

SKILLS FRAMEWORK FOR PRECISION ENGINEERING SKILLS MAP - PRODUCT ENGINEER/PRODUCT DESIGNER					
Sector	Precision Engineering				
Track	Technical and Engineering				
Occupation	Engineer				
Job Role	Product Engineer/Product Designer				
Job Role Description	<p>The Product Engineer/Product Designer drives the development of new products to maintain commercially viable product lines and meet business objectives of the organisation. He/She is responsible for delivering projects from concept through to manufacture, with a thorough understanding of the product development process and new technologies. He also engages with internal and external parties in the design and development, costing and recommendations of new machinery and/or components.</p> <p>He manages new product development by liaising with relevant departments, and is able to lead his team effectively. He also possesses excellent interpersonal, communication, and technical writing and presentation skills.</p>				
Critical Work Functions and Key Tasks	Critical Work Functions	Manufacture components and end products	Key Tasks		Performance Expectations (For legislated / regulated occupations)
			Create designs for engineering products and processes		
			Verify new product designs using physical models		
			Evaluate material suitability for manufacturing and processes for improving characteristics		
			Verify conformance of product dimensions against specifications		
			Formulate suitable manufacturing processes to meet product requirements		
	Conform to management system requirements	Develop control plans for shop floor tracking			
		Introduce quality improvements into engineering products and/or processes			
		Propose improvements to workplace safety and health within operations			
	Manage manufacturing process workflow	Design manufacturing processes and tools to fulfil product specification requirements			
		Develop new product manufacturing process design strategies			
		Assess effectiveness of manufacturing processes for new products			
		Evaluate new technology for feasibility of adoption in manufacturing processes			
	Contribute to continuous improvement	Evaluate and recommend process changes for improvements to help improve yield, quality and cycle times			
		Lead continuous improvement projects			
		Lead working level community to explore opportunities for improvement projects			
	Influence organisational development and strategies	Negotiate with customers to reconcile product requirements with manufacturing parameters and business needs			
Analyse data to identify business insights					
Provide technical guidance to peers and subordinates					
Skills & Competencies	Technical Skills and Competencies		Generic Skills and Competencies (Top Level 5)		
	Additive Manufacturing	Level 5	Teamwork	Intermediate	
	Automated System Design	Level 5	Communication	Advanced	
	Business Innovation	Level 4	Problem Solving	Advanced	
	Change Management	Level 4	Interpersonal Skills	Advanced	
	Cleanliness and Contamination Control	Level 4	Creative Thinking	Advanced	
	Computer-aided Design	Level 4			
	Computer-aided Manufacturing	Level 4			
	Continuous Process Improvement	Level 4			
	Cyber Risk Management	Level 4			
	Data Analytics System Design	Level 5			
	Data Synthesis	Level 5			

Embedded System Integration	Level 5
Emergency Response Management	Level 2
Engineering Product Design	Level 5
Failure Analysis	Level 5
Heat Treatment Processing	Level 5
Internet of Things Management	Level 5
Laser and Optics Application	Level 5
Machining	Level 5
Manufacturing Process Design	Level 4
Manufacturing Process Management	Level 5
Manufacturing Technology	Level 5
Material Joining	Level 3
Metal Forming	Level 6
Metal-based Additive Manufacturing	Level 5
Metallic Material Characterisation	Level 5
Metrology Management	Level 5
Networking	Level 5
New Product Introduction	Level 5
Polymeric Additive Manufacturing	Level 5
Polymeric Material Characterisation	Level 5
Precision Measurement	Level 4
Production Line Set-Up	Level 5
Project Management	Level 5
Quality Process Control	Level 4
Quality System Management	Level 4
Research and Development	Level 4
Surface Preparation and Protection	Level 4
User Experience Design	Level 4
User Interface Design	Level 4
Value Analysis	Level 5
Virtual Reality Application	Level 4
Vision Leadership	Level 5
Welding	Level 4
Workplace Safety and Health System Management	Level 5

Programme Listing	For a list of Training Programmes available for the Precision Engineering sector, please visit: www.skillsfuture.sg/skills-framework/pe
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