific machinery, equipment and/or systems</li> <li>• Carry out vibration and thermal analysis on test beds to evaluate performance in operating conditions</li> <li>• Select suitable non-destructive testing (NDT) methods for post-assembly testing</li> <li>• Review current assembly activities and present ideas for work improvement</li> </ul>	
	Plan surface preparation and protection	<ul style="list-style-type: none"> <li>• Develop surface preparation and protection plans</li> <li>• Conduct feasibility studies of recommended surface preparation and protection application techniques</li> <li>• Plan locations, climate control and other factors for surface preparation and protection</li> <li>• Enforce Workplace Safety and Health (WSH) compliance during blasting work</li> </ul>	

# Assistant Production Engineer

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Execute launching operations	<ul style="list-style-type: none"> <li>• Ensure alignment of guides, rollers, airbags and other launching devices</li> <li>• Oversee disconnection of ships and rigs from shore-based auxiliaries prior to launch</li> <li>• Oversee loading of ballast tanks to specified capacity for stability upon launching</li> <li>• Enforce adherence to WSH and quality assurance and quality control (QA/QC) policies</li> <li>• Coordinate reinstatement of slipways after launch</li> <li>• Prepare berths for new production operation after launch</li> </ul>	
	Coordinate commissioning	<ul style="list-style-type: none"> <li>• Assist in conducting pre-commissioning inspections</li> <li>• Coordinate survey inspections by owners, classification societies and other stakeholders</li> <li>• Coordinate rectification of defects and other issues found</li> </ul>	

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Additive Manufacturing	Level 3	Problem Solving	Basic
	Big Data Analytics	Level 3	Teamwork	Basic
	Commissioning Coordination	Level 3	Communication	Intermediate
	Component Assembly	Level 4	Creative Thinking	Basic
	Computer Numeric Control Operations	Level 3	Digital Literacy	Intermediate
	Electrical Testing	Level 3		
	Emergency Response Management	Level 2		
	Forming	Level 3		
	Incident and Accident Investigation	Level 2		
	Installation Planning and Execution	Level 3		
	Instrumentation and Control System Design	Level 3		
	Interface Management	Level 3		
	Joining and Welding	Level 3		
	Laser and Optics Application	Level 3		
	Launch Planning and Management	Level 4		
	Marine Engineering Calculations	Level 2		
	Marine Equipment and System Maintenance	Level 4		
	Marine Equipment Material Selection	Level 3		
	Materials Inspection	Level 3		
	Naval Architecture Calculations	Level 3		
	Non-destructive Testing	Level 4		

# Assistant Production Engineer

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES	
	Procurement Coordination and Policy Development	Level 3
	Programme Management	Level 3
	Quality System Management	Level 2
	Robotics and Automation Application	Level 3
	Scaffolding	Level 4
	Service Excellence	Level 3
	Structural Testing	Level 3
	Surface Preparation and Protection	Level 3
	System Architecture Design	Level 3
	System Configuration Management	Level 3
	Systems Integration	Level 3
	Technical Inspection	Level 3
	Technical Writing	Level 3
	Value Engineering	Level 3
	Workplace Safety and Health Culture Development	Level 2
	Workplace Safety and Health Performance Management	Level 2

# Production Engineer

## JOB ROLE DESCRIPTION

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.

His duties entail working outdoors on the shop floor, within dry docks and onboard 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.

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.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Manufacture marine components	<ul style="list-style-type: none"> <li>• Implement manufacturing workflows and processes for projects</li> <li>• Develop in-process defect control and testing plans</li> <li>• Liaise with procurement department to carry out quality checks on received materials in line with quality management system (QMS) procedures</li> <li>• Coordinate on-site manufacturing processes to meet project schedules</li> <li>• Advise production workers on measurement scales and requirements of tolerances in projects</li> <li>• Oversee use of new technologies in production</li> <li>• Prepare production status reports</li> <li>• Enforce Workplace Safety and Health (WSH) compliance during manufacturing processes</li> </ul>	In accordance with: <ul style="list-style-type: none"> <li>• Classification Society regulations;</li> <li>• Workplace Safety and Health (WSH) Act</li> </ul>
	Assemble ships, rigs and marine equipment	<ul style="list-style-type: none"> <li>• Establish assembly job requirements and sequence of operations</li> <li>• Coordinate transfer of sub-assemblies and/or work pieces across work stations</li> <li>• Plan appropriate methods and schedules for installation of specific machinery, equipment and/or systems</li> <li>• Carry out vibration and thermal analysis on test beds to evaluate performance in operating conditions</li> <li>• Select suitable non-destructive testing (NDT) methods for post-assembly testing</li> <li>• Review current assembly activities and present ideas for work improvement</li> </ul>	
	Plan surface preparation and protection	<ul style="list-style-type: none"> <li>• Develop surface preparation and protection plans</li> <li>• Conduct feasibility studies of recommended surface preparation and protection application techniques</li> <li>• Plan location, climate control and other factors for surface preparation and protection</li> </ul>	



# Production Engineer

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Execute launching operations	<ul style="list-style-type: none"> <li>• Ensure alignment of guides, rollers, airbags and other launching devices according to launch plans</li> <li>• Oversee disconnection of ships and rigs from shore-based auxiliaries prior to launch</li> <li>• Oversee loading of underwater marine components and equipment to specified capacity for stability upon launching</li> <li>• Enforce adherence to WSH and quality assurance and quality control (QA/QC) policies</li> <li>• Coordinate reinstatement of slipways after launch</li> <li>• Prepare berths for new production operation after launch</li> </ul>	
	Coordinate commissioning	<ul style="list-style-type: none"> <li>• Conduct pre-commissioning inspections</li> <li>• Coordinate survey inspections by owners, classification societies and other stakeholders</li> <li>• Coordinate rectification of defects and issues found</li> <li>• Assist in handover of operational equipment to approved personnel</li> </ul>	
	Develop prototypes	<ul style="list-style-type: none"> <li>• Select materials and production processes to be used for prototype production</li> <li>• Generate prototypes based on technical drawings and specifications</li> <li>• Chart manufacturing processes for prototypes</li> </ul>	
	Coordinate maintenance and repair of equipment	<ul style="list-style-type: none"> <li>• Schedule preventive maintenance schedules for marine equipment</li> <li>• Diagnose machinery faults and defects for repairs and servicing</li> <li>• Document maintenance reports containing servicing and repair information</li> </ul>	

SKILLS AND 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		

# Production Engineer

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES	
	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
	Workplace Safety and Health Culture Development	Level 2
	Workplace Safety and Health Performance Management	Level 2

# Senior Production Engineer

## JOB ROLE DESCRIPTION

The Senior Production Engineer heads the on-site manufacturing department and collaborates closely with the design department on projects to deliver cost effective, robust and timely solutions. He/She also manages resources efficiently and ensures quality assurance to achieve customer satisfaction through service excellence and reliability.

He possesses technical knowledge and skills relating to the production of various ship and rig components, systems and equipment. The Senior Production Engineer's expertise is essential to his responsibilities to provide technical guidance to his team and lead projects of moderate complexity or less-routine in nature. He should be adaptable to work under different job demands to handle new build projects that require attention to detail and repair jobs which emphasise quick response and turnaround.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Manufacture marine components	<ul style="list-style-type: none"> <li>• Develop process parameters and tooling requirements for machining, forming, joining and other manufacturing processes</li> <li>• Forecast time, materials and other resource requirements for projects and production workflow</li> <li>• Carry out internal audits on production activities to maintain efficiency and quality assurance standards</li> <li>• Approve technical specifications for materials and equipment required for each project</li> <li>• Collate and review production statistics reports</li> <li>• Guide procurement department in carrying out quality checks on received resources in line with quality management system (QMS) procedures</li> </ul>	In accordance with: <ul style="list-style-type: none"> <li>• Classification Society regulations;</li> <li>• Workplace Safety and Health (WSH) Act</li> </ul>
	Assemble ships, rigs and marine equipment	<ul style="list-style-type: none"> <li>• Plan assembly workflows</li> <li>• Verify feasibility of design specifications for equipment installation locations and set-ups</li> <li>• Plan equipment installation approaches and schedules in tandem with assembly workflows</li> <li>• Plan and schedule quality control tests</li> <li>• Monitor conditions of foundation during installation works</li> <li>• Review vibration analysis, thermal analysis and other performance test results to confirm installation techniques</li> </ul>	
	Execute launching operations	<ul style="list-style-type: none"> <li>• Assist in verifying conditions of underwater marine components prior to launch</li> <li>• Assist in monitoring individual machinery, equipment and system status onboard ships and/or rigs prior to launch</li> <li>• Support emergency response procedures for launch failures</li> </ul>	

# Senior Production Engineer

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Coordinate commissioning	<ul style="list-style-type: none"> <li>• Determine commissioning requirements according to specifications, design drawings and regulatory requirements</li> <li>• Review commissioning test results</li> <li>• Document commissioning procedures and findings</li> <li>• Identify faults and liaise with related departments to redesign or replace marine equipment</li> <li>• Oversee handover of operational equipment to approved personnel</li> </ul>	
	Develop prototypes	<ul style="list-style-type: none"> <li>• Develop component modelling plans to meet prototype production requirements</li> <li>• Determine suitable manufacturing processes and materials for prototype creation</li> <li>• Formulate workflows for prototype production</li> </ul>	
	Manage organisational production function	<ul style="list-style-type: none"> <li>• Collaborate with team members to deliver high performance</li> <li>• Track employee performance by utilising performance monitoring systems</li> <li>• Acquire and allocate resources to support operations and utility optimisation</li> <li>• Recommend improvements to business processes and operations to support change management initiatives</li> <li>• Support negotiations with relevant key internal and external stakeholders</li> <li>• Assist in formulating new workflows to incorporate new technology manufacturing processes</li> </ul>	

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Additive Manufacturing	Level 4	Teamwork	Intermediate
	Big Data Analytics	Level 4	Communication	Advanced
	Business Negotiation	Level 4	Problem Solving	Advanced
	Business Presentation Delivery	Level 4	Interpersonal Skills	Advanced
	Change Management	Level 3	Leadership	Advanced
	Commissioning Coordination	Level 4		
	Component Assembly	Level 4		
	Computer Numeric Control Operations	Level 4		
	Continuous Quality Improvement	Level 3		
	Crisis Management	Level 3		
	Electrical Testing	Level 3		
	Emergency Response Management	Level 2		
	Financial Budgeting	Level 3		

# Senior Production Engineer

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES	
	Financial Planning	Level 3
	Incident and Accident Investigation	Level 2
	Innovation Management	Level 3
	Installation Planning and Execution	Level 4
	Instrumentation and Control System Design	Level 4
	Intellectual Property Management	Level 3
	Interface Management	Level 4
	Laser and Optics Application	Level 4
	Launch Planning and Management	Level 5
	Manufacturing Workflow Management	Level 4
	Marine Design Customisation	Level 3
	Marine Engineering Calculations	Level 3
	Marine Equipment and System Maintenance	Level 4
	Marine Equipment Material Selection	Level 4
	Market Research	Level 3
	Materials Inspection	Level 3
	Naval Architecture Calculations	Level 4
	Non-destructive Testing	Level 4
	Operational Risk Management	Level 3
	Opportunity Development	Level 3
	Organisational Performance Management	Level 3
	Procurement Coordination and Policy Development	Level 3
	Programme Management	Level 5
	Quality Engineering Integration	Level 3
	Quality System Management	Level 3
	Robotics and Automation Application	Level 4
	Staff Performance Management	Level 3
	Stakeholder Management	Level 4
	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 4
	Value Engineering	Level 4
	Workplace Safety and Health Culture Development	Level 2
	Workplace Safety and Health Performance Management	Level 2

# Production Section Manager/Head of Department

## JOB ROLE DESCRIPTION

The Production Section Manager/Head of Department leads the production department at the organisation and is in charge of ensuring efficient and productive operations in all projects. He/She acts as the liaison between other departments and ensures effective communication and seamless production workflow execution.

He applies both technical and managerial skills to fulfill the responsibilities of managing both operations and employees within the department to meet the organisational business goals, leads a team of engineers and technicians, and is responsible for their training and development. He is comfortable with interacting with others frequently on the job, to direct and motivate a team to achieve operational goals.

In the shipyard context, the Production Section Manager/Head of Department also takes full responsibility for organising and coordinating successful launches of ships and rigs into open water.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Manufacture marine components	<ul style="list-style-type: none"> <li>• Conduct feasibility studies of prospective projects to evaluate profitability and sustainability of production operations</li> <li>• Design manufacturing plans for machining, forming, joining and other relevant processes based on project requirements</li> <li>• Determine additional infrastructure requirements to support manufacturing and production requirements</li> <li>• Oversee production timelines against production status reports</li> <li>• Approve production strategies proposed by team members after evaluating budgets and resources</li> </ul>	In accordance with: <ul style="list-style-type: none"> <li>• Classification Society regulations;</li> <li>• Workplace Safety and Health (WSH) Act</li> </ul>
	Assemble ships, rigs and marine equipment	<ul style="list-style-type: none"> <li>• Verify feasibility of design specifications for equipment installation locations and set-ups</li> <li>• Review vibration analysis, thermal analysis and other performance test results to confirm installation techniques</li> </ul>	
	Execute launching operations	<ul style="list-style-type: none"> <li>• Strategise appropriate launching methods for ships and/or rigs</li> <li>• Verify acceptability of ballast tank conditions prior to launch</li> <li>• Produce keel laying plan for launch</li> <li>• Take stock of individual machinery, equipment and system status onboard ships and/or rigs prior to launch</li> <li>• Prepare emergency response procedures for launch failures</li> </ul>	
	Coordinate commissioning	<ul style="list-style-type: none"> <li>• Verify commissioning requirements proposed by team members</li> <li>• Review commissioning test results</li> </ul>	

# Production Section Manager/Head of Department

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Manage people and organisational function	<ul style="list-style-type: none"> <li>• Manage a team of production engineers</li> <li>• Evaluate results from market research and propose implementation of best practices in manufacturing</li> <li>• Design equipment coding standards for organisation in liaison with quality department</li> <li>• Approve deployment of new technologies for relevant manufacturing processes after evaluating budgets and skills on hand</li> <li>• Analyse viability of workplace improvements and change management initiatives</li> <li>• Participate in negotiations with relevant key internal and external stakeholders</li> <li>• Analyse financial implications of business strategies to the production department</li> </ul>	

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Additive Manufacturing	Level 5	Leadership	Advanced
	Big Data Analytics	Level 5	Communication	Advanced
	Business Negotiation	Level 5	Decision Making	Advanced
	Business Presentation Delivery	Level 4	Interpersonal Skills	Advanced
	Change Management	Level 4	Transdisciplinary Thinking	Advanced
	Commissioning Coordination	Level 4		
	Conflict Resolution	Level 4		
	Continuous Quality Improvement	Level 4		
	Corporate Governance	Level 4		
	Crisis Management	Level 4		
	Emergency Response Management	Level 2		
	Financial Budgeting	Level 4		
	Financial Planning	Level 3		
	Incident and Accident Investigation	Level 2		
	Innovation Management	Level 4		
	Intellectual Property Management	Level 4		
	Interface Management	Level 5		
	Laser and Optics Application	Level 5		
	Launch Planning and Management	Level 5		
	Manpower Forecasting	Level 4		
	Manufacturing Workflow Management	Level 5		
	Marine Engineering Calculations	Level 3		
	Market Research	Level 4		



# Production Section Manager/Head of Department

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES	
	Naval Architecture Calculations	Level 4
	Operational Risk Management	Level 4
	Organisational Performance Management	Level 4
	Procurement Coordination and Policy Development	Level 3
	Programme Management	Level 5
	Quality Engineering Integration	Level 4
	Quality System Management	Level 4
	Robotics and Automation Application	Level 5
	Staff Performance Management	Level 4
	Stakeholder Management	Level 5
	Strategy Development	Level 4
	System Architecture Design	Level 5
	System Configuration Management	Level 5
	Systems Integration	Level 5
	Technical Inspection	Level 3
	Technical Writing	Level 4
	Value Engineering	Level 4
	Workplace Safety and Health Culture Development	Level 2
	Workplace Safety and Health Performance Management	Level 2

# Chief Engineer/Chief Technology Officer

## JOB ROLE DESCRIPTION

The Chief Engineer/Chief Technology Officer serves as the link between the design department, the production department and organisational management to enable inter-departmental collaboration and strategic alignment.

