

Skills Framework for Precision Engineering

Programmes that broaden or deepen specific skills and knowledge
for the various occupations in the sector

Technical and Engineering

Job Role:
Senior Engineer

Full Qualification Programme	Provider
Bachelor of Engineering (Mechanical Engineering) - Part-time	Nanyang Technological University
Graduate Certificate in Precision and Advanced Manufacturing	
WSQ Specialist Diploma in Precision Engineering (Additive Manufacturing)	Nanyang Polytechnic

Technical Skills and Competencies (TSC)			Modular Programmes	Providers
Category	Title	Proficiency Level		
Automation Management	Automated System Design	Level 5	WSQ Apply Industrial Robots and Automation (SF)	Singapore Institute of Manufacturing Technology
	Automation Process Control	Level 6	WSQ Apply Robotics for Manufacturing Automation	Singapore Institute of Manufacturing Technology
Business and Organisational Management	Organisational Analysis	Level 5	WSQ Implement Action Plan Using OmniMethodology (SF)	Singapore Institute of Manufacturing Technology
			WSQ Improve Operations Action Plan using WSQ OmniMethodology (SF)	
			WSQ Operations Management Innovation Lean Improvement Towards Excellence (OMNI-LITE) (SF)	
Engineering and Manufacturing Fundamentals	Heat Treatment Processing	Level 5	WSQ Review Advanced Heat Treatment Process (SF)	Singapore Institute of Manufacturing Technology
Manufacturing and Operations	Manufacturing Process Management	Level 5	WSQ Implement OEE for Productivity Improvement (SF)	Singapore Institute of Manufacturing Technology
			WSQ Improve Machining Productivity through Dynamics Analysis and Simulation Programme (SF)	
			WSQ Manage Manufacturing Execution System (MES) (SF)	
	Metrology Management	Level 5	WSQ Engineering Optics and Optical Measurements (SF)	Singapore Institute of Manufacturing Technology
	Production Line Set-Up	Level 5	WSQ Design Precision Machines (SF)	Singapore Institute of Manufacturing Technology
Precision Manufacturing Process	Additive Manufacturing	Level 5	Introduction to 3D Printing	Nanyang Technological University
			WSQ Smart Additive Manufacturing System	Singapore Institute of Manufacturing Technology
	Laser and Optics Application	Level 5	Implement Optical Metrology	Nanyang Technological University
			WSQ Employ Laser for the PE Industry (SF)	Singapore Institute of Manufacturing Technology
	Machining	Level 5	WSQ Evaluate Advanced Metal Machining Techniques (SF)	Singapore Institute of Manufacturing Technology
	Material Joining	Level 3	WSQ Apply Advanced Joining Technologies (SF)	Singapore Institute of Manufacturing Technology
			WSQ Understand the Microfluidics Manufacturing Processes	
	Metal Forming	Level 5	WSQ Perform Integrated Forming Process Technology for Metals (SF)	Singapore Institute of Manufacturing Technology
	Metal-based Additive Manufacturing	Level 5	Introduction to 3D Printing	Nanyang Technological University
			WSQ Review High Speed Additive Manufacturing Processes for Metallic Components	Singapore Institute of Manufacturing Technology
			WSQ Review High Speed Laser Welding & Additive Manufacturing	
	Polymeric Additive Manufacturing	Level 5	Introduction to 3D Printing	Nanyang Technological University
			WSQ Review Polymer-based Additive Manufacturing Processes for Flexible Mass Customisation	Singapore Institute of Manufacturing Technology
	Surface Preparation and Protection	Level 4	WSQ Apply Advanced Coating Technologies for Wear and Corrosion Protection	Singapore Institute of Manufacturing Technology
Welding	Level 5	WSQ Adopt Friction Stir Welding and Diffusion Bonding (SF)	Singapore Institute of Manufacturing Technology	
		WSQ Evaluate Advanced Brazing (SF)		
		WSQ Evaluate Advanced Metal Welding Processes		

			WSQ Implement Laser Beam Welding (SF)	
			WSQ Perform Advanced Metal Welding (SF)	
Product Development	New Product Introduction	Level 5	Design for Assembly in Manufacturing	Nanyang Technological University
Productivity and Innovation	Continuous Process Improvement	Level 5	WSQ Improve Productivity through RFID-enabled Workflows Innovation Framework (SF)	Singapore Institute of Manufacturing Technology
			WSQ Review Welding Operation and Quality Control (SF)	
Quality Management	Failure Analysis	Level 5	Failure Analysis and Prevention for Engineering Materials, Structures and Device	Nanyang Technological University
Value Engineering	Lean Manufacturing	Level 5	WSQ Implementation of Fundamental Lean at workplace	Singapore Institute of Manufacturing Technology

For Generic Skills and Competencies (GSCs) programme listing, please refer to *Section (v) (c) - View the Training Programmes for GSCs*. Or click this [link](#) to view the GSCs Programme Listing.