

SKILLS FRAMEWORK FOR AEROSPACE			
SKILLS MAP - Quality Engineer (Manufacturing)			
Sector	Aerospace		
Track	Manufacturing		
Occupation	Quality Control/Assurance Engineer		
Job Role	Quality Engineer (Manufacturing)		
Job Role Description	<p>The Quality Engineer (Manufacturing) implements the organisation's quality management system (QMS) to identify deviations and potential risks in the manufacturing processes. He/She conducts internal and external quality audits, root cause analyses and quality investigations to ensure conformance of manufacturing tasks to procedures and standards prescribed by original equipment manufacturers (OEM), regulatory authorities and own organisation. He proposes corrective actions for quality issues, and ensures that all non-conformances are tracked and rectified. He validates first article inspection (FAI) results to ensure conformance to design specifications and customer requirements.</p> <p>He develops proper documentation control for organisation's technical library and ensures compliance with airworthiness and legislative requirements and organisation's safety, health and quality systems. He identifies opportunities for continuous improvement through data analytics, research and innovation, and implements lean and sustainability practices in quality control activities. He monitors staff performance, provides technical guidance to quality inspectors/technicians and conduct airworthiness-related training when required.</p>		
Critical Work Functions and Key Tasks / Performance Expectations	Critical Work Functions	Key Tasks	Performance Expectations (For legislated / regulated occupations)*
	Contribute to manufacturing of components and end products	Conduct root cause analyses and investigation of work-induced defects	In accordance with: <ul style="list-style-type: none"> <li>International Civil Aviation Organisation (ICAO) legislation</li> <li>Air Navigation Order (ANO)</li> <li>Singapore Airworthiness Requirements (SAR)</li> <li>Relevant foreign aviation legislations</li> <li>Workplace Safety and Health (WSH) Act</li> <li>Environmental standards</li> <li>Aerospace quality management system standards</li> <li>ISO, AN, MS, NAS and MIL standards</li> <li>Air Transport Association of America (ATA) standards</li> <li>Special process standards</li> </ul> *Performance Expectations are non-exhaustive and subject to prevailing regulations
		Propose corrective actions for work-induced defects	
		Develop proper documentation control for organisation's technical library	
	Administer quality control	Ensure compliance with quality assurance, quality control and inspection standards	
		Validate first article inspection (FAI) results to ensure conformance to design specifications	
		Conduct internal, external and vendor audits to ensure compliance with customer requirements and organisation's procedures and standards	
		Ensure follow-up on non-conformances and implementation of corrective and preventive actions	
	Conform to management system requirements	Ensure adherence of quality operations to standard operating procedures (SOPs)	
		Ensure compliance with legislative requirements and airworthiness standards	
		Enforce conformance to environment, safety and health systems, policies and procedures	
		Implement organisational quality and risk management systems	
	Contribute to continuous improvement	Implement sustainability practices for manufacturing	
		Identify opportunities for continuous improvement projects	
		Implement lean practices for manufacturing	
Contribute to research on market trends and technology applications to drive innovation			
Manage people and organisational development	Analyse data for identification of operational and business insights		
	Communicate with team members and customers to ensure smooth day-to-day operations		
	Monitor staff performance		
	Provide technical guidance to peers and junior team members		
Technical Skills and Competencies		Generic Skills and Competencies	
Aerodynamics Principles Application	Level 3	Problem Solving	Intermediate
Aerospace Materials and Hardware Selection	Level 3	Decision Making	Basic
Audit and Review Management	Level 2	Sense-Making	Advanced
Aviation Legislation Compliance	Level 3	Service Orientation	Intermediate
Business Negotiation	Level 3	Communication	Intermediate
Condition-based Assets Monitoring Management	Level 3		
Continuous Process Improvement	Level 3		
Digital Techniques Application	Level 3		
Electrical Fundamentals Application	Level 3		
Electronic Fundamentals Application	Level 3		
Engineering Drawing Interpretation and Management	Level 3		
Engineering Problem Solving	Level 4		
Gas Turbine Engine Principles Application	Level 3		
Geometric Dimensioning and Tolerancing	Level 3		

<b>Skills &amp; Competencies</b>	Helicopter Aerodynamics, Structures and Systems Principles Application	Level 3		
	Human Factors Application and Error Management	Level 3		
	Image Processing and Industrial Vision Inspection	Level 3		
	Internet of Things Implementation	Level 3		
	Knowledge Management	Level 3		
	Lean Manufacturing	Level 2		
	Mathematical Concepts Application	Level 3		
	Non-metallic Materials Testing	Level 3		
	Physics Concepts Application	Level 3		
	Piston Aeroplane Aerodynamics, Structures and Systems Principles Application	Level 3		
	Piston Engine Principles Application	Level 3		
	Precision Measurement	Level 3		
	Propeller Principles Application	Level 3		
	Propulsion Principles Application	Level 3		
	Quality System Management	Level 3		
	Robotics and Automation Application	Level 3		
	Turbine Aeroplane Aerodynamics, Structures and Systems Principles Application	Level 3		
	Workplace Safety and Health Framework Development and Implementation	Level 3		
	Workshop Practices Application	Level 2		
<b>Programme Listing</b>	<i>For a list of training programmes available for the Aerospace sector, please visit &lt;<a href="https://www.skillsfuture.sg/skills-framework/aero">https://www.skillsfuture.sg/skills-framework/aero</a>&gt;</i>			

The information contained in this document serves as a guide.