He/She should possess a strong interest in new technology, to fulfill the responsibilities for delivering innovative and competitive engineering solutions and oversee all research and development (R&D) projects.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Deploy new technologies	<ul style="list-style-type: none"> <li>• Lead innovation in new technologies for design and manufacturing processes</li> <li>• Evaluate benefits, trade-offs and impact of new technologies in production</li> <li>• Build business cases for implementing new technologies in the organisation's design and production functions</li> <li>• Refine parameters of new technologies application to improve properties of manufactured components</li> </ul>	In accordance with: <ul style="list-style-type: none"> <li>• Classification Society regulations;</li> <li>• Workplace Safety and Health (WSH) Act</li> </ul>
	Employ advanced analytics and big data	<ul style="list-style-type: none"> <li>• Drive organisation's commitment to efficient and effective analyses of large data sets</li> <li>• Lead innovation in advanced analytics through adoption of new methodologies and identification of new datasets</li> <li>• Evaluate benefits and trade-offs of implementing advanced analytics within strategic decision-making</li> <li>• Develop organisational advanced analytics application strategies</li> <li>• Prepare business cases for implementing advanced analytical methods in new areas</li> </ul>	
	Drive innovation and research	<ul style="list-style-type: none"> <li>• Formulate innovation initiatives aligned to the organisation's vision, mission and values</li> <li>• Drive innovation to reduce negative environmental impacts of products and processes</li> <li>• Oversee environmental modelling procedures</li> </ul>	
	Manage people and organisational function	<ul style="list-style-type: none"> <li>• Lead multiple teams across design and production departments</li> <li>• Establish the function's employee development system in alignment with organisation's vision mission and values</li> <li>• Identify organisation wide performance indicators to be cascaded across functional areas</li> <li>• Participate in management level talent identification and recruitment processes</li> </ul>	

# Chief Engineer/Chief Technology Officer

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Additive Manufacturing	Level 6	Decision Making	Advanced
	Big Data Analytics	Level 6	Leadership	Advanced
	Business Negotiation	Level 5	Communication	Advanced
	Business Presentation Delivery	Level 5	Data Analytics	Advanced
	Change Management	Level 5	Resource Management	Advanced
	Conflict Resolution	Level 5		
	Corporate Governance	Level 5		
	Crisis Management	Level 5		
	Emergency Response Management	Level 2		
	Financial Planning	Level 5		
	Green Ship Design	Level 6		
	Innovation Management	Level 5		
	Intellectual Property Management	Level 5		
	Interface Management	Level 6		
	Laser and Optics Application	Level 6		
	Manpower Forecasting	Level 5		
	Marine Engineering Calculations	Level 3		
	Market Research	Level 5		
	Naval Architecture Calculations	Level 5		
	Operational Risk Management	Level 5		
	Organisational Performance Management	Level 5		
	Programme Management	Level 5		
	Robotics and Automation Application	Level 6		
	Service Excellence	Level 4		
	Staff Performance Management	Level 4		
	Stakeholder Management	Level 5		
	Strategy Development	Level 5		
	System Configuration Management	Level 6		
	System Architecture Design	Level 5		
	Systems Engineering	Level 6		
	Systems Integration	Level 5		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Performance Management	Level 2		



## Sales Director

Keith Lim  
Jason Electronics (Pte) Ltd

“The Skills Framework helps me identify competency gaps in my people, and plan the necessary training to fill those gaps with the skills they require.”

### KEEPING SALES SMOOTH SAILING

The process of learning is like a ship that never stops sailing. That’s the mantra that Keith Lim lives by. His thirst for knowledge has led him to his current role as Sales Director at Jason Electronics (Pte) Ltd, a company that specialises in marine electronics.

However, Keith’s voyage into sales had humble beginnings. The first sale he made almost a decade ago was for an order of less than \$1,000. It took him more than two months, but the patience that the company had in him allowed him to grow into his role. “For any sector, there are ups and downs. Ultimately, one should follow your passion and put in the effort for your work,” he advises.

An introvert by nature and an engineer by training, Keith had to learn good communication skills on the job. Besides this, he says that other important characteristics that good salespeople must have are being hardworking, outgoing and the desire to keep learning so they are knowledgeable in their products. Furthermore, salespeople here are also solution providers as well; constantly providing solutions and helping clients with their queries.

Like the sea, the marine and offshore sector is dynamic according to Keith, so to keep himself and the company sailing with the ebb and flow of the tides, he has shifted towards a more strategic role. This is made possible with his boss’s guidance and thorough on-the-job training. A Master of Business Administration degree sponsored by the company also helped him hone his strategic planning skills.

For Keith, the Skills Framework is a great navigation tool for people in the marine and offshore sector. “Now with the Skills Framework, there is more help than before for anyone who wants to upgrade themselves. There are more channels for me to further enhance my skills with programmes that are relevant to my work,” he says. With this push, Keith has his sights on managing a larger revenue and being more involved in corporate decision-making in the next five to 10 years.

# Procurement Coordinator/Procurement Executive

## JOB ROLE DESCRIPTION

The Procurement Coordinator/Executive is responsible for participating in routine sourcing and purchasing activities to deliver on projects involving ship, rig and/or conversion projects. He/She comes from an engineering background with work experience in production and/or design, and is able to translate project requirements into materials, equipment and services to procure.

He has good communication and negotiation skills for engaging vendors and other external parties, and follow up on vendors' deliverables. He also possesses good organisation skills for maintaining vendor contract records and databases.

CRITICAL WORK FUNCTIONS AND KEY TASKS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Drive procurement operations	<ul style="list-style-type: none"> <li>• Manage vendors' conformance to delivery schedules and product specifications</li> <li>• Process payments to vendors</li> <li>• Gather data on vendor performance to propose improvements</li> <li>• Maintain procurement database and documentation</li> </ul>
	Develop sourcing strategies	<ul style="list-style-type: none"> <li>• Draft sourcing schedules based on project plans</li> <li>• Highlight sourcing issues for management's actions</li> <li>• Gather feedback on the effectiveness and efficiency of current sourcing strategies</li> </ul>
	Oversee vendor selection and evaluation processes	<ul style="list-style-type: none"> <li>• Clarify bid queries with vendors</li> <li>• Prepare reports on assessments of bids received</li> <li>• Maintain vendor information and records</li> </ul>

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Big Data Analytics	Level 4	Digital Literacy	Intermediate
	Business Negotiation	Level 4	Communication	Intermediate
	Business Presentation Delivery	Level 3	Lifelong Learning	Intermediate
	Business Proposal Writing	Level 4	Data Analytics	Intermediate
	Continuous Quality Improvement	Level 3	Service Orientation	Basic
	Contract Development and Management	Level 4		
	Emergency Response Management	Level 2		
	Manufacturing Workflow Management	Level 4		
	Market Research	Level 3		
	Materials Inspection	Level 3		
	Procurement Coordination and Policy Development	Level 3		
	Procurement Performance Monitoring	Level 3		
	Project Coordination	Level 3		
	Project Feasibility Assessment	Level 4		
	Project Risk Management	Level 3		
	Service Excellence	Level 3		
	Stakeholder Management	Level 4		
	Technical Writing	Level 3		
	Vendor Management	Level 3		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Performance Management	Level 2		

# Senior Procurement Executive

## JOB ROLE DESCRIPTION

The Senior Procurement Executive is responsible for managing procurement operations for the organisation's projects. He/She ensures adherence to quality standards in all procurement activities and processes, and further improves the procurement processes by proposing sourcing strategies and suggesting improvement initiatives to enhance the organisation's ability for timely delivery on projects.

He typically comes from an engineering background with work experience in production and/or design. He has good communication and negotiation skills for engaging vendors and other external parties, to manage the vendor selection and evaluation processes, as well as vendor relationships and performance. As a worker with both engineering and procurement expertise, he may also be called upon to preparing training materials to develop the team's procurement capabilities.

CRITICAL WORK FUNCTIONS AND KEY TASKS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Drive procurement operations	<ul style="list-style-type: none"> <li>• Clarify product specifications, cost estimation and project logistics</li> <li>• Monitor procurement budget and expenditure</li> <li>• Manage non-conformities in delivery schedules and products</li> <li>• Ensure procurement operations and workflows comply with regulatory safety and quality requirements</li> <li>• Analyse data to propose changes to procurement policies and workflows</li> </ul>
	Develop sourcing strategies	<ul style="list-style-type: none"> <li>• Prepare vendor category and spend analysis reports</li> <li>• Develop sourcing proposals</li> <li>• Liaise with key stakeholders on modifications to sourcing proposals</li> </ul>
	Oversee vendor selection and evaluation processes	<ul style="list-style-type: none"> <li>• Participate in strategic sourcing activities, bid evaluation and vendor selection processes</li> <li>• Review and shortlist bid submissions</li> <li>• Prepare bid solicitations based on pre-qualification and assessment criteria for vendor selection</li> <li>• Develop new vendor relationships</li> <li>• Draft contracts for management approval</li> <li>• Evaluate vendor performance to propose recommendations for future business dealings</li> </ul>

# Senior Procurement Executive

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Big Data Analytics	Level 4	Communication	Intermediate
	Business Negotiation	Level 4	Problem Solving	Intermediate
	Business Presentation Delivery	Level 4	Teamwork	Intermediate
	Business Proposal Writing	Level 4	Lifelong Learning	Intermediate
	Change Management	Level 3	Digital Literacy	Advanced
	Continuous Quality Improvement	Level 3		
	Contract Development and Management	Level 4		
	Crisis Management	Level 3		
	Emergency Response Management	Level 2		
	Financial Budgeting	Level 3		
	Financial Planning	Level 3		
	Manpower Forecasting	Level 4		
	Manufacturing Workflow Management	Level 4		
	Market Research	Level 3		
	Materials Inspection	Level 4		
	Operational Risk Management	Level 3		
	Opportunity Development	Level 3		
	Organisational Performance Management	Level 3		
	Procurement Coordination and Policy Development	Level 4		
	Procurement Performance Monitoring	Level 4		
	Project Coordination	Level 4		
	Project Feasibility Assessment	Level 4		
	Project Quality Management	Level 4		
	Service Excellence	Level 3		
	Staff Performance Management	Level 3		
	Stakeholder Management	Level 4		
	Technical Writing	Level 3		
	Vendor Management	Level 4		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Performance Management	Level 2		



# Procurement Manager

## JOB ROLE DESCRIPTION

The Procurement Manager leads the procurement function and is responsible for establishing procurement plans, policies and processes required to obtain the materials, equipment and services to deliver on marine manufacturing projects. He/She leads improvement initiatives to enhance the procurement process and timeliness of providing the necessary resources to complete projects on schedule.

He has good communication and negotiation skills for engaging vendors and other external parties, and is able to balance the organisation's needs, as the job encompasses a strategic role in selecting new vendors, fostering relationships and managing vendor performance and contract-related processes by liaising with legal and other key stakeholders.

CRITICAL WORK FUNCTIONS AND KEY TASKS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Drive procurement operations	<ul style="list-style-type: none"> <li>• Formulate procurement policies and workflows</li> <li>• Oversee procurement budget and key performance indicators</li> <li>• Advise on alternative equipment, parts and materials</li> <li>• Verify components' adherence to technical specifications and quality upon delivery</li> <li>• Drive procurement capability building initiatives</li> <li>• Oversee implementation of procurement improvement initiatives</li> </ul>
	Develop sourcing strategies	<ul style="list-style-type: none"> <li>• Formulate sourcing strategies to support organisation's projects</li> <li>• Keep abreast of market trends and developments and modify sourcing strategies</li> </ul>
	Oversee vendor selection and evaluation processes	<ul style="list-style-type: none"> <li>• Develop vendor selection and evaluation workflow and criteria</li> <li>• Develop formal bidding processes to facilitate vendor management</li> <li>• Review vendor evaluation and recommendation reports</li> <li>• Explore potential collaborations with new vendors</li> <li>• Manage long-term vendor contracts pertaining to complex or high-value products and services to foster strategic partnerships</li> </ul>
	Manage people and organisational function	<ul style="list-style-type: none"> <li>• Mentor a team of procurement executives</li> <li>• Analyse viability of workplace improvements and change management initiatives</li> <li>• Participate in negotiations with relevant key internal and external stakeholders</li> <li>• Analyse financial implications of business strategies to the department</li> </ul>

# Procurement Manager

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Big Data Analytics	Level 5	Leadership	Advanced
	Business Negotiation	Level 5	Data Analytics	Advanced
	Business Presentation Delivery	Level 4	Service Orientation	Intermediate
	Business Proposal Writing	Level 5	Communication	Advanced
	Change Management	Level 4	Lifelong Learning	Advanced
	Conflict Resolution	Level 4		
	Continuous Quality Improvement	Level 4		
	Contract Development and Management	Level 6		
	Corporate Governance	Level 4		
	Crisis Management	Level 4		
	Emergency Response Management	Level 2		
	Financial Budgeting	Level 4		
	Financial Planning	Level 3		
	Manpower Forecasting	Level 4		
	Manufacturing Workflow Management	Level 4		
	Market Research	Level 4		
	Materials Inspection	Level 4		
	Operational Risk Management	Level 4		
	Opportunity Development	Level 3		
	Organisational Performance Management	Level 4		
	Procurement Coordination and Policy Development	Level 5		
	Procurement Performance Monitoring	Level 5		
	Project Coordination	Level 5		
	Project Feasibility Assessment	Level 5		
	Project Quality Management	Level 4		
	Service Excellence	Level 4		
	Staff Performance Management	Level 4		
	Stakeholder Management	Level 5		
	Strategy Development	Level 4		
	Technical Writing	Level 3		
	Vendor Management	Level 5		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Performance Management	Level 2		



## Quality Assurance Manager

S. Venkateswara Rao  
Tech Offshore Marine (S) Pte Ltd (TOM)

“The biggest challenge is being able to meet deadlines and at the same time, ensuring our products do not compromise on quality.”

### ENSURING EVERYTHING RUNS SMOOTHLY

Being an engineer is a dream come true for S Venkateswara Rao. He describes engineers as the “doctors and surgeons of machines”. In the marine and offshore sector, an example of these machines are pressure vessels that reside on rigs. As the vessels need to withstand excessive pressure, high standards are required to ensure they run as smoothly as possible. As Quality Assurance (QA) Manager at Tech Offshore Marine (S) Pte Ltd (TOM), Venkateswara Rao makes sure these strict standards are met by his team.

A memorable moment for him was when TOM completed the American Society of Mechanical Engineering (ASME) audit. It ensures the company conforms to the standards set by ASME. It was a proud moment as he successfully led the team in obtaining a “U” and “R” Stamp certification on the first attempt. These are sought after when building or repairing pressure vessels. Another memorable moment was when TOM was licensed under the American Petroleum Institute (API) in April 2015. His department plays a key role in upkeeping the company’s Quality Management Systems API Spec Q1 and ISO 9001:2015.

A challenge that he faces is that his responsibilities are often time-sensitive. “The industry waits for no one and everything is critical. When something has to be repaired, it means somewhere in the world there exists a rig or vessel that is facing down-time – meaning incurred revenue losses. The biggest challenge is being able to meet deadlines and at the same time, ensuring our products do not compromise on quality,” he explains.

However, he encourages new entrants to take on the challenge as it can be rewarding. “Be prepared for a journey and a career. This is not just a job. The sector builds character and anyone who joins is usually passionate and will stay on in the sector. You will get many opportunities to meet a very diverse spectrum of people at the top of their game,” he advises.

Venkateswara believes the Skills Framework for Marine and Offshore will allow him and his peers to plan their careers. In addition, by outlining the sector’s future trends and developments, it can aid talent attraction and retention as people understand the opportunities present in the sector.

A future trend he predicts is that Asia will be at the forefront of the sector’s developments. “Asia is the next big thing. As time goes by, higher-end equipment that has been traditionally manufactured in Europe will be manufactured here in Asia. Singapore being one of the pioneering leaders in technology in this part of the world will definitely be at the top of this,” he says.

# Assistant Quality Assurance/ Quality Control Engineer

## JOB ROLE DESCRIPTION

The Assistant Quality Assurance/Quality Control Engineer assists the Quality Assurance and Quality Control (QA/QC) team in inspections and technical testing activities that measure, monitor, and improve the organisation's quality policies and compliance with external regulations and standards.

