

SKILLS FRAMEWORK FOR ENERGY AND CHEMICALS  
 SKILLS MAP - PRINCIPAL CHEMIST

<b>Sector</b>	Energy and Chemicals			
<b>Track</b>	Quality Assurance and Quality Control (QA&QC)/Technical Service, Application and Product Development/Research and Development (R&D)			
<b>Occupation</b>	Chemist			
<b>Job Role</b>	Principal Chemist			
<b>Job Role Description</b>	<p>The Principal Chemist acts as a technical advisor, providing problem-solving consultation and technical expertise in quality control, applications, scientific research and new product development. He/She designs complex experiments in the laboratory, based on requirements of the industry, customers, and/or his field of specialisation. He provides technical expertise to support laboratory operations by leading the troubleshooting of existing chemical validations and preparations, and develops new methods when required.</p> <p>The Principal Chemist leads applied research projects to drive chemical product innovation, and ensures that research undertaken upholds the highest scientific standards. He prepares applied research papers and presents them at scientific and industry events and conferences. He provides technical expertise for the development of the laboratory's Management of Hazardous Chemicals Programme (MHCP). At the organisational level, he is responsible for translating continuous improvement strategies into actionable plans for the respective laboratory functional departments, and for driving the development of technical capabilities for the laboratory teams.</p> <p>The Principal Chemist is a key resource person who advises senior management and laboratory functional departments on chemistry and scientific methodologies. He maintains and builds strong relationships with the external scientific community. He is highly analytical, enjoys solving complex problems, and is able to lead others effectively. He is expected to possess strong project management, transdisciplinary thinking and decision-making skills.</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)		Ensure compliance with WSH and EMS systems at the department level	
			Provide technical expertise for the development of the Management of Hazardous Chemicals Programme (MHCP)	
	Provide technical support to laboratory operations		Design and conduct complex experiments and analyses in the laboratory, based on industry, customer or field of specialisation requirements	
			Lead the identification, development and deployment of new analytical technologies to support product and process development	
			Lead the troubleshooting of existing chemicals validations and preparations, and develop new validation methods if required	
			Prepare application development reports for presentation to internal and external customers	
			Provide technical evaluations for the procurement of advanced laboratory equipment	
	Manage applied research		Act as a liaison to evaluate market potential and external technologies for applied research	
			Conduct applied research studies on performance modelling, product and process characterisation and analyses	
			Lead applied research projects to drive chemical product innovation	
			Represent the organisation at scientific forums and present applied research papers	
Administer staff and organisational development		Build in-house technical capabilities for laboratory teams		
		Contribute to the development of business continuity plans		
		Drive the adoption of technologies to support virtual collaboration in remote locations		
		Recommend new and emerging technologies for laboratory and applied research management		
		Translate continuous improvement strategies into actionable plans		
<b>Skills &amp; Competencies</b>	<b>Technical Skills and Competencies</b>		<b>Generic Skills and Competencies (Top 5)</b>	
	Analytical Method Validation	Level 5	Leadership	Advanced
	Applied Research and Development Management	Level 5	Computational Thinking	Advanced
	Business Networking Management	Level 5	Transdisciplinary Thinking	Advanced
	Change Management	Level 5	Global Mindset	Advanced
	Continuing Professional Development Management	Level 5	Communication	Advanced
	Continuous Improvement Management	Level 6		
	Data and Statistical Analytics	Level 5		
	Environmental Management System Framework Development and Implementation	Level 4		
	Innovation Management	Level 5		
	Laboratory Data Reporting and Analysis Management	Level 6		
	Laboratory Operations Management	Level 6		
	Materials Qualification	Level 5		

<b>Skills &amp; Competencies</b>	Non-Conformance Management	Level 5	
	Product Design and Development	Level 5	
	Product Testing Management	Level 5	
	Project Management	Level 6	
	Technical Presentation	Level 6	
	Technical Report Writing	Level 4	
	Technical Services Management	Level 6	
	Workplace Safety and Health Framework Development and Implementation	Level 4	
<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.