

SKILLS FRAMEWORK FOR AEROSPACE				
SKILLS MAP - Senior Manufacturing Engineer/Senior Production Engineer (Assembly)				
Sector	Aerospace			
Track	Manufacturing			
Occupation	Assembly Engineer			
Job Role	Senior Manufacturing Engineer/Senior Production Engineer (Assembly)			
Job Role Description	<p>The Senior Manufacturing Engineer/Senior Production Engineer (Assembly) establishes assembly process sequence and production plans. He/She implements shop floor monitoring and process control plans, and organise manpower, materials and resources to meet production targets. He develops assembly processes and formulates technical solutions for operational issues.</p> <p>His responsibilities also include executing productivity improvement and cost savings programmes, reviewing equipment, materials and processes for assembly, and leading negotiations with customers to reconcile product requirements with assembly parameters and business needs.</p> <p>He reviews compliance with airworthiness and legislative requirements, while proposing enhancements to the organisation's standard operating procedures (SOPs), and safety, health and quality systems. He proactively contributes to the development of lean and sustainability practices, and conducts research and innovation in targeted areas for continuous process improvements. He appraises staff performance and conducts coaching and mentoring for technical personnel.</p>			
Critical Work Functions and Key Tasks / Performance Expectations	Critical Work Functions	Key Tasks	Performance Expectations (For legislated / regulated occupations)*	
	Manage manufacturing and production planning	Establish assembly process sequence and production plans	In accordance with: <ul style="list-style-type: none"> International Civil Aviation Organisation (ICAO) legislation Air Navigation Order (ANO) Singapore Airworthiness Requirements (SAR) Relevant foreign aviation legislations Workplace Safety and Health (WSH) Act Environmental standards Aerospace quality management system standards ISO, AN, MS, NAS and MIL standards Air Transport Association of America (ATA) standards Special process standards *Performance Expectations are non-exhaustive and subject to prevailing regulations	
		Organise manpower, materials and resources to meet production targets		
		Evaluate production process enhancements to improve cost efficiency, yield, quality and cycle times		
		Optimise use of computer integrated manufacturing (CIM) technologies		
		Implement shop floor monitoring and process control plans		
		Lead negotiations with customers to reconcile product requirements with assembly parameters and business needs		
	Manufacture components and end products	Review tooling, jigs and fixtures designs for assembly		
		Review selection of advanced materials, hardware and processes to optimise assembly processes		
		Develop process plans to determine appropriate processes for assembly		
		Ensure maintenance of manufacturing equipment and machinery in accordance with plans and procedures		
	Conform to management system requirements	Review documentation for compliance with regulatory and organisational requirements		
		Propose enhancements to standard operating procedures (SOPs) for assembly operations		
		Review compliance with legislative requirements and airworthiness standards		
		Recommend improvements to environment, safety and health systems, policies and procedures		
		Contribute to the development of organisational quality and risk management systems		
	Contribute to continuous improvement	Contribute to the development of sustainability practices for assembly		
		Evaluate opportunities for continuous improvement projects		
		Contribute to the development of lean practices for assembly		
		Conduct research on market trends and technology applications to drive innovation		
Manage people and organisational development	Leverage data analytics to enhance operational and business decision-making			
	Liaise with other teams and customers to ensure smooth operations			
	Appraise staff performance by utilising organisational performance management systems			
Technical Skills and Competencies	Generic Skills and Competencies			
	Aerodynamics Principles Application	Level 4	Decision Making	Intermediate
	Aerospace Materials and Hardware Selection	Level 4	Sense-Making	Advanced
	Artificial Intelligence Application	Level 3	Service Orientation	Intermediate
	Augmented Reality Application	Level 3	Communication	Intermediate
	Automated System Design	Level 4	Interpersonal Skills	Intermediate
	Automation Process Control	Level 4		
	Aviation Legislation Compliance	Level 3		
	Big Data Analytics	Level 3		
	Business Continuity Planning	Level 3		
	Business Negotiation	Level 4		

Skills & Competencies	Business Opportunities Development	Level 3		
	Business Performance Management	Level 3		
	Carbon Footprint Management	Level 4		
	Change Management	Level 3		
	Condition-based Assets Monitoring Management	Level 4		
	Continuous Process Improvement	Level 3		
	Digital Techniques Application	Level 4		
	Elastomer Seals Application	Level 3		
	Electrical Fundamentals Application	Level 4		
	Electronic Fundamentals Application	Level 4		
	Engineering Drawing Interpretation and Management	Level 4		
	Engineering Problem Solving	Level 4		
	Gas Turbine Engine Principles Application	Level 4		
	Green Manufacturing Design and Implementation	Level 3		
	Helicopter Aerodynamics, Structures and Systems Principles Application	Level 4		
	Human Factors Application and Error Management	Level 3		
	Innovation Management	Level 3		
	Internet of Things Implementation	Level 3		
	Jigs and Fixtures Design	Level 4		
	Knowledge Management	Level 3		
	Lean Manufacturing	Level 3		
	Manufacturing Process Management	Level 4		
	Material Joining	Level 4		
	Metallic Material Characterisation	Level 4		
	Mathematical Concepts Application	Level 3		
	New Engine Build Process Application	Level 3		
	Physics Concepts Application	Level 3		
	Piston Aeroplane Aerodynamics, Structures and Systems Principles Application	Level 4		
	Piston Engine Principles Application	Level 4		
	Product and Machine Assembly	Level 3		
	Product Lifecycle Management	Level 3		
	Production Line Set-up	Level 4		
	Project Management	Level 3		
	Propeller Principles Application	Level 4		
	Propulsion Principles Application	Level 4		
	Quality System Management	Level 3		
	Robotics and Automation Application	Level 3		
	Sealants Process	Level 3		
	Stakeholder Management	Level 3		
	Surface Preparation and Protection for Aerospace Manufacturing	Level 3		
Turbine Aeroplane Aerodynamics, Structures and Systems Principles Application	Level 4			
Welding Process	Level 3			

	Workplace Safety and Health Framework Development and Implementation	Level 3		
Programme Listing	<i>For a list of training programmes available for the Aerospace sector, please visit <https://www.skillsfuture.sg/skills-framework/aero></i>			

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