His/Her duties require him/her to work outdoors on the shop floor, within dry docks and onboard ships to support quality inspections and enforcement. He must be meticulous and possess a level of physical fitness appropriate to the job requirements to identify potential quality concerns across the organisation's operations.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Deploy quality assurance and quality control (QA/QC) policies, processes and procedures	<ul style="list-style-type: none"> <li>• Aid continuous improvement of production quality by implementing corrective and preventative actions (CAPA)</li> <li>• Assist in quality monitoring data management to compile and track performance</li> <li>• Assist in analysing quality assessment reports to identify gaps and improvements</li> <li>• Assist in conducting transaction monitoring against quality criteria covering in-process quality oversights</li> </ul>	In accordance with: <ul style="list-style-type: none"> <li>• Classification Society regulations;</li> <li>• Workplace Safety and Health (WSH) Act</li> </ul>
	Initiate external compliance audits	<ul style="list-style-type: none"> <li>• Apply standard operating procedures (SOPs) as per work area within the QA/QC department</li> <li>• Monitor vendors' compliance to organisation's and regulatory quality standards</li> <li>• Assess and ensure products and services provided meet quality specification requirements</li> <li>• Escalate instances of non-compliance to team members</li> </ul>	
	Coordinate testing and commissioning	<ul style="list-style-type: none"> <li>• Participate in regular internal inspections planning</li> <li>• Apply tools and technology platforms to perform inspection activities</li> <li>• Execute tests and inspections in accordance with inspection and test plans (ITPs)</li> <li>• Reinstate work areas and equipment upon completion of inspections</li> </ul>	
	Oversee QA/QC documentation and reporting	<ul style="list-style-type: none"> <li>• Document and keep records of inspections in compliance with quality procedures for internal and external audits</li> <li>• Draft technical documents for review</li> <li>• Update quality documents related to projects</li> <li>• Generate report drafts on quality and compliance issues</li> </ul>	

# Assistant Quality Assurance/ Quality Control Engineer

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Big Data Analytics	Level 3	Problem Solving	Basic
	Business Presentation Delivery	Level 3	Resource Management	Basic
	Change Management	Level 3	Leadership	Basic
	Commissioning Coordination	Level 3	Interpersonal Skills	Basic
	Continuous Quality Improvement	Level 3	Decision Making	Basic
	Electrical Testing	Level 3		
	Emergency Response Management	Level 2		
	Manufacturing Workflow Management	Level 4		
	Marine Engineering Calculations	Level 2		
	Material Inspection	Level 3		
	Naval Architecture Calculations	Level 3		
	Non-destructive Testing	Level 4		
	Programme Management	Level 3		
	Quality Engineering Integration	Level 3		
	Quality Systems Management	Level 3		
	Service Excellence	Level 2		
	Stakeholder Management	Level 3		
	Structural Testing	Level 3		
	Technical Inspection	Level 3		
	Technical Writing	Level 3		
	Value Engineering	Level 3		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Performance Management	Level 2		

# Quality Assurance/Quality Control Engineer

## JOB ROLE DESCRIPTION

The Quality Assurance/Quality Control Engineer is responsible for inspections and technical testing activities that measure and improve quality compliance with policies, regulations, and standards. He/She further acts as a representative for the organisation before the classification societies.

His duties require him to work outdoors on the shop floors, within dry docks and onboard ships to support quality enforcement. He must possess a level of physical fitness appropriate to the job requirements. He should be meticulous to identify potential quality concerns across the organisation's operations.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Deploy quality assurance and quality control (QA/QC) policies, processes and procedures	<ul style="list-style-type: none"> <li>• Implement standard operating procedures (SOPs) across organisational departments</li> <li>• Assign quality activities, roles and responsibilities according to functional requirements and individual competencies</li> <li>• Supervise work activities of team members to meet quality requirements</li> </ul>	In accordance with: <ul style="list-style-type: none"> <li>• Classification Society regulations;</li> <li>• Workplace Safety and Health (WSH) Act</li> </ul>
	Initiate external compliance audits	<ul style="list-style-type: none"> <li>• Conduct internal QMS audit on documentation and reporting of quality-related information</li> <li>• Audit other departments' processes, SOPs and work areas for QA compliance</li> <li>• Audit vendors' compliance to organisation's and regulatory quality standards</li> <li>• Perform due diligence on vendor quality to advise on contract renewals and terminations and new vendor selection</li> </ul>	
	Coordinate testing and commissioning	<ul style="list-style-type: none"> <li>• Ensure proper management of equipment and system qualification and validation</li> <li>• Plan and execute tests and inspections in accordance with inspection and test plans (ITPs)</li> <li>• Classify identified faults and prioritise corrective measures based on criticality of issues</li> <li>• Coordinate testing and commissioning work by team members and other departments</li> <li>• Coordinate classification societies' and owners' attendance at relevant inspections</li> </ul>	

# Quality Assurance/Quality Control Engineer

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Improve QA/QC performance	<ul style="list-style-type: none"> <li>• Implement corrective and preventative actions (CAPA) plans</li> <li>• Analyse quality assessment reports to identify gaps and improvements</li> <li>• Conduct transaction monitoring against quality criteria covering in-process quality oversights</li> <li>• Monitor potential hazards and safety risks in order to implement control measures and preventative actions</li> <li>• Analyse the root cause of quality issues and implement quality improvement measures</li> </ul>	
	Oversee QA/QC documentation and reporting	<ul style="list-style-type: none"> <li>• Maintain up-to-date master lists and proper control of all released quality management system (QMS) documents</li> <li>• Ensure documents and record-keeping are in compliance with quality procedures for internal and external audits</li> <li>• Ensure quality documents related to the project are maintained regularly</li> <li>• Generate test and audit reports and present results to team members</li> </ul>	

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Big Data Analytics	Level 4	Problem Solving	Intermediate
	Business Presentation Delivery	Level 3	Resource Management	Intermediate
	Change Management	Level 3	Leadership	Intermediate
	Commissioning Coordination	Level 3	Interpersonal Skills	Intermediate
	Continuous Quality Improvement	Level 3	Decision Making	Intermediate
	Electrical Testing	Level 3		
	Emergency Response Management	Level 2		
	Manufacturing Workflow Management	Level 4		
	Marine Engineering Calculations	Level 3		
	Material Inspection	Level 3		
	Naval Architecture Calculations	Level 4		
	Non-destructive Testing	Level 4		
	Programme Management	Level 3		
	Quality Engineering Integration	Level 3		
	Quality Systems Management	Level 3		
	Service Excellence	Level 3		
	Stakeholder Management	Level 3		
	Structural Testing	Level 3		
	Technical Inspection	Level 3		
	Technical Writing	Level 3		
	Value Engineering	Level 3		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Performance Management	Level 2		



# Senior Quality Assurance/Quality Control Engineer

## JOB ROLE DESCRIPTION

The Senior Quality Assurance/Quality Control Engineer is responsible for developing Quality Assurance and Quality Control (QA/QC) monitoring and measurement plans. He/She establishes and manages QA and compliance systems, and provides quality oversight to other departments on all quality-related matters.

His duties require working outdoors on the shop floors, within dry docks and onboard ships to support quality enforcement. He must possess a level of physical fitness appropriate to the job requirements. He should be meticulous to identify potential quality concerns across the organisation's operations.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Deploy quality assurance and quality control (QA/QC) policies, processes and procedures	<ul style="list-style-type: none"> <li>• Develop standard operating procedures (SOPs) for the QA/QC department</li> <li>• Integrate quality management into other departments' workflows and SOPs</li> <li>• Manage the implementation of policies and procedure revisions</li> <li>• Develop quality management resource and budget plans based on project requirement assessments</li> <li>• Identify gaps from quality reports and test cases to facilitate quality management</li> <li>• Isolate root causes of quality issues and develop corrective and preventative actions (CAPA) plans</li> </ul>	In accordance with: <ul style="list-style-type: none"> <li>• Classification Society regulations;</li> <li>• Workplace Safety and Health (WSH) Act</li> </ul>
	Initiate external compliance audits	<ul style="list-style-type: none"> <li>• Assess QMS compliance and highlight critical and/or recurring issues</li> <li>• Coordinate external audits with regulators, classification societies, service providers and customers</li> <li>• Monitor the integration of quality management principles based on internal audit reports</li> </ul>	
	Coordinate testing and commissioning	<ul style="list-style-type: none"> <li>• Develop inspection and testing plans (ITPs), technical test cases, test ware and test scripts for small scale projects</li> <li>• Manage quality inspection schedules</li> <li>• Develop and adapt testing and commissioning procedures and parameters</li> <li>• Plan, schedule and carry-out material, parts, equipment and systems testing</li> <li>• Coordinate in-process technical testing and inspections during fabrication and installation</li> <li>• Oversee commissioning processes</li> <li>• Monitor quality deliverables from test groups</li> </ul>	
	Oversee QA/QC documentation and reporting	<ul style="list-style-type: none"> <li>• Prepare final documentation dossiers and manufacturing data records (MRDs)</li> <li>• Manage documents and reports and adapt SOPs to meet specific project briefs</li> <li>• Record approved performance metrics and quality-related metrics of relevant departments</li> <li>• Document quality improvement activities and the effectiveness in improving quality</li> <li>• Review and approve technical QA/QC engineering documents and vendor quality documentation and certificates</li> </ul>	
	Manage people and organisational function	<ul style="list-style-type: none"> <li>• Optimise utilisation of resources to support operations</li> <li>• Propose tweaks to business processes to support change management initiatives</li> <li>• Support negotiations with relevant key internal and external stakeholders</li> </ul>	

# Senior Quality Assurance/Quality Control Engineer

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Big Data Analytics	Level 4	Problem Solving	Advanced
	Business Negotiation	Level 4	Resource Management	Advanced
	Business Presentation Delivery	Level 4	Leadership	Intermediate
	Change Management	Level 3	Interpersonal Skills	Intermediate
	Commissioning Coordination	Level 4	Decision Making	Intermediate
	Continuous Quality Improvement	Level 4		
	Crisis Management	Level 3		
	Electrical Testing	Level 4		
	Emergency Response Management	Level 2		
	Financial Budgeting	Level 3		
	Financial Planning	Level 3		
	Manpower Forecasting	Level 3		
	Manufacturing Workflow Management	Level 4		
	Marine Engineering Calculations	Level 3		
	Material Inspection	Level 4		
	Naval Architecture Calculations	Level 4		
	Non-destructive Testing	Level 4		
	Operational Risk Management	Level 3		
	Organisational Performance Management	Level 3		
	Programme Management	Level 4		
	Quality Engineering Integration	Level 5		
	Quality Systems Management	Level 5		
	Service Excellence	Level 3		
	Staff Performance Management	Level 3		
	Stakeholder Management	Level 4		
	Structural Testing	Level 4		
	Technical Inspection	Level 4		
	Technical Writing	Level 4		
	Value Engineering	Level 3		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Performance Management	Level 2		

# Quality Assurance/Quality Control Manager

## JOB ROLE DESCRIPTION

The Quality Assurance/Quality Control Manager is responsible for leading, implementing, and improving Quality Management Systems (QMS) infrastructure, governance and compliance processes and related frameworks in the organisation. He/She carries out audits to assess compliance with regulations, guidelines and operating procedures.

He serves as the organisation's expert on Quality Assurance and Quality Control (QA/QC) matters and provides consultation to stakeholders to interpret quality-related regulations, guidelines, policies, and procedures.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	<p>Deploy quality assurance and quality control (QA/QC) policies, processes and procedures</p>	<ul style="list-style-type: none"> <li>• Formulate and update organisational quality strategies according to legal and client requirements</li> <li>• Collaborate with other departments to devise design, production and repair quality parameters for projects based on client specifications and standards</li> <li>• Integrate quality policies, processes and requirements to structure quality management systems</li> <li>• Cascade quality-related roles and responsibilities across departments to ensure integration of quality assurance and correction throughout product, project and/or service lifecycles</li> <li>• Advise improvements in testing and commissioning procedures and processes</li> <li>• Drive implementation of industry best-practices and improvement initiatives to address quality management system (QMS) and QA/QC gaps</li> <li>• Develop customer-centric performance management metrics</li> <li>• Recommend engineering and procurement processes and systems improvements</li> </ul>	<p>In accordance with:</p> <ul style="list-style-type: none"> <li>• Classification Society regulations;</li> <li>• Workplace Safety and Health (WSH) Act</li> </ul>
	<p>Initiate external compliance audits</p>	<ul style="list-style-type: none"> <li>• Lead external audits with regulators, classification societies, service providers and customers</li> <li>• Formulate internal audit scope and criteria in accordance with internal and external QA/QC and QMS requirements</li> <li>• Evaluate audit findings to identify vulnerabilities and devise rectification plans as necessary</li> <li>• Guide respective non-compliant departments on how to implement rectification plans and improve quality management integration</li> <li>• Oversee closure of quality compliance issues</li> </ul>	

# Quality Assurance/Quality Control Manager

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Coordinate testing and commissioning	<ul style="list-style-type: none"> <li>• Develop inspection and testing plans (ITPs) for larger scale projects, including the development of technical test cases, test ware and test scripts</li> <li>• Approve test cases, test ware and test scripts and evaluate test results and findings</li> <li>• Formulate testing and commissioning policies and parameters based on organisation-wide policies and incorporate Workplace Safety and Health (WSH) practices essential to QA/QC</li> <li>• Monitor progress of testing and commissioning activities</li> <li>• Host mock regulatory inspections and regulatory facility inspections to ensure continuity of quality and preparedness for audits</li> <li>• Lead commissioning from the QA/QC standpoint</li> <li>• Conduct final review of testing and commissioning procedures and results to ensure compliance with all requirements and specifications</li> <li>• Ensure all faulty parts, equipment and systems have been replaced or rectified and proper re-testing procedures have been implemented to verify their operations</li> </ul>	
	Oversee QA/QC documentation and reporting	<ul style="list-style-type: none"> <li>• Establish documentation procedures and management systems regarding formatting, review processes, version control, distribution, and filling</li> <li>• Oversee reporting of quality and regulatory issues and maintain the quality control record systems</li> <li>• Approve QA/QC-related technical documents</li> <li>• Issue in-house quality compliance documents</li> <li>• Consolidate audit findings and prepare reports for relevant stakeholders</li> </ul>	
	Manage people and organisational function	<ul style="list-style-type: none"> <li>• Manage the engineering procurement team</li> <li>• Develop strategies for resource planning and utilisation</li> <li>• Analyse viability of workplace improvements and change management initiatives</li> <li>• Participate in negotiations with relevant key internal and external stakeholders</li> <li>• Analyse financial implications of business strategies to relevant functional areas</li> <li>• Monitor employees' understanding of relevant legislative and regulatory procedures</li> </ul>	

# Quality Assurance/Quality Control Manager

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Big Data Analytics	Level 5	Decision Making	Advanced
	Business Negotiation	Level 5	Leadership	Advanced
	Business Presentation Delivery	Level 4	Global Mindset	Advanced
	Business Proposal Writing	Level 5	Communication	Advanced
	Change Management	Level 4	Developing People	Advanced
	Commissioning Coordination	Level 4		
	Conflict Resolution	Level 4		
	Continuous Quality Improvement	Level 5		
	Corporate Governance	Level 4		
	Crisis Management	Level 4		
	Electrical Testing	Level 4		
	Emergency Response Management	Level 2		
	Financial Budgeting	Level 4		
	Financial Planning	Level 4		
	Manpower Forecasting	Level 4		
	Manufacturing Workflow Management	Level 4		
	Marine Engineering Calculations	Level 3		
	Naval Architecture Calculations	Level 4		
	Operational Risk Management	Level 4		
	Organisational Performance Management	Level 4		
	Programme Management	Level 5		
	Project Quality Management	Level 5		
	Quality Engineering Integration	Level 6		
	Quality Systems Management	Level 6		
	Service Excellence	Level 3		
	Staff Performance Management	Level 4		
	Stakeholder Management	Level 5		
	Structural Testing	Level 4		
	Technical Inspection	Level 4		
	Technical Writing	Level 4		
	Value Engineering	Level 3		
	Workplace Safety and Health Culture Development	Level 3		
	Workplace Safety and Health Performance Management	Level 2		



## Assistant Project Manager

Aloysius Cai  
Keppel Shipyard

“In the shift towards digitalisation, it is very important for us to keep abreast of value-added and innovative technologies.”

### KEEPING UP WITH THE TRENDS

Aloysius Cai says it is an amazing feeling being part of a profession that is responsible for the giant vessels that have operated in the oceans for decades. Aloysius works at Keppel Shipyard, a leading company in the repair, conversion and upgrading of a diverse range of vessels. As Assistant Project Manager, he manages the projects undertaken by the company and ensures complete product delivery according to client expectations.

Aloysius points out that an exciting part of the sector is keeping up with its trends as the sector is extremely dynamic. “The marine and offshore sector is constantly developing and growing to meet the everyday energy needs of the world. From oil to gas, from floating production storage and offloading (FPSO) to floating liquefied natural gas (FLNG) – there is always another innovative product or bigger facility to be launched in the market,” he says.

Aloysius says that with the sector’s move towards more environmentally-friendly products, Keppel Shipyard is taking on more gas-related projects. An example is the recently delivered Hilli Episeyo, the world’s first converted floating liquefaction vessel. In addition, innovative technology is also being applied to these projects. “In the shift towards digitalisation, it is very important for us to keep abreast of value-added and innovative technologies such as virtual reality, internet-of-things, blockchain, cloud computing, drones, machine learning, artificial intelligence, and more. These technologies have the potential to optimise processes, enable effective engagement with customers, transform products and empower employees.”

Aloysius says those interested in the sector should possess passion, dedication and resilience. This includes putting in the effort to take ownership of your own learning progress. When he was undergoing the Management Trainee Programme, he kept a daily journal of his experiences. He cross-referenced it with research he found online and still refers to it today when faced with similar projects.

It is also important to be aware of the skills that are needed to work in this dynamic sector. The Skills Framework for Marine and Offshore lists both technical as well as generic skills and competencies. “In this Information Age where information is so accessible, getting it isn’t the problem. However, getting the right information is. Therefore, the Skills Framework, which lists the competencies and skills that are applicable in the workplace and are recognised by the employer, will be a useful reference tool.” Aloysius says.

