SKILLS FRAMEWORK FOR SEA TRANSPORT
SKILLS MAP – LEAD ENGINEER/PRINCIPAL ENGINEER

Sector	Sea Transport			
Track	Port			
Sub-track	Port Engineering			
Occupation	Port Engineer			
Job Role	**Lead Engineer/Principal Engineer**			
Job Role Description	The Lead Engineer/Principal Engineer oversees the design, research, development, trials, installation and commissioning of new port equipment or technology and ensures compliance to regulatory requirements, while mitigating risks. He/She has oversight over port equipment maintenance programmes as well as training programmes for port engineers and technicians. He establishes systems and practices to encourage workflow improvements thereby enhancing the organisation's productivity, and has excellent problem-solving and analytical skills, strong leadership and communication skills and is able to negotiate with vendors			
Critical Work Functions and Key Tasks	**Critical Work Functions**		**Key Tasks**	
	Manage the development and procurement of port equipment and infrastructure		Develop strategic plans and roadmaps based on business drivers	
			Oversee resource management for engineering teams	
			Establish budget for the business unit and financial statements and performance reports	
			Provide technical advice on feasibility, cost, and timeline of port equipment and infrastructure development projects	
			Set milestones, communicate project status and identify/address setbacks	
			Coordinate and manage multiple vendor groups to ensure technical deliverables are met	
	Oversee the implementation and maintenance of automated equipment and systems		Validate the selection of core automated equipment components based on the system and organisation requirements	
			Draft project specifications and requirements for automated and/or other related port equipment	
			Support the layout and system design process for automated equipment systems including the modelling and simulation to determine counts, congestion and bottle necks	
			Initiate and lead the design and development of automated equipment and related equipment which includes concept development, prototype testing, engineering design	
			Liaise with third parties on system builds and integration testing	
			Support troubleshooting during installation and start-up	
	Manage development and deployment of port engineers		Oversee the development of training roadmaps for engineering teams	
			Support and provide mentorship to new members of staff	
	Improve reliability of existing port equipment and infrastructure through asset enhancement and maintenance programmes		Create technical specifications, test plans and documentation	
			Establish equipment design change protocol	
			Monitor the lifecycle of the port equipment to introduce end-of-life measures	
			Perform quality control checks to ensure the safety and efficiency of the port equipment	
			Analyse and review reports on port equipment performance and efficiency	
			Coordinate with external and internal stakeholders across multiple engineering disciplines to ensure various port equipment and infrastructure systems are well integrated	
			Evaluate the relevance of new technologies in the maintenance of port equipment.	
	Perform corrective maintenance and troubleshooting		Monitor equipment failure trend, conduct root cause analyses, and set direction for follow up actions.	
	Manage business risks		Develop frameworks and processes to manage business risk in chartering operations	
			Ensure compliance with business risk procedures	
	Lead improvements to enhance efficiency		Drive a culture of innovation and efficiency to ensure processes are productive	
			Monitor the effectiveness of workflow improvements	

Skills and Competencies	**Technical Skills and Competencies**		**Generic Skills and Competencies (Top 5)**	
	Architecture Design	Level 5	Leadership	Advanced
	Budgeting	Level 5	Interpersonal Skills	Advanced
	Business Continuity Management	Level 5	Communication	Advanced
	Business Negotiation	Level 5	Managing Diversity	Advanced

	Condition-based Monitoring	Level 5	Global Mindset	Advanced
	Crisis Management	Level 5		
	Cyber Security	Level 3		
	Financial Analysis	Level 5		
	Financial Management	Level 5		
	Innovation	Level 5		
	Interface Management	Level 5		
	Learning and Development	Level 5		
	Manpower Planning	Level 5		
	Networking	Level 5		
	Organisational Strategy and Policy Realisation	Level 5		
	Port Equipment Maintenance	Level 5		
	Resource Management	Level 5		
	Risk Compliance and Governance	Level 5		
	Risk Control and Response Planning	Level 5		
	System Configuration Management	Level 5		
	Systems Integration	Level 5		
	Technology Integration	Level 3		
Programme Listing	For a list of Training Programmes available for the Sea Transport sector, please visit: wwww.skillsfuture.sg/skills-framework/sea-transport			

The information contained in this document serves as a guide.