

SKILLS FRAMEWORK FOR ELECTRONICS
TECHNICAL SKILLS & COMPETENCIES (TSC) REFERENCE DOCUMENT

TSC Category	Automation Management					
TSC	Automated System Design					
TSC Description	Design and commission automated systems as well as evaluate the system design specification against functional requirements					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
				ELE-RAO-4002-1.1	ELE-RAO-5002-1.1	
				Develop automation systems taking into account space constraints, process constraints, unique process tool requirements and priority loading	Design automation controls by applying the fundamental of pneumatic, electro-pneumatic, Programmable Logic Controllers (PLCs) and factory automation during the design stage	
Knowledge				<ul style="list-style-type: none"> Project Management flow from design, requirement specification, installation, commissioning and final acceptance of Automated Material Handling System (AMHS) system AMHS capacity (From-To table) moves derived from Process moves and storage pattern Risk assessment analysis for new AMHS equipment roll-in or working procedure to be performed 2-D and/or 3-D mechanical drawings AMHS simulation tool AMHS Semiconductor Equipment and Materials International (SEMI) Specifications AutoCAD software Manufacturing process steps 	<ul style="list-style-type: none"> Preparation methods of compressed air Principles of pneumatic systems Types of pneumatic components Operation principles of pneumatic systems Principles of electro-pneumatic systems Types of electro-pneumatic components Operation principles of electro-pneumatic systems Principles of PLCs Components of PLC Types of Programming Languages PLC programming 	
Abilities				<ul style="list-style-type: none"> Plan and develop routes for robots Use statistical and automation software to monitor robot's performance Establish acceptance criteria, specifications and Standard Operating Procedures (SOPs) 	<ul style="list-style-type: none"> Perform analysis to determine control requirements of the machine Establish pneumatic, electro-pneumatic, PLC requirements from design specifications Produce Graphical User Interface (GUI) for automation control of the machine's system in accordance with design specifications Monitor the operation of 	

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					automation systems <ul style="list-style-type: none"> • Analyse the strengths and weaknesses of the engineering design against design criteria • Submit a full evaluation report on whether the engineering design meet functional requirements 	
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