# Project Engineer

## JOB ROLE DESCRIPTION

The Project Engineer is responsible for ensuring proper adoption of resource, quality, and risk standards during the project lifecycle. He/She coordinates all administrative processes related to a project, including the final project handover documentation. He typically comes from an engineering background with work experience in production and/or design, and is able to identify and report project-related issues, and suggests changes related to quality, risk, and administrative processes.

He has good communication and negotiation skills for engaging with both internal and external parties to coordinate project activities between organisational departments and teams during the various phases of a project, as well as managing sub-contractors to ensure they are integrated into the project and adhering to technical requirements.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Oversee project plans and execution	<ul style="list-style-type: none"> <li>• Coordinate project administration in accordance with project administration policies and procedures</li> <li>• Coordinate with the technical department to resolve issues</li> <li>• Record and maintain project-related documentation</li> <li>• Interpret contract terms and conditions which includes technical specifications and warranty</li> <li>• Liaise with third party subcontractors to ensure execution as per finalised technical specifications, budgets and time schedules</li> <li>• Monitor project costs and identify potential cost issues</li> <li>• Monitor project schedules and report potential changes in project schedules to management</li> </ul>	In accordance with: Classification Society regulations
	Manage project risks	<ul style="list-style-type: none"> <li>• Identify risks for a specified functional area within a project</li> <li>• Adopt risk control policies and procedures to mitigate risks</li> <li>• Escalate complex risks to management</li> </ul>	
	Manage project resources	<ul style="list-style-type: none"> <li>• Monitor resource usage</li> <li>• Propose resource needs for projects in collaboration with production teams</li> <li>• Recommend re-allocation of resources to meet project requirements</li> <li>• Liaise with external stakeholders for timely delivery of resources</li> </ul>	
	Manage warranty claims and variation orders	<ul style="list-style-type: none"> <li>• Coordinate activities as directed to resolve warranty claims</li> <li>• Coordinate execution of variation orders</li> </ul>	
	Manage project quality	<ul style="list-style-type: none"> <li>• Liaise with relevant stakeholders to ensure quality level of project deliverables is in accordance with organisational quality standards</li> <li>• Adopt quality assurance and quality control (QA/QC) policies and procedures consistently throughout project lifecycle</li> <li>• Provide inputs to assessment of quality management outcomes in relation to desired outcomes with the quality assurance (QA) team</li> </ul>	



# Project Engineer

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Big Data Analytics	Level 4	Teamwork	Intermediate
	Business Negotiation	Level 3	Interpersonal Skills	Basic
	Business Presentation Delivery	Level 3	Communication	Intermediate
	Business Proposal Writing	Level 4	Resource Management	Basic
	Commissioning Coordination	Level 3	Data Analytics	Basic
	Component Assembly	Level 4		
	Continuous Quality Improvement	Level 3		
	Contract Development and Management	Level 4		
	Emergency Response Management	Level 2		
	Financial Budgeting	Level 3		
	Financial Planning	Level 3		
	Manufacturing Workflow Management	Level 4		
	Marine Engineering Calculations	Level 3		
	Naval Architecture Calculations	Level 4		
	Programme Management	Level 4		
	Project Coordination	Level 3		
	Project Feasibility Assessment	Level 4		
	Project Quality Management	Level 3		
	Project Risk Management	Level 3		
	Quality Engineering Integration	Level 3		
	Quality System Management	Level 3		
	Service Excellence	Level 2		
	Stakeholder Management	Level 3		
	Technical Inspection	Level 3		
	Technical Writing	Level 3		
	Value Engineering	Level 4		
	Vendor Management	Level 3		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Performance Management	Level 2		

# Senior Project Engineer

## JOB ROLE DESCRIPTION

The Senior Project Engineer is responsible for executing project management plans from start to finish, to ensure project completions on time, and within budget. He/She typically comes from an engineering background with work experience in production and/or design, and is able to develop project schedules, budgets and manage project staff and subcontractors.

He has good communication and negotiation skills for engaging internal and external parties to secure specialised resources and contributions for projects, and managing ongoing relationships with sub-contractors. He oversees sub-contractors' schedules, performance, and payments, and has the responsibility to reschedule and coordinate work to ensure compliance with applicable project schedules.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Oversee project plans and execution	<ul style="list-style-type: none"> <li>• Monitor project scopes, budgets and schedules</li> <li>• Review project and sub-contractor contracts</li> <li>• Coordinate with other departments on financial, technical, and administrative aspects of projects</li> <li>• Interpret design drawings and specification plans to identify potential risks and deviations</li> <li>• Manage project documentation</li> <li>• Ensure project outcome delivery within schedule and specifications</li> <li>• Facilitate handovers of financial, technical, and administrative information</li> </ul>	In accordance with: <ul style="list-style-type: none"> <li>• Classification Society regulations</li> </ul>
	Manage project risks	<ul style="list-style-type: none"> <li>• Identify risks throughout the project lifecycle</li> <li>• Perform complex risk assessment</li> </ul>	
	Manage project resources	<ul style="list-style-type: none"> <li>• Draft resource plans for projects</li> <li>• Propose areas of improvement for resource allocation and usage</li> </ul>	
	Manage warranty claims and variation orders	<ul style="list-style-type: none"> <li>• Support quality assurance (QA) in evaluating warranty claims</li> <li>• Lead execution of variation orders in coordination with production</li> <li>• Plan and track implementation of forward measures and ensure final acceptance by clients</li> </ul>	
	Lead project reviews	<ul style="list-style-type: none"> <li>• Review project management outcomes to determine areas of improvement</li> <li>• Monitor improvements to project management functions</li> </ul>	
	Manage project quality	<ul style="list-style-type: none"> <li>• Implement QA procedures in collaboration with QA department</li> <li>• Coordinate quality testing activities of project deliverables</li> <li>• Evaluate project deliverables in accordance with project requirements</li> <li>• Identify areas of improvement for project quality</li> <li>• Liaise with quality assurance and quality control (QA/QC) department to manage quality of project deliverables</li> </ul>	

# Senior Project Engineer

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Big Data Analytics	Level 4	Teamwork	Advanced
	Business Negotiation	Level 4	Interpersonal Skills	Intermediate
	Business Presentation Delivery	Level 4	Problem Solving	Intermediate
	Business Proposal Writing	Level 4	Leadership	Intermediate
	Change Management	Level 3	Data Analytics	Intermediate
	Commissioning Coordination	Level 4		
	Component Assembly	Level 4		
	Continuous Quality Improvement	Level 3		
	Contract Development and Management	Level 4		
	Crisis Management	Level 3		
	Emergency Response Management	Level 2		
	Financial Budgeting	Level 3		
	Financial Planning	Level 3		
	Manpower Forecasting	Level 4		
	Manufacturing Workflow Management	Level 4		
	Marine Engineering Calculations	Level 3		
	Naval Architecture Calculations	Level 4		
	Operational Risk Management	Level 3		
	Organisational Performance Management	Level 3		
	Programme Management	Level 5		
	Project Coordination	Level 4		
	Project Feasibility Assessment	Level 5		
	Project Quality Management	Level 4		
	Project Risk Management	Level 4		
	Quality Engineering Integration	Level 3		
	Quality System Management	Level 4		
	Service Excellence	Level 3		
	Staff Performance Management	Level 3		
	Stakeholder Management	Level 4		
	Technical Inspection	Level 3		
	Technical Writing	Level 4		
	Value Engineering	Level 4		
	Vendor Management	Level 4		
	Workplace Safety and Health Culture Development	Level 2		
	Workplace Safety and Health Performance Management	Level 2		

# Project Manager

## JOB ROLE DESCRIPTION

The Project Manager is in charge of a range of projects undertaken by the organisation, and is responsible for ensuring complete product delivery and handover according to respective project scope specifications and standards.

He/She plays a strategic role in managing the organisation's many projects, and is responsible for defining project scopes, objectives, plans and performance measuring criteria to ensure the completion of project deliverables according to required standards and client expectations. He also leads project reviews to identify synergies and areas of improvements across the portfolio of projects.

He has good communication and negotiation skills to manage key strategic stakeholders.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Oversee project plans and execution	<ul style="list-style-type: none"> <li>• Define project scopes, objectives, budget and outcomes</li> <li>• Evaluate project feasibility against organisation's capabilities and resources</li> <li>• Monitor project costs to ensure alignment with project budgets</li> <li>• Evaluate project planning and management outcomes</li> <li>• Assess potential issues to control and manage project contingencies</li> <li>• Endorse project planning and management outcomes</li> <li>• Formalise project completions and handovers</li> <li>• Disseminate project information to stakeholders</li> </ul>	In accordance with: <ul style="list-style-type: none"> <li>• Classification Society regulations</li> </ul>
	Manage project risks	<ul style="list-style-type: none"> <li>• Analyse risks across project portfolios in accordance with organisational risk management policies and processes</li> <li>• Lead the implementation of risk mitigation initiatives</li> <li>• Support the formulation of the organisation's project risk policies and mitigation strategies by coordinating with the risk management department</li> <li>• Review project contracts in collaboration with commercial unit specialists</li> <li>• Assess impact of changes to project scopes and deliverables</li> </ul>	
	Manage project resources	<ul style="list-style-type: none"> <li>• Oversee resource needs for all projects</li> <li>• Review resource allocation and usage</li> <li>• Collaborate with internal and external stakeholders to ensure availability of resources</li> </ul>	

# Project Manager

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Manage warranty claims and variation orders	<ul style="list-style-type: none"> <li>Evaluate warranty claims and assess impact on projects</li> <li>Collaborate with quality assurance (QA) to support claims, oversee and ensure final acceptance by clients</li> <li>Review variation orders to determine impact on project timelines and resources</li> <li>Ensure completion of variation orders in collaboration with other departments</li> </ul>	
	Lead project reviews	<ul style="list-style-type: none"> <li>Formulate project review policies and procedures</li> <li>Evaluate implications of project review findings and discussion topics on project management functions and organisational processes and procedures</li> <li>Establish improvements to project management functions and organisational processes and procedures</li> </ul>	
	Manage project quality	<ul style="list-style-type: none"> <li>Support the formulation of QA procedures in collaboration with QA department</li> <li>Work with the QA department to oversee quality testing activities</li> <li>Evaluate effectiveness of quality assurance and quality control (QA/QC) procedures</li> </ul>	
	Manage the organisational project management functional	<ul style="list-style-type: none"> <li>Mentor a team of project engineers</li> <li>Deliver regular constructive feedback in order to promote employee development</li> <li>Identify areas of technical and business management training development</li> </ul>	

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Big Data Analytics	Level 5	Decision Making	Advanced
	Business Negotiation	Level 5	Leadership	Advanced
	Business Presentation Delivery	Level 4	Resource Management	Advanced
	Business Proposal Writing	Level 5	Interpersonal Skills	Advanced
	Change Management	Level 4	Service Orientation	Advanced
	Commissioning Coordination	Level 4		
	Conflict Resolution	Level 4		
	Continuous Quality Improvement	Level 4		
	Contract Development	Level 4		
	Corporate Governance	Level 4		
	Crisis Management	Level 4		
	Emergency Response Management	Level 2		
	Financial Budgeting	Level 4		

# Project Manager

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES	
	Financial Planning	Level 3
	Manpower Forecasting	Level 4
	Manufacturing Workflow Management	Level 5
	Marine Engineering Calculations	Level 3
	Naval Architecture Calculations	Level 4
	Operational Risk Management	Level 4
	Organisational Performance Management	Level 4
	Programme Management	Level 6
	Project Coordination	Level 5
	Project Feasibility Assessment	Level 6
	Project Quality Management	Level 5
	Project Risk Management	Level 5
	Quality Engineering Integration	Level 4
	Quality System Management	Level 4
	Service Excellence	Level 4
	Staff Performance Management	Level 4
	Stakeholder Management	Level 5
	Strategy Development	Level 4
	Technical Inspection	Level 3
	Technical Writing	Level 4
	Value Engineering	Level 4
	Vendor Management	Level 5
	Workplace Safety and Health Culture Development	Level 2
	Workplace Safety and Health Performance Management	Level 2



## Health, Safety and Environment Coordinator

Ellys Lim

Metal Machines Engineering Services Pte Ltd

“Stay nimble and embrace continuous lifelong learning as the marine and offshore sector is a very dynamic environment.”

### SAFETY COMES FIRST

As a Health, Safety and Environment (HSE) Coordinator, the most meaningful part of Ellys Lim's job is ensuring her colleagues return home safely to their loved ones at the end of the work day. This is because her role is to manage the safety system at Metal Machines Engineering Services Pte Ltd, a company that provides engineering products and solutions.

Almost a decade ago, she joined the company after graduating from the polytechnic. Her initial work scope was to assist the Senior Engineer in managing projects. With the company's increasing emphasis on safety standards, there was a need for a more focused role of a HSE Coordinator. She was chosen by the management for this role because of her positivity and persistence in propagating the importance of safety to fellow colleagues.

“There's a misconception that working in the marine and offshore sector is very dangerous, and that safety policies exist only to fulfil regulatory requirements.” Ellys is quick to dispel this notion. “Safety is everyone's responsibility. I act as a facilitator to ensure the safety system is implemented thoroughly and effectively. There needs to be an emphasis on safety in everyone's daily lives – from employees to business owners – as the safety of all workers is paramount.” she explains.

With over 14 years of experience in the sector, she believes that companies can benefit by aligning both HSE and human resource policies. “This is because HSE strategies should be embedded into all levels of the organisation, instead of a few people in the safety department. This will effectively inculcate a safety culture in an organisation,” she says.

Realising this potential avenue for development, she is currently pursuing a part-time course in human resource. She says that referencing the Skills Framework can be a good start when figuring out the ways she can value-add to her company as a Workplace Safety and Health professional.

The determination to improve yourself is something she encourages all entrants in the sector to possess. “Stay nimble and embrace continuous lifelong learning as the marine and offshore sector is a very dynamic environment,” she concludes.

# Workplace Safety and Health Coordinator

## JOB ROLE DESCRIPTION

The Workplace Safety and Health (WSH) Coordinator supports the organisation's WSH procedures by conducting safety checks, observing daily work practices, evaluating risks associated with identified hazards and escalating WSH issues for further action.

His duties require him to work outdoors, conducting checks on shop floors, within dry docks and onboard ships. He must possess a level of physical fitness appropriate to the job, and must fulfil legally mandated WSH training, to undertake the job and specific WSH tasks.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Deploy Workplace Safety and Health (WSH) programmes	<ul style="list-style-type: none"> <li>• Carry out initiatives to support WSH programmes</li> <li>• Conduct safety inductions and orientations</li> <li>• Explain WSH compliance requirements and proper work practices pertaining to employees' specific work processes or areas</li> <li>• Address and advise on specific instances of WSH non-compliance and unsafe work practices</li> </ul>	In accordance with: <ul style="list-style-type: none"> <li>• Workplace Safety and Health (WSH) Act</li> </ul>
	Manage WSH performance	<ul style="list-style-type: none"> <li>• Participate in WSH compliance inspections</li> <li>• Collect data on WSH performance, conditions and practices</li> <li>• Report instances of WSH non-compliance, unsafe work conditions and practices</li> <li>• Implement and monitor effectiveness of WSH improvement actions</li> </ul>	
	Coordinate emergency response and incident and accident investigations	<ul style="list-style-type: none"> <li>• Follow emergency preparedness and response plans (EPRPs) during emergency situations</li> <li>• Alert team members of emergency situations and potential escalation of incidents and accidents</li> <li>• Conduct emergency response drills</li> <li>• Follow investigation protocols to collect data and report findings</li> <li>• Support implementation of corrective and preventive actions (CAPA)</li> </ul>	

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Emergency Response Management	Level 3	Communication	Intermediate
	Forming	Level 3	Problem Solving	Basic
	Incident and Accident Investigation	Level 3	Resource Management	Basic
	Joining and Welding	Level 3	Teamwork	Intermediate
	Launch Planning and Management	Level 4	Decision Making	Basic
	Lift Planning and Management	Level 3		
	Machining	Level 2		
	Programme Management	Level 2		
	Quality System Management	Level 2		
	Technical Inspection	Level 3		
	Technical Writing	Level 2		
	Workplace Safety and Health Culture Development	Level 3		
	WSH Performance Management	Level 2		
	WSH Policy Development	Level 4		



# Workplace Safety and Health Officer

## JOB ROLE DESCRIPTION

The Workplace Safety and Health (WSH) Officer is responsible for implementing and maintaining the organisation's WSH procedures to promote a safe work environment. He/She conducts incident investigations, evaluates risks associated with the hazards identified in the workplace and reports progress of corrective and preventive actions undertaken within nominated areas. He also attends Vessel Safety Coordination Committee (VSCC) meetings, and may assume the role of secretary to record meeting minutes.

