

**SKILLS FRAMEWORK FOR ENERGY AND CHEMICALS  
SKILLS MAP - SENIOR R&D CHEMIST**

<b>Sector</b>	Energy and Chemicals			
<b>Track</b>	Research and Development (R&D)			
<b>Occupation</b>	Chemist			
<b>Job Role</b>	Senior R&D Chemist			
<b>Job Role Description</b>	The Senior R&D Chemist supervises the Research and Development (R&D) team and provides scientific and technical guidance on their projects, which includes the effective planning of project milestones and deliverables. He/She develops research objectives and proposals for new product innovation and designs experiments according to market and business needs.			
	The Senior R&D Chemist manages new product development by evaluating new product specifications for production scale-up, validating process development and scale-ups for new and improved products, and developing Intellectual Property (IP) and patents of new products for business objectives. He coaches and mentors the junior staff in the team and is responsible for managing the team's performance to achieve organisational goals.			
	The Senior R&D Chemist leads a team in the laboratory, and collaborates closely with the application and technical service teams to co-create new products. He is goal-oriented, creative and enjoys solving complex problems. He can manage multiple projects effectively, and possesses excellent technical writing and presentation skills.			
<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 risk assessments are conducted and control measures are implemented		
		Implement the Management of Hazardous Chemicals Programme (MHCP)		
	Perform laboratory operations	Manage the troubleshooting and maintenance of Research and Development (R&D) laboratory equipment in accordance with laboratory standards		
		Review experimental data and provide recommendations on product research improvements		
		Review the documentation of R&D work records for both internal and external customers		
	Manage Research and Development (R&D)	Design experiments and tests according to market and business needs		
		Develop new technologies and research techniques and integrate into R&D-based projects		
		Develop research objectives and proposals for new product innovation		
		Maintain up-to-date knowledge of market requirements and scientific and technological developments within the industry		
		Manage innovation, new technology, materials or ingredients-related research projects		
		Provide scientific and technical guidance and supervision to the R&D team on their projects		
Manage new product development	Review complex technical laboratory-based studies, experiments, analyses and evaluations for R&D projects			
	Develop advanced solutions and formulations with compliance to Intellectual Property (IP) and patent rights			
	Develop IP and patents of new products for business objectives			
	Evaluate product specifications for production scale-up			
	Lead the co-creation of new products in collaboration with technical service and application teams			
Administer staff and organisational development	Validate process development and scale-ups for new and improved products			
	Adopt technologies to support virtual collaboration in remote locations			
	Coach and mentor staff			
	Manage team performance to achieve organisational goals			
<b>Skills &amp; Competencies</b>	<b>Technical Skills and Competencies</b>		<b>Generic Skills and Competencies (Top 5)</b>	
	Applied Research and Development Management	Level 5	Creative Thinking	Advanced
	Business Networking Management	Level 5	Sense Making	Advanced
	Change Management	Level 4	Problem Solving	Advanced
	Continuing Professional Development Management	Level 4	Computational Thinking	Advanced
	Continuous Improvement Management	Level 4	Communication	Intermediate
	Data and Statistical Analytics	Level 4		
	Environmental Management System Framework Development and Implementation	Level 3		
Innovation Management	Level 4			
<b>Skills &amp; Competencies</b>	Laboratory Data Reporting and Analysis Management	Level 5		

	Laboratory Equipment Maintenance and Calibration Management	Level 4	
	Laboratory Operations Management	Level 5	
	Materials Qualification	Level 4	
	Process Development Management	Level 4	
	Procurement Management	Level 4	
	Product Design and Development	Level 5	
	Product Testing Management	Level 5	
	Project Management	Level 5	
	Quality Control Management	Level 3	
	Sample Management	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 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.