

TSC Category	Engineering Design and Project Management					
TSC	Front-End Engineering Design Management					
TSC Description	Manage Front-End Engineering and Design (FEED) for process plant and equipment					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
			ECM-EPM-3005-1.1	ECM-EPM-4005-1.1	ECM-EPM-5005-1.1	
			Interpret process and engineering design principles to contribute to Front-End Engineering and Design (FEED) related activities	Establish Front-End Engineering and Design (FEED) related workflows and procedures to lead FEED studies and projects	Validate process and engineering design to direct Front-End Engineering and Design (FEED) studies and critical design evaluation and validation reviews	
Knowledge			<ul style="list-style-type: none"> • Chemical engineering principles • Process and engineering design principles • Mass and energy balance • Types of engineering drawings, including Process Flow Diagrams (PFDs), Piping and Instrument Diagrams (PIDs) and isometric drawings • Stages of basic and detailed engineering • FEED principles • Process modelling techniques • Process risk and hazard identification • Principles of developing process data information for process and equipment design • Plant and process modelling software and techniques 	<ul style="list-style-type: none"> • Chemical engineering principles • Process and engineering design principles • Mass and energy balance • Engineering design codes and specifications • Equipment sizing, selection and performance evaluation methods • Equipment costing techniques and calculations • Measurement and control philosophy • Process modelling techniques • Types of process modelling software systems • Principles of Hazard and Operability studies (HAZOP) • Principles of Hazard Identification (HAZID) studies • Lifecycle efficiency methods 	<ul style="list-style-type: none"> • FEED project management principles and practices • Project life cycle concepts • Process plant and equipment design philosophy and principles • Engineering design codes and specifications • International and industry best practices of FEED for process plant and equipment • Project planning and scheduling techniques • Project costing and estimation methods 	

				<ul style="list-style-type: none"> Types of constructability analysis techniques 		
Abilities			<ul style="list-style-type: none"> Interpret process and engineering design principles related to FEED Provide discipline specific engineering support to FEED engineering studies and projects Support in the development of the basis of design criteria Interpret and apply FEED engineering standards and procedures Provide discipline specific FEED update reports Liaise with a wide range of discipline engineers on design matters Problem solving techniques Design document numbering, data management and storage systems Log and record documents within the data management system Conduct process modelling using appropriate software 	<ul style="list-style-type: none"> Lead FEED engineering and design procedures, workflows and activities Provide discipline specific engineering technical support Development of FEED documents Undertake technical document reviews Carry out early discipline specific critical reviews Carry out FEED equipment costing and budgeting Perform and review process modelling Participate in HAZOP and HAZID studies Carry out process risk and hazard identification 	<ul style="list-style-type: none"> Endorse FEED engineering and design activities Direct FEED studies Integrate project life cycle concepts to FEED engineering designs Incorporate international and industry best practices of FEED into the technical review and validation of projects and studies Carry out and lead critical design evaluations and validation reviews Endorse Hazard and Operability (HAZOP) and Hazard Identification (HAZID) studies recommendations 	