

**SKILLS FRAMEWORK FOR ENERGY AND CHEMICALS
SKILLS MAP - SENIOR PROCESS ENGINEER**

Sector	Energy and Chemicals				
Track	Production and Process Engineering				
Occupation	Engineer				
Job Role	Senior Process Engineer				
Job Role Description	<p>The Senior Process Engineer provides technical support to the production team for process troubleshooting, and proposes countermeasures to ensure safe and reliable operations. He/She leads the development of new applications, and the implementation of integrated solutions for process changes, new equipment and technologies to improve process capability, efficiency, yield and quality. He may also specialise in process control, process optimisation or process engineering projects, depending on organisational needs.</p>				
	<p>The Senior Process Engineer coordinates closely with the process safety engineering team to ensure plant safeguarding requirements are met, in compliance with Workplace Safety and Health (WSH), Environmental Management System (EMS) and Process Safety Management (PSM) system requirements. He leads non-conformance investigations and advises on mitigation measures to ensure that product quality meets customers' requirements. He reviews the technical justifications for new process engineering projects to evaluate their suitability, and supervises troubleshooting activities relating to changes in process operations or new production plant projects. In addition, he contributes to staff capability development by coaching and mentoring junior staff in his team.</p>				
	<p>The Senior Process Engineer works closely with the production and process safety teams and other departments. He is analytical, enjoys solving problems, and interacts effectively with others. He also possesses good leadership, communication and resource management skills.</p>				
Critical Work Functions and Key Tasks	Critical Work Functions		Key Tasks		
	Administer Workplace Safety and Health (WSH) and Environmental Management Systems (EMS)			Comply with WSH and EMS systems	
				Provide feedback to the Health, Safety and Environment (HSE) team on any non-conformance with WSH and EMS systems	
				Support WSH and EMS incident investigations	
	Administer Process Safety Management (PSM) systems			Coordinate with the process safety engineering team to ensure plant safeguarding requirements are met	
	Support process plant optimisation			Deliver innovative solutions using established and emerging technologies for process optimisation	
				Provide technical support on process control and automation to improve process capability, efficiency, yield and quality	
				Review analyses of real-time plant data and vendor data and make recommendations for process efficiency improvements	
	Perform process engineering support			Evaluate production trial runs to validate new raw materials introduction and/or new product specifications	
				Lead collaborations with relevant stakeholders to determine product specifications to meet customers' requirements and standards	
				Lead non-conformance investigations and advise on mitigation measures	
				Review recommendations for changes and improvements to Standard Operating Procedures (SOPs) and work methods for specific production areas and/or processes	
	Manage process engineering projects			Review technical justification bases for projects	
				Supervise troubleshooting activities arising from changes in process operations or new production plant projects	
				Support projects during plant commissioning and turnaround activities	
		Use interactive digital modelling for process engineering solutions with reference to case studies and standards			
Manage asset integrity			Review asset integrity risk and reliability analyses and improvements		
			Support and advise on asset integrity assurance and compliance		
Administer staff and organisational development			Adopt technologies to support virtual collaboration in remote locations		
			Coach and mentor staff		
			Manage team performance to achieve organisational goals		
			Support continuous improvement, including pipeline reviews, and equipment and system performance and limits		
Skills & Competencies	Technical Skills and Competencies		Generic Skills and Competencies (Top 5)		
	Change Management	Level 4	Computational Thinking	Advanced	
	Commissioning and Start-Up Management	Level 4	Problem Solving	Advanced	
	Continuing Professional Development Management	Level 4	Decision Making	Intermediate	
	Continuous Improvement Management	Level 4	Communication	Intermediate	
	Data Analytics System Design	Level 3	Creative Thinking	Intermediate	
	Data and Statistical Analytics	Level 4			
	Engineering Drawing Interpretation and Management	Level 5			
	Engineering Management of Change	Level 4			
	Engineering Project Management	Level 4			

Skills & Competencies	Environmental Management System Framework Development and Implementation	Level 3
	Front-End Engineering Design Management	Level 4
	Incident Investigation Management	Level 3
	Internet of Things Management	Level 3
	Major Hazard Installation Safety Case Management	Level 4
	Non-Conformance Management	Level 4
	Operations Reporting Protocol Application	Level 4
	Plant Economic Modelling	Level 4
	Process Control	Level 4
	Process Development Management	Level 4
	Process Engineering Design	Level 5
	Process Operations Troubleshooting	Level 5
	Process Optimisation	Level 5
	Process Plant and Equipment Integrity Management	Level 5
	Process Safety Management Framework Development and Implementation	Level 4
	Process Unit and Utilities Operations Management	Level 5
	Procurement Management	Level 4
	Project Management	Level 5
	Robotic and Automation Technology Application	Level 4
	Safety Integrity Levels Management	Level 4
	Standard Operating Procedure Development and Implementation	Level 5
	Technical Presentation	Level 5
	Technical Report Writing	Level 4
Training, Coaching and Assessment Management	Level 3	
Workplace Safety and Health Framework Development and Implementation	Level 3	
Workplace Safety and Health Hazard Identification and Risk Control Management	Level 3	
Yield Analysis	Level 4	
Programme Listing	For a list of Training Programmes available for the Energy and Chemicals sector, please visit: www.skillsfuture.sg/skills-framework/energyandchemicals	

The information contained in this document serves as a guide.