

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

Sector	Energy and Chemicals			
Track	Engineering and Maintenance			
Occupation	Engineer			
Job Role	Senior Discipline Engineer			
Job Role Description	<p>The Senior Discipline Engineer manages the integrity of plant assets and equipment by leading discipline engineering support in the development and implementation of the organisation's asset integrity management system. He/She coordinates discipline engineering support to the maintenance team in asset and equipment troubleshooting and root cause analyses, and conducts cross-functional integrity audits with the maintenance team. He may specialise in electrical, rotating, static, analyser, reliability, project, or integrity and inspection-related engineering work.</p>			
	<p>The Senior Discipline Engineer manages the automation and optimisation of plant equipment by reviewing equipment operating parameters, limits and engineering controls, and by reviewing value analysis results on equipment, technology and labour versus automation for the purpose of achieving best value engineering solutions. He reviews the scope of engineering projects and leads their execution including the conduct of feasibility studies, provision of engineering design, procurement, construction, Pre-Startup Safety Reviews (PSSR), start-up and commissioning. He also leads the development of technical documents for equipment operation and maintenance as part of Management of Change (MOC). In addition, he supports plant continuous improvement and coaches and mentors the discipline engineers.</p>			
	<p>The Senior Discipline Engineer works closely with the maintenance, production and Health, Safety and Environment (HSE) teams. 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		
		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	Lead the development of technical documents for equipment operation and maintenance with reference to vendors' equipment manuals as part of Management of Change (MOC)		
		Lead the execution of engineering projects including feasibility studies, engineering design, procurement, construction, Pre-Startup Safety Reviews (PSSR), start-up and commissioning		
		Review the scope of engineering projects and lead the evaluation of vendor proposals against engineering design specifications		
		Support process safety reviews for plant operations, MOC projects and new projects		
	Manage asset integrity	Conduct cross-functional integrity audits with the maintenance team		
		Coordinate discipline engineering support to the maintenance team in troubleshooting, root cause analyses and provide solutions for equipment faults and failures		
		Lead discipline engineering support in the development and implementation of asset integrity management systems		
		Lead risk analyses on plant and equipment		
	Manage equipment automation and optimisation	Lead data analytics and engineering feasibility studies for alternative engineering solutions		
Review equipment operating parameters, limits and engineering controls for the optimisation of equipment reliability and availability				
Review new versus rebuilt equipment, existing versus new technologies and labour versus automation to achieve best value engineering solutions				
Review the analysis 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			
	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)	
	Asset Integrity Management	Level 4	Communication	Advanced
	Change Management	Level 4	Problem Solving	Advanced
	Commissioning and Start-Up Management	Level 4	Sense Making	Advanced
	Continuing Professional Development Management	Level 4	Lifelong Learning	Advanced
	Continuous Improvement Management	Level 4	Creative Thinking	Intermediate
Data Analytics System Design	Level 3			

Skills & Competencies	Data and Statistical Analytics	Level 4
	Electrical Engineering Management	Level 4
	Engineering Drawing Interpretation and Management	Level 5
	Engineering Management of Change	Level 4
	Engineering Project Management	Level 4
	Engineering Safety Standards Interpretation	Level 4
	Engineering Support Management	Level 4
	Engineering, Procurement and Construction Management	Level 4
	Environmental Management System Framework Development and Implementation	Level 3
	Equipment and System Value Engineering Management	Level 4
	Front-End Engineering Design Management	Level 4
	Incident Investigation Management	Level 3
	Inspection Engineering Management	Level 5
	Instrumentation and Control Design Engineering Management	Level 4
	Internet of Things Management	Level 3
	Maintenance Integrity and Reliability Framework Development and Implementation	Level 5
	Major Hazard Installation Safety Case Management	Level 4
	Mechanical Rotating Equipment Engineering Management	Level 4
	Mechanical Static Equipment Engineering Management	Level 4
	Plant Turnaround Management	Level 4
	Process Safety Management Framework Development and Implementation	Level 3
	Procurement Management	Level 4
	Project Management	Level 5
	Reliability Engineering Management	Level 4
	Robotic and Automation Technology Application	Level 4
	Technical Presentation	Level 5
Technical Report Writing	Level 4	
Third Party Management	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	
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.