His duties require him to work outdoors, conducting inspections on shop floors, within dry docks and onboard ships. He must possess a level of physical fitness appropriate to the job, keen observation skills and in-depth WSH knowledge to enforce safety compliance. He must possess a relevant qualification recognised by the Ministry of Manpower (MOM), and may be further required to be registered with MOM.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Deploy Workplace Safety and Health (WSH) programmes	<ul style="list-style-type: none"> <li>• Implement Workplace Safety and Health Management System (WSHMS) and risk management (rm) plans within scope of own work</li> <li>• Maintain WSHMS documentation</li> <li>• Conduct document reviews of WSHMS reports</li> <li>• Develop WSH training programmes and conduct trainings for safety-critical roles</li> </ul>	In accordance with: <ul style="list-style-type: none"> <li>• Workplace Safety and Health (WSH) Act</li> </ul>
	Develop Workplace Safety and Health Management Systems (WSHMS)	<ul style="list-style-type: none"> <li>• Coordinate WSH programme initiatives</li> <li>• Develop and deliver safety briefings</li> <li>• Highlight barriers against compliance with WSH policy and procedures</li> <li>• Intervene in the presence of unsafe behaviours and work practices</li> <li>• Monitor the implementation progress of recommended WSHMS improvements</li> <li>• Stay abreast of legislative requirements and alert of any changes</li> </ul>	
	Manage WSH performance	<ul style="list-style-type: none"> <li>• Carry out WSH compliance inspections</li> <li>• Coach team members to conduct routine checks on work activities</li> <li>• Evaluate WSH non-compliance, unsafe work conditions and practices to identify WSH performance gaps</li> <li>• Evaluate impact of health hazards to employees' safety and prioritise issues bases on severity</li> <li>• Report findings of WSH compliance inspections and routine checks</li> <li>• Recommend and implement actions to improve WSH performance and control risks</li> <li>• Review effectiveness of implemented improvements on an on-going basis</li> </ul>	

# Workplace Safety and Health Officer

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Coordinate emergency response and incident and accident investigations	<ul style="list-style-type: none"> <li>• Implement emergency preparedness and response plans (EPRPs) and communicate plans</li> <li>• Coordinate EPRP drills and maintenance of emergency response equipment</li> <li>• Conduct WSH incident and accident investigations</li> <li>• Review investigation findings to identify causes of incidents and accidents</li> <li>• Propose corrective and preventive measures to address root cause of incidents</li> <li>• Prepare incident and accident reports</li> <li>• Monitor implementation of corrective and preventive actions [CAPA]</li> </ul>	

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Business Presentation Delivery	Level 3	Communication	Intermediate
	Change Management	Level 3	Problem Solving	Basic
	Crisis Management	Level 3	Resource Management	Basic
	Emergency Response Management	Level 4	Teamwork	Intermediate
	Forming	Level 3	Decision Making	Basic
	Incident and Accident Investigation	Level 4		
	Innovation Management	Level 3		
	Launch Planning and Management	Level 4		
	Lift Planning and Management	Level 3		
	Machining	Level 2		
	Programme Management	Level 2		
	Quality System Management	Level 3		
	Stakeholder Management	Level 3		
	Technical Inspection	Level 3		
	Technical Writing	Level 4		
	Workplace Safety and Health Culture Development	Level 4		
	Workplace Safety and Health Performance Management	Level 3		
	Workplace Safety and Health Policy Development	Level 5		
	Workplace Safety and Health System Management	Level 3		

# Senior Workplace Safety and Health Officer

## JOB ROLE DESCRIPTION

The Senior Workplace Safety and Health (WSH) Officer is responsible for administering and coordinating the organisation's Workplace Safety and Health Management Systems (WSHMS), processes and policies.

His/Her duties require him to work outdoors, conducting inspections on shop floors, within dry docks and onboard ships. He must possess a level of physical fitness appropriate to the job and in-depth WSH knowledge to enforce safety compliance at the workplace. He must possess a relevant qualification recognised by the Ministry of Manpower (MOM) to take on the job, and may be required to be registered with MOM.

He should be comfortable interacting with people of diverse backgrounds, as the job entails liaising with stakeholders to address queries on improvements to maintain WSH performance across the organisation. He also manages internal WSH audit systems, and coordinates government agency visits, inspections, and compliance audits at the workplace.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Establish Workplace Safety and Health (WSH) procedures	<ul style="list-style-type: none"> <li>Assess the established WSH policy and objectives</li> <li>Develop WSH procedures with team members</li> <li>Propose improvements to WSH policies and procedures</li> <li>Implement and monitor closure of recommended WSH policy improvement actions</li> </ul>	In accordance with: <ul style="list-style-type: none"> <li>Workplace Safety and Health (WSH) Act</li> </ul>
	Develop Workplace Safety and Health Management Systems (WSHMS)	<ul style="list-style-type: none"> <li>Develop risk management (RM) plans for respective work processes and work areas</li> <li>Establish RM and risk assessment (RA) teams within respective work processes and work areas</li> <li>Advise RM and RA teams on implementing the WSHMS within the scope of their work areas</li> <li>Propose improvements to the WSHMS</li> <li>Develop action plans to implement WSHMS improvements</li> </ul>	
	Deploy WSH programmes	<ul style="list-style-type: none"> <li>Develop WSH programme initiatives to promote compliance with WSH procedures</li> <li>Set up WSH programme steering and working committees</li> <li>Resolve barriers in complying with WSH policies and procedures</li> <li>Propose improvements to WSH programmes and training programmes</li> <li>Evaluate outcomes of implementing WSH programmes</li> </ul>	
	Manage WSH performance	<ul style="list-style-type: none"> <li>Plan WSH compliance inspections and routine checks</li> <li>Determine data collection and analysis requirements to measure WSH performance</li> <li>Develop WSH performance criteria and targets with team members</li> <li>Develop criteria for assessing the effectiveness of the WSHMS, WSH programmes and emergency preparedness and response plans (EPRPs)</li> <li>Evaluate the effectiveness of WSHMS, WSH programmes and EPRP improvements</li> </ul>	

# Senior Workplace Safety and Health Officer

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Coordinate emergency response and incident and accident investigations	<ul style="list-style-type: none"> <li>• Organise reviews and collect stakeholder feedback on the EPRP for improvements</li> <li>• Manage incident and accident investigations, data analyses and reporting</li> <li>• Assess root cause of incidents and accidents</li> <li>• Review corrective and preventive actions (CAPA) measures proposed by team members</li> <li>• Revise incident and accident reports prepared by team members</li> </ul>	
	Manage people and organisational function	<ul style="list-style-type: none"> <li>• Acquire and allocate operational resources</li> <li>• Propose tweaks to business processes and operations to support change management</li> <li>• Support negotiations with relevant key internal and external stakeholders</li> <li>• Track employee performance by utilising performance monitoring systems</li> </ul>	

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Business Negotiation	Level 4	Communication	Intermediate
	Business Presentation Delivery	Level 4	Problem Solving	Basic
	Change Management	Level 3	Resource Management	Basic
	Crisis Management	Level 3	Teamwork	Intermediate
	Emergency Response Management	Level 5	Decision Making	Intermediate
	Financial Budgeting	Level 3		
	Financial Planning	Level 3		
	Incident and Accident Investigation	Level 4		
	Innovation Management	Level 3		
	Manpower Forecasting	Level 3		
	Market Research	Level 3		
	Operational Risk Management	Level 3		
	Organisational Performance Management	Level 3		
	Programme Management	Level 2		
	Quality System Management	Level 3		
	Staff Performance Management	Level 3		
	Stakeholder Management	Level 4		
	Strategy Development	Level 4		
	Technical Writing	Level 4		
	Workplace Safety and Health Culture Development	Level 5		
	Workplace Safety and Health Performance Management	Level 4		
	Workplace Safety and Health Policy Development	Level 5		
	Workplace Safety and Health System Management	Level 4		

# Workplace Safety and Health Manager

## JOB ROLE DESCRIPTION

The Workplace Safety and Health (WSH) Manager plays a strategic role in ensuring alignment between the organisation's WSH policy and its business and operational concerns. He collaborates closely with colleagues to facilitate effective enforcement of WSH parameters across the organisation, by evaluating current processes and systems, and staying abreast of legislative requirements and industry best practices in WSH. He must possess a relevant qualification recognised by the Ministry of Manpower (MOM) to take on the job, and may be required further to be registered with MOM.

The WSH Manager should be comfortable interacting with people of diverse backgrounds, as the job entails liaising with internal and external stakeholders to maintain WSH performance across the organisation.

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS	PERFORMANCE EXPECTATIONS
	Establish Workplace Safety and Health (WSH) procedures	<ul style="list-style-type: none"> <li>Formulate organisational WSH policy in collaboration with other departments</li> <li>Lead management reviews of WSH policies</li> <li>Evaluate the alignment of WSH policies against functional and organisational objectives</li> <li>Drive implementation of WSH policy improvements</li> </ul>	In accordance with: <ul style="list-style-type: none"> <li>Workplace Safety and Health (WSH) Act</li> </ul>
	Develop Workplace Safety and Health Management Systems (WSHMS)	<ul style="list-style-type: none"> <li>Devise WSH structures to sustain WSH objectives</li> <li>Design WSHMS components</li> <li>Lead management reviews of the WSHMS</li> <li>Evaluate alignment of the WSHMS against WSH objectives and legislative requirements</li> <li>Drive implementation of WSHMS improvements</li> <li>Communicate organisational and legislative requirements to stakeholders</li> </ul>	
	Deploy WSH programmes	<ul style="list-style-type: none"> <li>Establish WSH programme to achieve WSH objectives and support WSH policies</li> <li>Engage organisation management teams in taking ownership of WSH</li> <li>Set up WSH programme steering and working committees</li> <li>Evaluate the effectiveness of WSH programmes and their alignment with WSH objectives</li> </ul>	
	Manage WSH performance	<ul style="list-style-type: none"> <li>Determine WSH conditions and practices to be routinely inspected</li> <li>Formulate WSH performance management parameters</li> <li>Assess WSH performance metrics to determine fulfilment of legislated requirements and training needs</li> <li>Recommend targeted and organisation-wide WSH intervention strategies</li> </ul>	
	Coordinate emergency response and incident and accident investigations	<ul style="list-style-type: none"> <li>Conduct hazard and vulnerability assessments to identify possible emergency scenarios</li> <li>Develop emergency preparedness and response plans (EPRPs) and refine plans to cover evolving risks</li> <li>Formulate WSH incident and accident investigation processes and procedures</li> <li>Approve corrective and preventive actions (CAPA) recommended by team members</li> </ul>	
	Manage people and organisational function	<ul style="list-style-type: none"> <li>Develop strategies for resource planning and utilisation</li> <li>Analyse viability of workplace improvements and change management initiatives</li> <li>Participate in negotiations with relevant key internal and external stakeholders</li> <li>Analyse financial implications of business strategies to relevant functional areas</li> </ul>	

# Workplace Safety and Health Manager

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Business Negotiation	Level 5	Communication	Advanced
	Business Presentation Delivery	Level 5	Decision Making	Advanced
	Business Proposal Writing	Level 4	Interpersonal Skills	Advanced
	Change Management	Level 4	Problem Solving	Intermediate
	Conflict Resolution	Level 4	Leadership	Advanced
	Corporate Governance	Level 4		
	Crisis Management	Level 4		
	Emergency Response Management	Level 5		
	Financial Budgeting	Level 4		
	Financial Planning	Level 4		
	Incident and Accident Investigation	Level 5		
	Innovation Management	Level 4		
	Manpower Forecasting	Level 4		
	Market Research	Level 4		
	Operational Risk Management	Level 4		
	Organisational Performance Management	Level 4		
	Programme Management	Level 2		
	Quality System Management	Level 4		
	Staff Performance Management	Level 4		
	Stakeholder Management	Level 5		
	Strategy Development	Level 4		
	Technical Writing	Level 4		
	Workplace Safety and Health Culture Development	Level 6		
	Workplace Safety and Health Performance Management	Level 5		
	Workplace Safety and Health Policy Development	Level 6		
	Workplace Safety and Health System Management	Level 5		



## Manager

Chung Thin How  
OceanMaster Engineering Pte Ltd

“New entrants to this sector should have this very passion to explore different options and to keep up with the changing times.”

## ALWAYS READY FOR CHANGE

Chung Thin How is a Manager at OceanMaster Engineering Pte Ltd, a company that provides maintenance, repair and overhauling (MRO) services for merchant ships, oil rigs, platforms, floating production storage and offloading units and other offshore vessels. In addition to the management of human resource, Thin How plays an integral role in supply chain management. He ensures that the movement of raw materials, inventory and finished goods meet the ever-changing demands of his clients. This is because different projects require unique solutions.

He likens the business to a towing service attending to a vehicle breakdown, but on a larger scale. “If something on-board an offshore vessel breaks down, they call us and we will fly our personnel anywhere in the world to fix it. For example, if the air-conditioning system breaks down on an oil rig, we need to repair it immediately as the air-conditioning is needed to cool down the whole system for its successful operation,” he explains.

This time-sensitive nature of the marine and offshore sector keeps him on his toes. He says that their fastest reaction time was within three to four hours. They even have tool bags on stand-by in their warehouse equipped with necessary tools that they might need for emergencies around-the-clock. For the personnel to repair such systems efficiently, Thin How needs to make sure there is inventory optimisation. His role is to keep track of the stock and order supplies that are needed for specific jobs.

In order to do this, Thin How believes in making work processes more efficient. He implemented Enterprise Resource Planning (ERP), which is the integrated management of core business using software and technology. “Before I came to the company, they were manually tracking inventory via paper documents. We now have a system in place to account for inventory, cost and profit, invoices and purchase orders. This data is collected and stored digitally for easy reference so that there is transparency.”

“New entrants to this sector should have this very passion to explore different options and to keep up with the changing times,” he says. OceanMaster Engineering Pte Ltd is a Certified On-The-Job Training Centre (COJTC) accredited by the Institute of Technical Education. With new students coming in to learn the ropes, he says that the Skills Framework for Marine and Offshore can provide a good starting point for them to understand what the sector is about before they start working.



# Operations Manager

## JOB ROLE DESCRIPTION

The Operations Manager is responsible for developing and managing operational activities, including the monitoring of Workplace Safety and Health (WSH) strategies, and overseeing manpower, financial and resource plans. He/She analyses operations data, and determines new strategies to enhance the efficiency of processes, which includes assessing the viability of new machinery and technologies.

The Operations Manager is comfortable with interacting with others frequently on the job, to direct and motivate a team of managers to achieve cross-functional operational goals, collaborate with other functions within the organisation, and maintain relationships with vendors and resolve customer issues.

CRITICAL WORK FUNCTIONS AND KEY TASKS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Develop operational management plans	<ul style="list-style-type: none"> <li>• Lead and engage employees in daily management to drive sustainable, continuous improvements in safety, quality, productivity and ensure on time delivery</li> <li>• Establish operational management policies that adhere to Workplace Safety and Health (WSH) guidelines</li> <li>• Maximise productivity within the maintenance environment through sound scheduling and planning</li> <li>• Manage cost, quality, schedule, and health, safety and environmental activities for the site</li> <li>• Propose new operational plans, including targeted budgets, work allocations and staffing forecasts</li> <li>• Implement operational risk assessment initiatives within functional areas</li> <li>• Assess operational processes for inefficiencies</li> <li>• Determine financial implications of operational inefficiencies</li> </ul>
	Drive organisational business performance	<ul style="list-style-type: none"> <li>• Implement policies based on assigned performance measurement standards and indicators</li> <li>• Ensure business goals, customer requirements and maintenance plans are achieved and that resource capacity meets order winning plans</li> <li>• Lead transition to re-direct resources, procedural changes in sub-function workflows and cross-functional operations</li> <li>• Identify areas for technology and machinery improvements</li> <li>• Develop safeguards against unexpected operational incidents that affect business continuity</li> <li>• Identify and implement strategic opportunities to drive cost reductions and/or productivity improvements in maintenance operations</li> </ul>
	Establish quality management policies and processes	<ul style="list-style-type: none"> <li>• Liaise with quality management teams to ensure operational adherence to quality management policies</li> <li>• Collaborate with quality management teams to identify operational processes to be prioritised for quality improvements</li> <li>• Ensure compliance with regulations through regular inspections and audits</li> <li>• Promote overall governance of safety and quality management of the work team in its documentation and presence in the work place</li> </ul>
	Promote WSH	<ul style="list-style-type: none"> <li>• Monitor organisational preparation for internal and external operational WSH audits</li> <li>• Lead incident investigations arising from non-compliance with WSH procedures</li> <li>• Assist WSH department in assigning roles and responsibilities to key personnel in emergencies pertaining to safety in the workplace</li> </ul>



# Operations Manager

CRITICAL WORK FUNCTIONS, KEY TASKS AND PERFORMANCE EXPECTATIONS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Lead people	<ul style="list-style-type: none"> <li>• Provide leadership, guidance and direction to section managers across functional areas</li> <li>• Manage career development for operations teams</li> <li>• Manage the performance and development process for all direct reports, including providing coaching and development opportunities that allow each individual's potential to be maximised and used effectively</li> <li>• Monitor team performance and issue appraisal reports on an on-going basis</li> <li>• Plan and direct external outsourced resources in the disciplines of maintenance and technical documentation</li> </ul>
	Grow business and stakeholder relationships	<ul style="list-style-type: none"> <li>• Manage strategic relationships with internal and external partners and vendors</li> <li>• Lead negotiations with key suppliers and vendors</li> <li>• Review work capacity requirements to identify potential areas of new business opportunities</li> </ul>

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Business Negotiation	Level 5	Leadership	Advanced
	Business Presentation Delivery	Level 4	Problem Solving	Advanced
	Business Proposal Writing	Level 4	Decision Making	Advanced
	Change Management	Level 4	Resource Management	Advanced
	Conflict Resolution	Level 4	Interpersonal Skills	Advanced
	Continuous Quality Improvement	Level 5		
	Crisis Management	Level 4		
	Emergency Response Management	Level 2		
	Financial Budgeting	Level 5		
	Financial Planning	Level 5		
	Innovation Management	Level 4		
	Manpower Forecasting	Level 5		
	Market Research	Level 4		
	Operational Risk Management	Level 4		
	Opportunity Development	Level 4		
	Organisational Performance Management	Level 4		
	Procurement Coordination and Policy Development	Level 5		
	Quality System Management	Level 5		
	Service Excellence	Level 4		
	Staff Performance Management	Level 4		
	Stakeholder Management	Level 4		
	Strategy Development	Level 4		
	Vendor Management	Level 5		
	Workplace Safety and Health Culture Development	Level 4		
	Workplace Safety and Health Performance Management	Level 2		
	Workplace Safety and Health Policy Development	Level 4		

# Deputy General Manager/Chief Operating Officer

## JOB ROLE DESCRIPTION

The Deputy General Manager/Chief Operating Officer leads and develops a team with operational responsibilities to ensure that the organisation achieves its business objectives and is responsible for formulating long-term business strategies to achieve profitable revenue growth. He/She directs the preparation of operating budgets and proposals for capital expenditure and investments in infrastructure, technology, equipment, systems, and other assets and resources.

