

**SKILLS FRAMEWORK FOR ENERGY AND CHEMICALS  
SKILLS MAP - DISCIPLINE ENGINEER**

<b>Sector</b>	<b>Energy and Chemicals</b>			
<b>Track</b>	<b>Engineering and Maintenance</b>			
<b>Occupation</b>	<b>Engineer</b>			
<b>Job Role</b>	<b>Discipline Engineer</b>			
<b>Job Role Description</b>	<p>The Discipline Engineer provides discipline-specific engineering support to production facilities and projects on matters related to the selection, specification, construction, performance, integrity, reliability, fitness for service and repair of equipment. He/She supports the maintenance and production teams in the delivery of plant operational excellence and asset integrity assurance, by conducting risks analyses on plant and equipment and advising on corrective actions for equipment faults and failures. He may specialise in electrical, rotating, static, analyser, reliability, project, or integrity and inspection-related engineering work.</p>			
	<p>The Discipline Engineer manages the automation and optimisation of plant equipment by defining equipment operating parameters, limits and engineering controls, and by conducting value analyses on equipment, technology and labour versus automation to achieve best value engineering solutions. He manages engineering projects by defining their scope and supporting their execution. In addition, he supports plant continuous improvement by reviewing pipelines and equipment and system performance and limits.</p>			
	<p>The Discipline Engineer works closely with the maintenance, production and Health, Safety and Environment (HSE) teams. He possesses strong analytical thinking and problem-solving skills, is a good team player and interacts effectively with others.</p>			
<b>Critical Work Functions and Key Tasks</b>	<b>Critical Work Functions</b>		<b>Key Tasks</b>	
	Administer Workplace Safety and Health (WSH) and Environmental Management Systems (EMS)	Comply with WSH and EMS systems		
		Ensure contractors and vendors comply with the organisation's WSH and EMS standards and practices		
		Support the development of the organisation's Major Hazard Installation (MHI) Safety Case		
		Support WSH and EMS incident investigations		
	Administer Process Safety Management (PSM) systems	Comply with PSM systems		
	Manage engineering projects	Define the scope of engineering projects and evaluate vendor proposals against engineering design specifications		
		Develop technical documents for equipment operation and maintenance with reference to vendors' equipment manuals as part of Management of Change (MOC)		
		Support process safety reviews for plant operation, MOC projects and new projects		
		Support the execution of engineering projects including feasibility studies, engineering design, procurement, construction, Pre-Startup Safety Reviews (PSSR), start-up and commissioning		
	Manage asset integrity	Conduct risk analyses on plant and equipment		
		Perform functional integrity audits with the maintenance team		
		Provide discipline engineering support in the development and implementation of asset integrity management systems		
Support the maintenance team in troubleshooting, root cause analyses and provide solutions for equipment faults and failures				
Manage equipment automation and optimisation	Compare new versus rebuilt equipment, existing versus new technologies, and labour versus automation to achieve best value engineering solutions			
	Define equipment operating parameters, limits and engineering controls for the optimisation of equipment reliability and availability			
	Perform data analytics and engineering feasibility studies for alternative engineering solutions			
	Support analyses of real-time equipment data and vendor data and make recommendations for equipment efficiency improvements			
Administer staff and organisational development	Adopt technologies to support virtual collaboration in remote locations			
	Support continuous improvement, including pipeline reviews, and equipment and system performance and limits			
<b>Skills &amp; Competencies</b>	<b>Technical Skills and Competencies</b>		<b>Generic Skills and Competencies (Top 5)</b>	
	Asset Integrity Management	Level 4	Sense Making	Intermediate
	Change Management	Level 4	Decision Making	Intermediate
	Commissioning and Start-Up Management	Level 3	Problem Solving	Intermediate
	Continuing Professional Development Management	Level 4	Transdisciplinary Thinking	Intermediate
	Continuous Improvement Management	Level 3	Teamwork	Intermediate
	Data Analytics System Design	Level 3		
	Data and Statistical Analytics	Level 3		
	Electrical Engineering Management	Level 3		
Engineering Drawing Interpretation and Management	Level 4			

<b>Skills &amp; Competencies</b>	Engineering Management of Change	Level 3
	Engineering Project Management	Level 3
	Engineering Safety Standards Interpretation	Level 3
	Engineering Support Management	Level 4
	Engineering, Procurement and Construction Management	Level 3
	Environmental Management System Framework Development and Implementation	Level 3
	Equipment and System Value Engineering Management	Level 4
	Front-End Engineering Design Management	Level 3
	Incident Investigation Management	Level 3
	Inspection Engineering Management	Level 4
	Instrumentation and Control Design Engineering Management	Level 3
	Internet of Things Management	Level 3
	Maintenance Integrity and Reliability Framework Development and Implementation	Level 4
	Major Hazard Installation Safety Case Management	Level 3
	Mechanical Rotating Equipment Engineering Management	Level 3
	Mechanical Static Equipment Engineering Management	Level 3
	Plant Turnaround Management	Level 4
	Process Safety Management Framework Development and Implementation	Level 3
	Project Management	Level 4
	Reliability Engineering Management	Level 4
	Robotic and Automation Technology Application	Level 3
Technical Presentation	Level 4	
Technical Report Writing	Level 4	
Third Party Management	Level 4	
Workplace Safety and Health Framework Development and Implementation	Level 3	
Workplace Safety and Health Hazard Identification and Risk Control Management	Level 3	
<b>Programme Listing</b>	For a list of Training Programmes available for the Energy and Chemicals sector, please visit: <a href="http://www.skillsfuture.sg/skills-framework/energyandchemicals">www.skillsfuture.sg/skills-framework/energyandchemicals</a>	

The information contained in this document serves as a guide.