

TSC Category	Process Engineering Management					
TSC	Process Engineering Design					
TSC Description	Apply process design principles, engineering standards, control and safety strategies for the development of new and existing process plants					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
				ECM-PEG-4003-1.1	ECM-PEG-5003-1.1	ECM-PEG-6003-1.1
				Interpret process engineering design based on design principles, engineering standards, control and safety strategies to support the development of new and existing process plants	Validate process engineering design based on design principles, engineering standards, control and safety strategies to lead the development of new and existing process plants	Advocate emerging and new technologies in process engineering design to drive the adoption of innovative solutions for the development of new and existing process plants
Knowledge				<ul style="list-style-type: none"> Principles of process engineering design Process engineering design standards Design principles for process units, utilities and equipment Mass and energy balance calculations Principles of developing process flow diagrams, piping and instrumentation diagrams Methods of developing process and equipment data sheets Methods of developing process plant layouts Principles of process control and automation Principles of safeguarding and protection systems 	<ul style="list-style-type: none"> Process engineering design standards Process engineering design legislative requirements Mass and energy balance calculations Process engineering design modelling and simulations Technology selection and integration methods Safety standards for process design Types of safeguarding and protection systems and the selection for appropriate use Types of process control and automation systems and the selection for appropriate use Interface management techniques Project planning and scheduling principles 	<ul style="list-style-type: none"> Process engineering design standards and legislative requirements Process units and technology integration Process engineering design modelling and simulations Process engineering design data analysis techniques Integrated process engineering system modelling methods Process engineering design ergonomics and economics Emerging and new technologies in process engineering design

				<ul style="list-style-type: none"> Principles of piping designs Fundamentals of material science Project planning and scheduling principles 		
Abilities				<ul style="list-style-type: none"> Interpret process engineering design based on design principles, engineering standards, control and safety strategies Support the development of the process design for new and existing process units for the purpose of plant expansion and modification Develop process design documents Conduct mass and energy balance calculations Apply engineering standards, policies and practices to process engineering design Apply process control and safeguarding into process engineering design Identify new and emerging technologies to improve process capability, optimisation, efficiency, yield and quality Provide technical justification for process engineering projects 	<ul style="list-style-type: none"> Develop process design for new and existing process units for the purpose of plant expansion and modification Review process design documents, including integration of new design projects to existing process plants, impact of new designs or modifications on existing process plants Validate mass and energy balance calculations Liaise with engineering teams to ensure process designs are incorporated into finalised equipment and system designs Integrate safeguards and protection systems into process engineering designs Carry out process design modelling and simulations Provide technical advice and guidance to production teams for plant expansion and modification related projects Communicate with stakeholders to obtain buy-in for process engineering projects 	<ul style="list-style-type: none"> Drive the direction of process engineering design teams and projects Provide technical expertise to production teams for plant expansion and modification related projects Critique process engineering design, models and data to ensure compliance with design standards and legislative requirements Optimise process engineering designs to meet plant efficiency objectives Develop process plant capacity models in coordination with key internal stakeholders Drive communication strategies with internal and external stakeholders to advocate the adoption of emerging and new technologies in process engineering design Maintain up-to-date technical knowledge within the industry

				<ul style="list-style-type: none">• Develop project planning and scheduling to meet project timelines	<ul style="list-style-type: none">• Review project planning and scheduling	
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