He applies strategic thinking and people management strategies to manage key business relationships as well as ensure proper implementation of Workplace Safety and Health (WSH) standards across the business verticals.

CRITICAL WORK FUNCTIONS AND KEY TASKS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Define strategic business direction	<ul style="list-style-type: none"> <li>• Support development of organisational business goals</li> <li>• Identify new opportunities within defined business verticals</li> <li>• Define medium-term strategic plans to expand current business</li> <li>• Review operational strategies, policies, and targets across business verticals</li> <li>• Develop corporate governance standards and practices for business verticals based on organisational policies and guidelines in alignment with code of corporate governance and relevant regulatory requirements</li> </ul>
	Drive organisational business performance	<ul style="list-style-type: none"> <li>• Support development of business performance indicators and measurement standards across organisation</li> <li>• Review business performance against plans</li> <li>• Identify principal risks to the organisation</li> <li>• Advise the management team regularly on business conditions, based on commercial information and actual financial performance against budget and evaluation of variances</li> </ul>
	Establish quality management policies and processes	<ul style="list-style-type: none"> <li>• Ensure all business functions are aligned to the quality management system of the organisation</li> <li>• Support development of organisational quality management policies</li> <li>• Recommend effective internal controls and quality management related information systems</li> <li>• Stay abreast of quality-related market trends</li> <li>• Endorse organisational quality management policies</li> </ul>
	Promote Workplace Safety and Health (WSH)	<ul style="list-style-type: none"> <li>• Ensure the implementation of WSH standards across the business verticals</li> <li>• Support development of WSH policies and procedures</li> <li>• Mitigate and resolve WSH-related escalations</li> <li>• Ensure that the organisation has appropriate WSH measures established to conduct work activities both lawfully and ethically</li> <li>• Stay abreast of international WSH regulations pertaining to marine and offshore sector</li> </ul>

# Deputy General Manager/Chief Operating Officer

CRITICAL WORK FUNCTIONS AND KEY TASKS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Lead people	<ul style="list-style-type: none"> <li>• Collaborate with business heads to identify areas of technical and business management training development</li> <li>• Establish performance indicators to benchmark against effectiveness of learning and development program based on industry best standards</li> <li>• Support the development of organisation's employee development system</li> <li>• Use performance management processes as a tool for supporting employee development and improvement</li> <li>• Implement succession planning initiatives for key management positions and business heads</li> <li>• Suggest strategies in attracting new employees based on business objectives and regulatory standards</li> </ul>
	Grow business and stakeholder relationships	<ul style="list-style-type: none"> <li>• Manage relationships with business stakeholders, government agencies, media, academia, and customers through focused initiatives</li> <li>• Establish key stakeholder relationship management audit processes and criteria</li> <li>• Conduct key stakeholder analysis to identify key internal and external stakeholders</li> <li>• Develop frameworks for managing conflict, grievances and disputes</li> <li>• Review business expansion proposals</li> <li>• Identify new business growth opportunities to strengthen organisation's position in the marketplace</li> <li>• Evaluate internal work capacity requirements to identify potential areas of new business opportunities</li> </ul>
	Strive for continuous improvement	<ul style="list-style-type: none"> <li>• Determine short and long-term financial needs to assess current financial situations</li> <li>• Directs the preparation of operating budgets and proposals for capital expenditure and investments in infrastructure, technology, equipment, systems, or other assets and resources</li> <li>• Establish systems to support innovation within the organisation</li> <li>• Develop business readiness plans, considering resources, other elements, capabilities and activities required for effective change transition</li> <li>• Identify market trends and developments that may impact organisational marketing activities</li> <li>• Implement operational risk management policies and processes</li> </ul>

# Deputy General Manager/Chief Operating Officer

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Business Negotiation	Level 5	Leadership	Advanced
	Business Presentation Delivery	Level 5	Decision Making	Advanced
	Business Proposal Writing	Level 5	Global Mindset	Advanced
	Change Management	Level 5	Resource Management	Advanced
	Conflict Resolution	Level 5	Communication	Advanced
	Continuous Quality Improvement	Level 5		
	Corporate Governance	Level 5		
	Crisis Management	Level 5		
	Emergency Response Management	Level 2		
	Financial Budgeting	Level 6		
	Financial Planning	Level 5		
	Innovation Management	Level 5		
	Intellectual Property Management	Level 5		
	Manpower Forecasting	Level 5		
	Market Research	Level 5		
	Operational Risk Management	Level 5		
	Opportunity Development	Level 5		
	Organisational Performance Management	Level 5		
	Procurement Coordination and Policy Development	Level 6		
	Quality System Management	Level 5		
	Service Excellence	Level 4		
	Staff Performance Management	Level 4		
	Stakeholder Management	Level 4		
	Strategy Development	Level 5		
	Workplace Safety and Health Culture Development	Level 5		
	Workplace Safety and Health Performance Management	Level 2		
	Workplace Safety and Health Policy Development	Level 5		

# Chief Executive Officer/General Manager/President

## JOB ROLE DESCRIPTION

The Chief Executive Officer/General Manager/President defines long-term strategic direction to grow the business in line with the organisation's overall vision, mission and values. He/She translates broad goals into achievable steps, anticipates and stays ahead of trends, and takes advantage of business opportunities. He represents the organisation with clients, investors, and business partners, and holds responsibility for fostering a culture of Workplace Safety And Health (WSH) and adherence to industry quality standards.

He inspires the organisation towards achieving business goals and fulfilling the vision, mission and values by striving for continuous improvement and equipping to transition change and innovations.

CRITICAL WORK FUNCTIONS AND KEY TASKS	CRITICAL WORK FUNCTIONS	KEY TASKS
	Define strategic business direction	<ul style="list-style-type: none"> <li>Steer the organisation to achieve excellence in a globalised environment</li> <li>Set organisational business goals for high performance and growth</li> <li>Develop long-term strategic business plans to maintain a leading position in the marketplace</li> <li>Drive organisational development with respect to change, innovation, and knowledge to achieve desired strategic business goals</li> </ul>
	Drive organisational business performance	<ul style="list-style-type: none"> <li>Establish organisational business performance indicators and measurement standards</li> <li>Review organisational business performance against plans to recognise achievements</li> <li>Assess principal risks to the organisation</li> <li>Ensure organic and inorganic profitable revenue growth</li> </ul>
	Promote workplace safety and health	<ul style="list-style-type: none"> <li>Promote workplace safety and health (WSH) across the organisation</li> <li>Nurture an organisational culture that complies to WSH internal and external standards and regulations</li> <li>Ensure that the organisation has appropriate WSH measures established to conduct work activities both lawfully and ethically</li> <li>Stay abreast of international WSH regulations pertaining to the marine and offshore sector</li> <li>Collaborate with WSH department to establish WSH policies and procedures</li> </ul>
	Establish quality management policies and processes	<ul style="list-style-type: none"> <li>Foster an organisational culture of proactive compliance with quality regulations, internal standards, and policies</li> <li>Ensure that the board is adequately informed of quality management-related matters</li> <li>Endorse organisational quality management policies</li> </ul>
	Lead people	<ul style="list-style-type: none"> <li>Foster a culture of high performance and innovation amongst employees</li> <li>Formulate organisational systems to develop employees in line with organisation's mission and emerging industry trends</li> <li>Champion succession planning initiatives for key management positions</li> <li>Approve strategies in attracting new employees based on business objectives and regulatory standards</li> </ul>
	Grow business and stakeholder relationships	<ul style="list-style-type: none"> <li>Foster an atmosphere of inclusiveness with diverse external stakeholders and the global business community</li> <li>Lead networking and relationship-building with strategic stakeholders</li> <li>Establish effective working relationships with union representatives to ensure synergy between tripartite parties</li> <li>Endorse business expansion proposals and manpower forecasts</li> <li>Assess new business growth opportunities</li> </ul>
	Strive for continuous improvement	<ul style="list-style-type: none"> <li>Set direction for organisational budget planning</li> <li>Challenge new ideas while actively balancing risks and opportunities</li> <li>Maintain a culture of innovative thinking and practices</li> <li>Guide market research activities to align research objectives with organisational needs and remain competitive</li> </ul>

# Chief Executive Officer/General Manager/President

SKILLS AND COMPETENCIES	TECHNICAL SKILLS AND COMPETENCIES		GENERIC SKILLS AND COMPETENCIES (TOP 5)	
	Business Negotiation	Level 6	Leadership	Advanced
	Business Presentation Delivery	Level 5	Decision Making	Advanced
	Business Proposal Writing	Level 5	Global Mindset	Advanced
	Change Management	Level 6	Communication	Advanced
	Conflict Resolution	Level 6	Transdisciplinary Thinking	Advanced
	Continuous Quality Improvement	Level 5		
	Corporate Governance	Level 6		
	Crisis Management	Level 6		
	Emergency Response Management	Level 2		
	Financial Budgeting	Level 6		
	Financial Planning	Level 6		
	Innovation Management	Level 6		
	Intellectual Property Management	Level 6		
	Manpower Forecasting	Level 5		
	Market Research	Level 5		
	Operational Risk Management	Level 5		
	Opportunity Development	Level 6		
	Organisational Performance Management	Level 6		
	Procurement Coordination and Policy Development	Level 6		
	Quality System Management	Level 6		
	Service Excellence	Level 5		
	Staff Performance Management	Level 5		
	Stakeholder Management	Level 5		
	Strategy Development	Level 6		
	Workplace Safety and Health Culture Development	Level 6		
	Workplace Safety and Health Performance Management	Level 2		
	Workplace Safety and Health Policy Development	Level 6		

# Overview of Technical Skills and Competencies

## Technical Skills and Competencies (TSCs)

TSC Category	TSC Title	TSC Description	Proficiency Levels					
			1	2	3	4	5	6
Business Development	Business Negotiation	Engage stakeholders in accordance to established protocols to achieve business goals				●	●	●
	Business Presentation Delivery	Perform required tasks to prepare and present information in various business settings involving preparation, understanding of audience, delivery and tailoring of messages to be conveyed			●	●	●	
	Business Proposal Writing	Prepare business proposals to respond to business opportunities				●	●	
	Market Research	Conduct research on industry, customer and competitor trends to shape the organisation's business development strategies			●	●	●	
	Opportunity Development	Monitor business environments to assess external opportunities that may impact strategic planning and contribute to business growth			●	●	●	●
Business Finance	Financial Budgeting	Prepare organisational budgets to support short- and long-term business plans through forecasting, allocation and financial policy settings			●	●	●	●
	Financial Planning	Facilitate strategic decision- making on the organisation's business finances by collating, verifying and analysing financial data in reports			●	●	●	●
General Management	Change Management	Manage organisational change management systems to drive organisational success and outcomes by preparing, equipping and supporting adoption of change			●	●	●	●
	Conflict Resolution	Adopt organisation's conflict mediation guidelines to find peaceful solutions to disagreements by evaluating and implementing resolution approaches and analysing mediation outcomes				●	●	●
	Corporate Governance	Establish organisational frameworks to ensure stakeholder interests are balanced and aligned with regulatory frameworks and organisational objectives				●	●	●
	Crisis Management	Apply strategies designed to enable an organisation to deal with disruptive events by planning for responses to potential crises, establishing monitoring systems and training systems, communicating both internally and externally, and leading recovery processes			●	●	●	●
	Innovation Management	Manage organisation's ability to respond to internal and external opportunities by using creativity to introduce new ideas, processes and products			●	●	●	●
	Intellectual Property Management	Formulate intellectual property management strategies and procedures to protect the organisation's intellectual property assets			●	●	●	●
	Operational Risk Management	Manage failed procedures, system failures, policy errors and other business disruption events by assessing risks and implementing risk controls			●	●	●	
	Organisational Performance Management	Implement organisational performance systems to meet business plans and objectives by establishing performance indicators, tracking progress and addressing gaps			●	●	●	●

# Overview of Technical Skills and Competencies

## Technical Skills and Competencies (TSCs)

TSC Category	TSC Title	TSC Description	Proficiency Levels					
			1	2	3	4	5	6
General Management	Programme Management	Manage multiple projects within the organisation to identify efficiencies of common policies, procedures and practices	●	●	●	●	●	●
	Service Excellence	Create strategies to foster positive customer experience and deliver service excellence throughout the engagement lifecycle		●	●	●	●	
	Staff Performance Management	Maximise employee performance to meet business goals by aligning organisational objectives with internal processes, creating learning and development for staff and providing systems of feedback and support			●	●	●	
	Stakeholder Management	Manage organisation's key stakeholders, strategic partners and investors to maintain high levels of engagement by identifying needs, setting service standards and resolving issues in accordance with organisational procedures			●	●	●	
	Strategy Development	Develop organisational strategies and policies by analysing the impact of internal and external influencing factors and seeking consultation with relevant stakeholders				●	●	●
Marine and Offshore System Design	Ballast System Design	Design ballast systems for ships, rigs and/or conversions by interpreting trim and stability tables and applying principles of fluid dynamics, pumping and piping systems, in compliance with regulations			●	●	●	
	Cargo System Design	Design cargo handling systems for ships and/or conversions to ensure efficient and controlled loading, discharging and treatment of specific cargoes			●	●	●	
	Communication and Navigation System Design	Design navigation and communication systems in compliance with international regulations				●	●	
	Control System Programming	Develop capabilities in areas of communications and remote operations by programming logic circuits and erasable programmable read-only memory for ships, rigs and/or conversions		●	●	●		
	Cooling System Design	Design cooling systems for ships, rigs and/or conversions to ensure sufficient cooling for engines, auxiliary equipment and fluids by evaluating individual and composite systems cooling requirements, cooling medium capacities, pump and piping system specifications and types of cooling media required			●	●	●	
	Fuel and Lubrication System Design	Design fuel and lube systems for propulsion, power generation and lubrication of machineries installed on ships, rigs and/or conversions including pump and piping components, storage tank designs, heat exchangers and safeties through detailed understanding of fuel and lube properties			●	●	●	
	Heat Transfer System Design	Design heat transfer systems by applying concepts of thermodynamics in marine engineering to provide for the heating requirements of ships, rigs and/or conversions		●	●	●		
	Heating, Ventilation and Air Conditioning System Design	Design heating, ventilation and air conditioning systems to maintain a specific air quality in the accommodation spaces of ships, rigs and/or conversions as well as in the refrigerated compartments for perishables in alignment with regulations			●	●	●	



# Overview of Technical Skills and Competencies

## Technical Skills and Competencies (TSCs)

TSC Category	TSC Title	TSC Description	Proficiency Levels					
			1	2	3	4	5	6
Marine and Offshore System Design	Instrumentation and Control System Design	Design instrumentation and control systems to measure and control the process variables of operating equipment and systems by interpreting equipment and system parameters		●	●	●		
	Marine Design Customisation	Customise engineering solutions to meet exceptional customers' requirements beyond typical scoping of existing product portfolios and/or capabilities		●	●	●	●	
	Marine Equipment Material Selection	Select appropriate materials to be used for marine equipment and components based on material property applications and industry requirements			●	●		
	Power Generation System Design	Design power plans for all equipment and systems on-board ships, rigs and/or conversions and integrated power generation systems and auxiliaries to cater to power requirements			●	●	●	
	Propulsion System Design	Design propulsion systems and auxiliaries based on size, cargo carrying capacity and type of ship			●	●	●	
	Pump and Piping Design	Apply hydraulic and fluid dynamics principles to design efficient pump and piping systems for liquids and gases by understanding principles of fluid flow, interaction between fluid layers and pipe materials, and losses in transmission			●	●	●	
	Safety System Design	Design of safety systems for ships, rigs and/or conversions to ensure readiness against emergency incidents on board			●	●	●	
Marine Calculations	Marine Engineering Calculations	Apply mathematical formulae and principles of numerical analysis to marine engineering applications		●	●			
	Naval Architecture Calculations	Apply mathematical and physics calculations to specify capacity, trim and stability details, and ensure seaworthiness of ships, rigs and/or conversions			●	●	●	
Marine Manufacturing	Additive Manufacturing	Design and apply additive manufacturing workflows to create three-dimensional objects		●	●	●	●	●
	Computer Numeric Control Operations	Programme and configure computer numerical control machines and equipment to manufacture marine equipment and ship, rig and/or conversion components	●	●	●	●		
	Forming	Fabricate components through processes using suitable compression, tension, shear, combined and/or other types of stresses to cause material deformation	●	●	●			
	Joining and Welding	Fabricate components through the application of heat, pressure and/or friction to join structures together	●	●	●			
	Laser and Optics Application	Use of laser and optics to automate manufacturing processes by introducing amplified electromagnetism and optical technologies for steelwork and alignment processes		●	●	●	●	●
	Lift Planning and Management	Implement rigging procedures to ensure safe operation of lifting gears by employing prescribed slinging techniques depending upon load and external conditions	●		●			
	Machining	Fabricate components through controlled removal of materials from given blocks or pieces	●	●				

# Overview of Technical Skills and Competencies

## Technical Skills and Competencies (TSCs)

TSC Category	TSC Title	TSC Description	Proficiency Levels					
			1	2	3	4	5	6
Marine Manufacturing	Non-destructive Testing	Execute non-destructive tests to ensure structural integrity, insulation resistance, continuity and satisfactory performance of electrical equipment and installations against organisational and regulatory standards and requirements		●	●	●		
	Robotics and Automation Application	Integrate automated technologies and robotic systems in ships, rigs or conversions manufacturing to enhance precision and productivity and reduce reliance on manual tasks		●	●	●	●	●
	Scaffolding	Build work platforms using pre-fitted frames and staging materials to facilitate activities that require working aloft		●	●	●		
	Surface Preparation and Protection	Apply appropriate surface preparation and protection techniques, based on surface material, operating conditions, and maintenance requirements, against exposure to marine environments	●	●	●			
Product Finalisation	Component Assembly	Produce structures from smaller components by interpreting hull structure drawings, mechanical equipment drawings, electrical drawings and other technical drawings applicable to marine equipment, ships, rigs and conversions	●	●	●	●		
	Installation Planning and Execution	Create suitable foundations and connections among dependent machineries on board ships, rigs and/or conversions according to product specifications and manufacturers' recommendations in alignment with technical drawings	●	●	●	●		
	Launch Planning and Management	Execute launching procedures for ships, rigs and/or conversions by employing gravitational, mechanical, floating, airbag and other launching techniques			●	●	●	
Production Management	Manufacturing Workflow Management	Manage manufacturing operations to ensure timely and quality delivery of production outcomes				●	●	
	Value Engineering	Apply value principles to increase productivity and efficiency in production lines by reducing operational costs and waste		●	●	●		
Project Management	Manpower Forecasting	Estimate and fulfil manpower requirements to achieve business goals and targets			●	●	●	
	Project Coordination	Coordinate project activities and workflows in collaboration with project teams and relevant stakeholders, as determined by project plans, to fulfil expected project outcomes and objectives			●	●	●	
	Project Feasibility Assessment	Evaluate project scopes to ensure commercial, legal, technical, and operational feasibility				●	●	●
	Project Quality Management	Manage project processes and deliverables, according to stakeholder requirements and objectives, to improve customer satisfaction levels			●	●	●	
	Project Risk Management	Manage risks relating to specific projects as precaution against internal and external vulnerabilities			●	●	●	

# Overview of Technical Skills and Competencies

## Technical Skills and Competencies (TSCs)

TSC Category	TSC Title	TSC Description	Proficiency Levels					
			1	2	3	4	5	6
Quality Management	Commissioning Coordination	Conduct product performance examinations to conclude manufacturing and transit ships and rigs into operational modes		●	●	●		
	Continuous Quality Improvement	Implement on-going efforts to improve products, services, and/or processes through leveraging on opportunities to streamline work, increase quality and reduce waste			●	●	●	
	Electrical Testing	Execute non-destructive electrical tests to ensure insulation-resistance, continuity, and satisfactory performance of electrical equipment and installations against organisational and regulatory standards and requirements		●	●	●		
	Quality Engineering Integration	Incorporate quality principles and methodologies into engineering processes, products, and services from conception to disposal			●	●	●	●
	Quality System Management	Establish quality assurance policies and management systems for products and services to ensure compliance with internal quality requirements, client expectations, international quality standards and/or regulations		●	●	●	●	●
	Structural Testing	Execute non-destructive structural tests to ensure integrity and reliability of structural components against standards and product specifications based on determined test methods, criteria, equipment, and timeframes		●	●	●		
	Technical Inspection	Execute formal inspection exercises to ensure quality, safety, and reliability, adhering with technical specifications and compliance requirements		●	●	●		
	Technical Writing	Apply technical writing approaches to communicate complex information and enable actions in pursuit of defined project goals		●	●	●		
Repair and Maintenance	Marine Auxiliary System Maintenance	Diagnose and rectify systems and machinery components on board ships and rigs	●	●	●			
	Marine Equipment and System Maintenance	Formulate and execute corrective and/or preventative maintenance activities for marine equipment and systems used on ships and rigs		●	●	●		
Research and Development	Big Data Analytics	Analyse and validate significant volumes of data to discover and quantify patterns and trends to improve ship, rig, conversion and/or marine equipment design and refine condition-based maintenance schedules			●	●	●	●
	Green Ship Design	Formulate quantitative environmental models, product designs and waste reduction plans in order to drive clean energy and/or green shipping initiatives		●	●	●	●	●

# Overview of Technical Skills and Competencies

## Technical Skills and Competencies (TSCs)

TSC Category	TSC Title	TSC Description	Proficiency Levels					
			1	2	3	4	5	6
Supply Chain Management	Contract Development and Management	Maximise the organisation's operational and financial performance by drafting contracts, negotiating contract terms and conditions, ensuring compliance with contract terms and conditions, and effecting amendments				●	●	●
	Materials Inspection	Verify correctness and usability of vendor products and services through specification-matching and quality checks			●	●		
	Procurement Coordination and Policy Development	Design and implementation of procurement strategies and workflows to govern activities relating to sourcing and purchasing of materials as required to deliver on project expectations			●	●	●	●
	Procurement Performance Monitoring	Monitor procurement performance to cut costs, alleviate risks, and drive continuous process improvement by measuring and analysing vendor and process efficiency			●	●	●	
	Vendor Management	Manage vendor relationships by ensuring contract terms are being met, providing innovation in services, operating within standards established by the organisation, and adhering to all security, compliance, business continuity and best practices			●	●	●	
Systems Engineering	Interface Management	Perform interface management activities to integrate systems on ships, rigs and/or conversions			●	●	●	●
	System Architecture Design	Synthesise system architecture baselines for ships, rigs, conversions and/or automated production lines to satisfy stakeholder requirements			●	●	●	
	System Configuration Management	Establish consistency in performance, functional, and physical attributes throughout system lifecycles			●	●	●	●
	Systems Integration	Realise the system-of-interest by progressively combining system elements in accordance with architectural design requirements and integration strategies			●	●	●	
Technical Drawing	Electrical Drawing	Create and interpret electrical drawings based on design specifications to guide power planning and installation of electrical systems for ships, rigs and/or conversions		●	●	●		
	Equipment Drawing	Create equipment drawings based on design specifications representing working pieces of machinery for ships, rigs, conversions and/or equipment sub-components		●	●	●		
	Pipeline Drawing	Create pipeline drawings to assist in production and maintenance activities, based on structural and arrangement drawings, equipment lists and consideration of fluids to be carried and pressure to be handled		●	●	●		
	Structural and Arrangement Drawing	Create structural and arrangement drawings to guide production and manufacturing processes		●	●	●		

# Overview of Technical Skills and Competencies

## Technical Skills and Competencies (TSCs)

TSC Category	TSC Title	TSC Description	Proficiency Levels					
			1	2	3	4	5	6
Workplace Safety and Health (WSH)	Emergency Response Management	Manage emergency response plans for the range of contingencies affecting the marine and offshore industry		●	●	●	●	
	Incident and Accident Investigation	Investigate workplace safety and health incidents and accidents based on root cause analysis and identification of corrective actions to prevent recurrences		●	●	●	●	
	WSH for Dockside Tower Crane Operations	Carry out dockside tower crane operations on ships, rigs and conversions according to workplace safety and health legislative requirements	●					
	WSH for Forklift Operations	Carry out forklift operations on ships, rigs and conversions according to workplace safety and health legislative requirements	●					
	WSH for Marine Electrical Installation	Carry out electrical operations on ships, rigs and conversions according to workplace safety and health legislative requirements	●					
	WSH for Marine Mechanical Installation	Carry out mechanical installation operations on ships, rigs and conversions according to workplace safety and health legislative requirements	●					
	WSH for Painting and Blasting	Carry out painting and blasting on ships, rigs and conversions according to workplace safety and health legislative requirements	●					
	WSH for Pipe Fitting	Carry out operations on ships, rigs and conversions according to workplace safety and health legislative requirements	●					
	WSH for Self-Propelled Platform Operations	Carry out self-propelled platform operations on ships, rigs and conversions according to workplace safety and health legislative requirements	●					
	WSH for Steel Fitting	Carry out steel fitting operations on ships, rigs and conversions according to workplace safety and health legislative requirements	●					
	WSH for Tank Cleaning	Carry out tank cleaning on ships according to workplace safety and health legislative requirements	●					
	WSH for Welding	Carry out welding operations on ships, rigs and conversions according to workplace safety and health legislative requirements	●					
	WSH Culture Development	Create and maintain a workplace safety and health culture based on a common set of attitudes, behaviours, and competencies		●	●	●	●	●
	WSH Performance Management	Establish and monitor indicators measuring effectiveness of workplace safety and health policies and work procedures in preventing incidents and safeguarding employees in marine industry operations		●	●	●	●	
	WSH Policy Development	Develop organisational workplace safety and health policies to ensure compliance with national regulations pertaining to the marine and offshore sector by applying knowledge of regulations and staying abreast of regulatory changes and practices				●	●	●
	WSH System Management	Implement day-to-day workplace safety and health procedures by following set policies to schedule inspections, internal and external audits, establish emergency response procedures including roles and responsibilities of all staff and departments in emergencies			●	●	●	

# Overview of Technical Skills and Competencies

## General Descriptors for Technical Skills and Competencies (TSCs)

Level	Responsibility (Degree of supervision and accountability)	Autonomy (Degree of decision-making)	Complexity (Degree of difficulty of situations and tasks)	Knowledge and Abilities (Required to support work as described under Responsibility, Autonomy and Complexity)
6	Accountable for significant areas of work, strategy or overall satisfaction	Empowered to chart direction and practices within and outside of work (including professional field/community), to achieve/exceed work results	Complex	<ul style="list-style-type: none"> <li>• Synthesise knowledge issues in a field of work and the interface between different fields, and create new forms of knowledge</li> <li>• Employ advanced skills, to solve critical problems and formulate new structures, and/or to redefine existing knowledge or professional practice</li> <li>• Demonstrate exemplary ability to innovate, and formulate new ideas and structures</li> </ul>
5	Accountable for achieving assigned objectives, decisions made by self and others	Provide leadership to achieve desired work results; Manage resources, set milestones and drive work	Complex	<ul style="list-style-type: none"> <li>• Evaluate factual and advanced conceptual knowledge within a field of work, involving critical understanding of theories and principles</li> <li>• Select and apply an advanced range of cognitive and technical skills, demonstrating mastery and innovation, to devise solutions to solve complex and unpredictable problems in a specialised field of work</li> <li>• Manage and drive complex work activities</li> </ul>
4	Work under broad direction  Hold accountability for performances of self and others	Exercise judgement; adapt and influence to achieve work performance	Less routine	<ul style="list-style-type: none"> <li>• Evaluate and develop factual and conceptual knowledge within a field of work</li> <li>• Select and apply a range of cognitive and technical skills to solve non-routine/abstract problems</li> <li>• Manage work activities which may be unpredictable</li> <li>• Facilitate the implementation of innovation</li> </ul>
3	Work under broad direction  May hold some accountability for performance of others, in addition to self	Use discretion in identifying and responding to issues, work with others and contribute to work performance	Less routine	<ul style="list-style-type: none"> <li>• Apply relevant procedural and conceptual knowledge and skills to perform differentiated work activities and manage changes</li> <li>• Able to collaborate with others to identify value-adding opportunities</li> </ul>
2	Work with some supervision  Accountable for a broader set of tasks assigned	Use limited discretion in resolving issues or enquiries. Work without frequently looking to other for guidance	Routine	<ul style="list-style-type: none"> <li>• Understand and apply factual and procedural knowledge in a field of work</li> <li>• Apply basic cognitive and technical skills to carry out defined tasks and to solve routine problems using simple procedures and tools</li> <li>• Present ideas and improve work</li> </ul>
1	Work under direct supervision assigned  Accountable for tasks	Minimal discretion required. Expected to seek guidance	Routine	<ul style="list-style-type: none"> <li>• Recall factual and procedural knowledge</li> <li>• Apply basic skills to carry out defined tasks</li> <li>• Identify opportunities for minor adjustments to work tasks</li> </ul>

# Overview of Generic Skills and Competencies

## Generic Skills and Competencies (GSCs)

GSC	GSC Description	Proficiency Levels		
		Basic	Intermediate	Advanced
<b>Communication</b>	Convey and exchange thoughts, ideas and information effectively through various mediums and approaches.	Communicate information with others to respond to general inquiries and to obtain specific information.	Articulate and discuss ideas and persuade others to achieve common outcomes.	Negotiate with others to address issues and achieve mutual consensus.
<b>Computational Thinking</b>	Develop and use computational models, tools and techniques to interpret and understand data, solve problems and guide decision-making.	Use computational models, tools and techniques to identify patterns in a problem and develop a solution.	Modify existing computational models, tools and techniques to develop different solutions.	Develop and create computational models, tools and techniques to implement new solutions and apply to other problems.
<b>Creative Thinking</b>	Adopt a fresh perspective to combine ideas or information in new ways and make connections between seemingly unrelated fields to create new ideas and applications.	Connect ideas or information from related fields or applications to address an immediate issue.	Connect or combine ideas or information from unrelated fields or applications to generate multiple ideas to bring about a specific outcome.	Create original applications or ideas to reveal new possibilities and reshape goals through high level of innovativeness.
<b>Decision Making</b>	Choose a course of action from various alternatives using a reasoned process to achieve intended goals.	Make decisions of simple or routine nature to achieve intended goals using given information and guidelines.	Make decisions in a complex setting to achieve intended goals using a structured process and multiple sources of available information.	Make decisions in a volatile and ambiguous setting using a structured process and limited sources of available information to achieve intended goals.
<b>Developing People</b>	Help others to learn and develop their capabilities to enhance their performance and achieve personal or professional goals.	Use demonstration and explanation to teach a familiar task to inexperienced co-workers.	Provide coaching to others to develop their skills and knowledge on their jobs to enhance performance.	Provide mentorship to help others in their professional and personal development to improve performance and further their careers.
<b>Digital Literacy</b>	Use ICT tools, equipment and software to create, evaluate and share information digitally with others.	Perform basic functions using software programmes pertaining to computer operating systems and file management, and search online information.	Use available software features to create and edit documents, customise templates and reports and evaluate online information.	Use available software features to enhance documents, analyse and manipulate data, and use ICT to organise, share and communicate information clearly and coherently.
<b>Global Mindset</b>	Awareness of diversity across global cultures and markets. Seek opportunities to adopt successful practices and ideas.	Demonstrate understanding of global challenges and opportunities and how to transfer best practices across cultures. Respect cultural differences and needs of a diverse workforce.	Develop global networks and manage virtual relationships while balancing both local and global perspectives. Adopt a local and global perspective when making decisions.	Build the organisation's capabilities to compete in a global environment. Manage tension between corporate requirements, global and cultural differences.

# Overview of Generic Skills and Competencies

## Generic Skills and Competencies (GSCs)

GSC	GSC Description	Proficiency Levels		
		Basic	Intermediate	Advanced
<b>Interpersonal Skills</b>	Manage relationships efficiently and communicate with others effectively to achieve mutual consensus and outcomes.	Recognise own internal feelings and emotional states to manage interpersonal relationships in social situations.	Detect and decipher emotions of others to manage interpersonal relationships in social situations.	Influence, guide and handle others' emotions to build instrumental relationships and manage conflicts and disagreements.
<b>Leadership</b>	Lead others to achieve objectives in the most effective way. Provide an inclusive workplace that cultivates workplace relationships and teamwork, and foster the development of others.	Demonstrate professionalism to set a good example at peer level. Support others through own initiative and enthuse others through own positive and energetic approach.	Lead by example at team level. Encourage and guide others to adopt a point of view, make changes or take action. Provide a team environment that facilitates relationships building, teamwork and the development of others.	Lead by example at organisational level. Inspire, motivate and guide others to adopt a point of view, make changes or take action. Cultivate an open, cooperative and collaborative learning culture for the organisation.
<b>Lifelong Learning</b>	Seek out opportunities to enhance one's knowledge and skills. Access and acquire new knowledge and skills actively for continual learning.	Organise and manage own learning by setting learning targets. Identify learning approaches to achieve work or career goals.	Engage in collaborative learning by discussing one's learning with others and soliciting feedback to continually improve oneself.	Conduct self-reflective practices to review one's learning to facilitate continual growth in one's career or profession.
<b>Managing Diversity</b>	Work well with people from different ethnic, social, cultural and educational backgrounds and understand the concerns and interests of diverse work groups.	Demonstrate sensitivity to the cultural characteristics, values, beliefs, and behaviors of another ethnic or cultural group.	Build relationships with different ethnic or cultural groups by engaging in cross-cultural cooperative projects.	Manage conflicts arising from different ethnic or cultural groups and work effectively in cross-cultural settings.
<b>Problem Solving</b>	Generate feasible and efficient solutions to solve problems and capitalise on new opportunities.	Identify easily perceivable problems and follow given guidelines and procedures to solve the problems.	Identify less perceivable problems and use problem solving tools and techniques to solve the problems.	Anticipate potential problems beyond the current scope and apply higher order problem solving tools and techniques to turn problems into opportunities.
<b>Resource Management</b>	Efficient and effective deployment and allocation of resources when and where they are needed. Include planning, allocating and scheduling of resources to tasks, which typically include manpower, machines, money and materials.	Use resources to ensure optimum and efficient use of resources.	Deepen insights into the planning, allocation and deployment of resources to anticipate needs. Plan the allocation and deployment of resources efficiently and effectively.	Establish strategies for the allocation and deployment of resources efficiently and effectively.



# Overview of Generic Skills and Competencies

## Generic Skills and Competencies (GSCs)

GSC	GSC Description	Proficiency Levels		
		Basic	Intermediate	Advanced
<b>Sense Making</b>	Organise and analyse data and information accurately to identify relationships and detect patterns and trends to gain insights for decision-making.	Identify relationships and linkages within different components of data.	Interpret data to uncover patterns and trends between various sources of data.	Analyse data relationships, patterns and trends to gain important insights and make informed decisions.
<b>Service Orientation</b>	Commit to exceeding both internal and external customers' needs. Proactively identify customer needs and sustain a culture of service excellence within the organisation.	Exceed customer needs and expectations and handle service challenges with a positive mindset. Demonstrate an understanding of the organisation's service vision, mission and values.	Anticipate customer needs and expectations and elicit feedback from customers to improve service. Build relationships with customers to create and sustain customer loyalty.	Model, lead, train and motivate staff with a focus on sustaining a culture that encourages commitment to service excellence and high performance.
<b>Teamwork</b>	Work collaboratively and effectively with others to contribute to group efforts to achieve identified objectives.	Contribute to a positive and cooperative working environment by fulfilling own responsibilities and providing support to co-workers to achieve team goals.	Facilitate work team activities, provide assistance and support needed by team members and promote ownership and commitment among team members to work goals to improve team performance.	Establish teams, design and assess tasks to continually improve team effectiveness and cultivate a sense of organisational ownership and a cooperative working environment.
<b>Transdisciplinary Thinking</b>	Understanding of concepts across multiple disciplines, with the capacity to synthesise the knowledge and insights to guide decisions and foster cooperation.	Research and adapt concepts from outside one's field of expertise to supplement one's core knowledge and proficiency.	Co-relate material from diverse knowledge bases to guide decisions and policy making. Participate in reflective and trans-disciplinary communities within and outside the organisation.	Synthesise knowledge and insights across disciplinary boundaries to aid strategic decisions and foster cooperation within and outside of the organisation.
<b>Virtual Collaboration</b>	Use online collaborative communication tools to work as teams to accomplish tasks or projects.	Participate and contribute in a virtual team. Set up appropriate online collaborative tools and supporting equipment.	Use interactive collaborative tools to foster cohesion and commitment among virtual team members to achieve goals. Keep up-to-date with innovative online collaborative tools and applications to enhance one's proficiency in engaging in virtual collaboration.	Leverage on diverse team talent, latest online collaborative technologies and virtual platforms to produce collaborative behaviour and achieve technological savviness in virtual collaboration.

# Supporting Organisations and Acknowledgements

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**Kellogg Brown & Root Asia Pacific**

**Keppel Offshore and Marine Ltd**

**Leelloyds Marine Engineering Pte Ltd**

**MTU Asia Pte Ltd**

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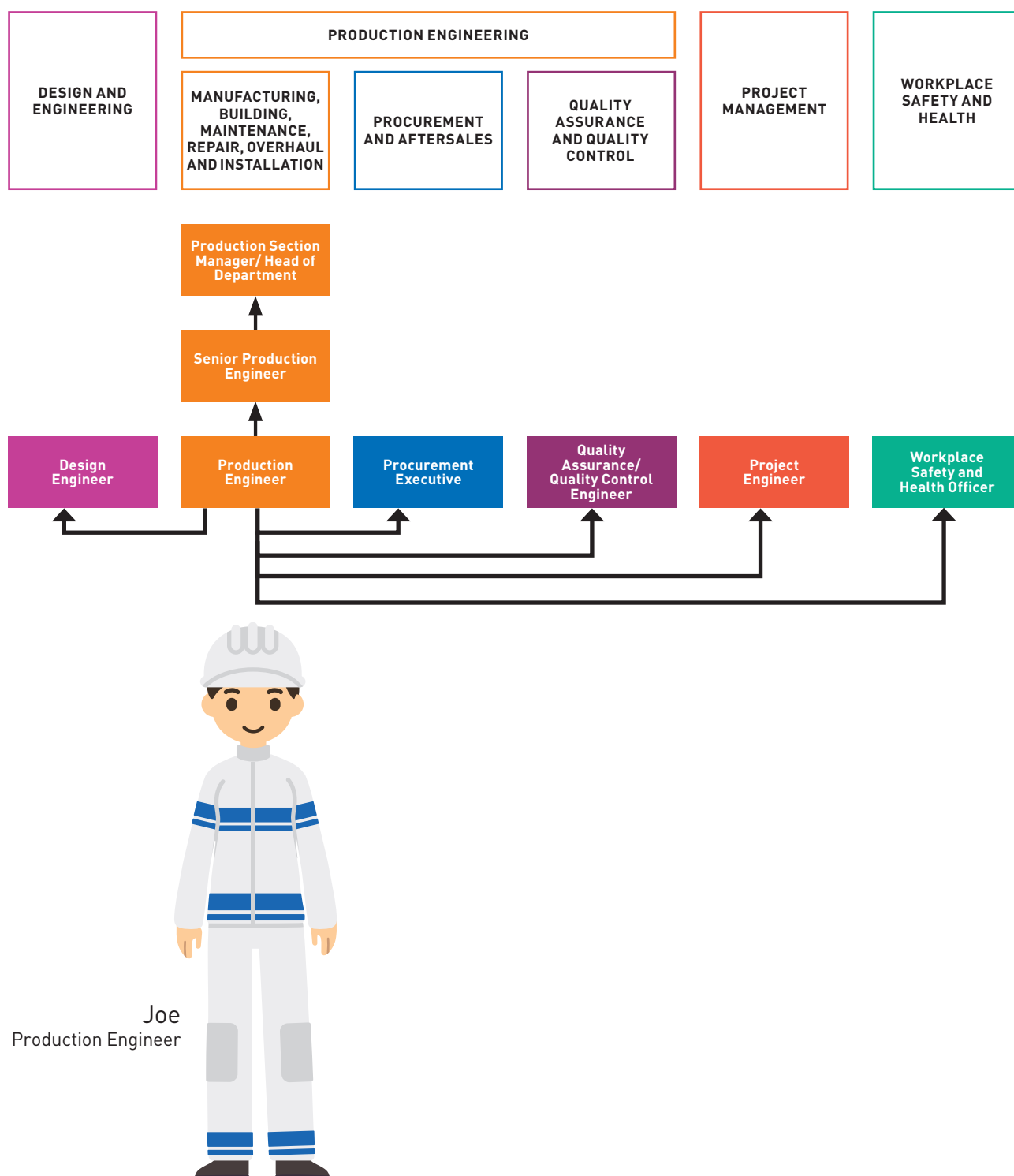
- Individuals who have agreed to share their personal career stories
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- Education and Training Providers for the inputs on skills and competencies development
- Organisations for their contributions in the development and validation of the Skills Framework for Marine and Offshore

## Notes

[illegible]

# Illustration of Possible Career Pathways of a Production Engineer

This illustration depicts possible progression pathways for a Production Engineer to move into any of the job roles indicated. Progression in the marine and offshore sector does not only occur vertically, it can occur laterally as well. This opens up a wide range of opportunities for those who wish to pursue a fruitful career in marine and offshore.



Note: The career pathway would depend on an individual's performance, capability (skills and competencies), experience, aspirations and company needs.

# Wage Information

## MONTHLY GROSS WAGES OF SELECTED OCCUPATIONS IN MANUFACTURING, JUNE 2016

Occupations	Gross Wage	
	25th Percentile (\$)	75th Percentile (\$)
Managing Director/Chief Executive Officer	5,000	15,000
Research and Development Manager	6,915	11,815
Procurement/Purchasing Manager	5,682	10,356
Quality Assurance Manager	5,850	10,900
Technical/Engineering Services Manager (Eg. Shipyard Manager)	6,341	11,067
Electrical Engineer	3,987	6,156
Electronics Engineer	4,477	6,850
Industrial and Production Engineer	4,200	6,350
Industrial Safety Engineer	4,754	8,724
Mechanical Engineer	4,070	6,068
Assistant Electrical Engineer	3,055	3,715
Assistant Electronics Engineer	3,280	5,258
Assistant Manufacturing Engineer	3,306	5,351
Assistant Mechanical Engineer	2,807	4,338
Draughtsman	3,132	4,080
Electrical Engineering Technician	2,878	5,000
Electronics Engineering Technician	2,750	4,338
Manufacturing Engineering Technician	2,859	4,320
Mechanical Engineering Technician	3,001	4,425
Electrical Mechanic and Fitter	2,314	4,003
Machinery Fitter	2,497	3,341
Machinery Mechanic	2,081	3,255
Marine Engine Fitter	2,293	3,463
Pipe Fitter	1,000	1,878
Supervisor/General Foreman (Building and related trades)	2,654	3,860
Supervisor/General Foreman (Electrical and electronic trades)	3,288	4,774
Supervisor/General Foreman (Metal, machinery and related trades)	2,946	4,279
Welder	2,440	4,029
Quality Checker and Tester	1,506	2,547

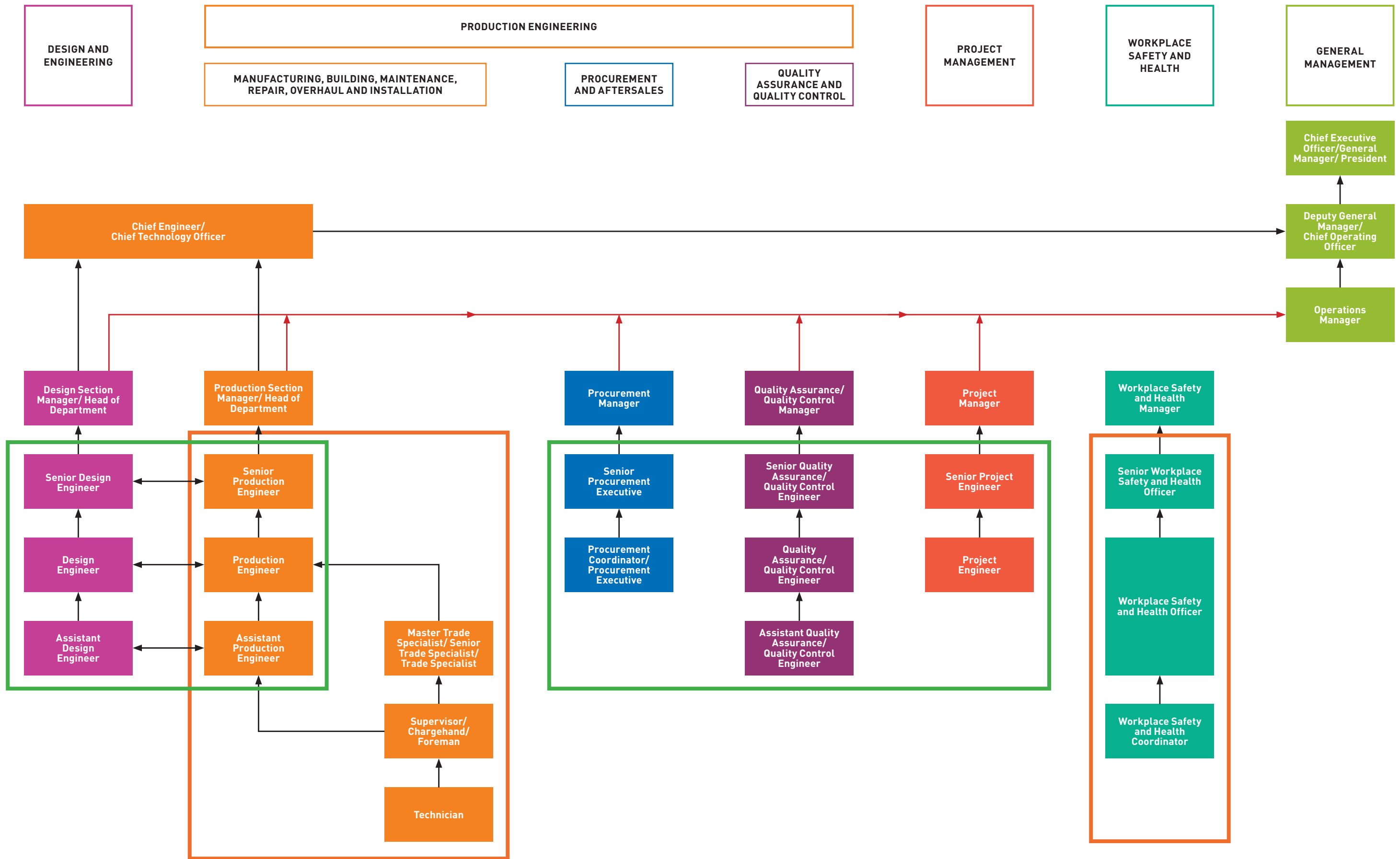
Source: Occupational Wage Survey, Manpower Research & Statistics Department, Ministry of Manpower

### Notes:

- 1) Data pertains to full-time resident employees in the private sector establishments each with at least 25 employees.
- 2) Monthly Gross Wage refers to the sum of the basic wage, overtime payments, commissions, allowances, and other regular cash payments. It is before deduction of employee CPF contributions and personal income tax and excludes employer CPF contributions, bonuses, stock options, other lump sum payments and payments-in-kind.
- 3) 25th Percentile Wage refers to the wage level which divides the bottom 25% of wage earners from the rest.
- 4) 75th Percentile Wage refers to the wage level which divides the top 25% of wage earners from the rest.

# SKILLS FRAMEWORK FOR MARINE AND OFFSHORE

## Career Pathways



Legend



Design and Engineering, and Manufacturing, Building, Maintenance, Repair, Overhaul and Installation may transit to Procurement and Aftersales, Quality Assurance and Quality Control or Project Management



Manufacturing, Building, Maintenance, Repair, Overhaul and Installation may transit to Workplace Safety and Health

The Career Map serves as a reference to reflect the available job roles and possible career pathways in the Marine and Offshore sector, which may vary depending on each company's structure and business context. The career progression pathways would depend on individual performance, capability, experience, aspiration, as well as company needs.

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