

TSC Category	Engineering Design and Project Management					
TSC	Commissioning and Start-Up Management					
TSC Description	Manage the commissioning, start-up, and operationalisation of new or modified process plants and equipment					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
			ECM-EPM-3001-1.1	ECM-EPM-4001-1.1	ECM-EPM-5001-1.1	
			Interpret commissioning and start-up work processes and procedures including systematic integration, testing and initial process operations to conduct commissioning and start-up activities	Establish commissioning and start-up work processes and procedures including systematic integration, testing and initial process operations to coordinate commissioning and start-up activities with internal and external stakeholders	Drive strategic planning and implementation of commissioning and start-up work processes to ensure the safe and reliable commissioning and start-up of new or modified process plants and units	
Knowledge			<ul style="list-style-type: none"> • Principles of pre-commissioning and commissioning • Hydro and pressure testing principles and practices • Process system, flushing, cleaning, drying-out techniques and standards • Types of chemical flushing procedures • Commissioning completions, punch list close-outs and handover principles • System integrity and functional checks • Types of engineering drawings • Types of systems and functional checks • Instrument calibration and loop tuning 	<ul style="list-style-type: none"> • Advanced principles of pre-commissioning and commissioning activities • Performance testing, acceptance and handover principles and practices • Equipment fault-finding and troubleshooting techniques • Mechanical completions • Test runs (dry and hot) and dynamic testing principles • Types of performance testing and acceptance • Principles of Simultaneous Operations (SIMOPS) • Principles of maintaining safe work areas during commissioning activities • Principles of managing power and process 	<ul style="list-style-type: none"> • Commissioning and start-up strategy development • Planning techniques and practices • Commissioning and start-up risk management • Certification and handover principles and practices • Procedure development techniques • Types of Simultaneous Operations Management (SIMOPS) • International standards, codes and legislation pertaining to testing, commissioning and start-up management 	

			<p>principles, techniques and practices</p> <ul style="list-style-type: none"> • Types of commissioning for electrical control systems • Equipment fault-finding and troubleshooting techniques • Types of safety systems and safety interlocks and special commissioning requirements • Types of Workplace Health and Safety (WSH) hazards related to commissioning and start-up work activities 	<p>energisation of sections of plants</p> <ul style="list-style-type: none"> • Workplace Safety and Health (WSH) requirements related to testing, commissioning and start-up of process plant equipment and systems requirements • International standards, codes and legislation pertaining to testing, commissioning and start-up management 		
Abilities			<ul style="list-style-type: none"> • Interpret commissioning and start-up work processes and procedures • Conduct plant commissioning and start-up support activities • Provide discipline specific engineering support on fault-finding and troubleshooting of plants and equipment • Carry out calibration and loop tuning activities on electrical and instrument control systems • Review and critique as-built drawings • Review and technically support completion and punch list action close-outs • Perform system integrity and functional checks • Perform system flush out and clean out activities • Prepare commissioning and start-up reports 	<ul style="list-style-type: none"> • Coordinate commissioning and start-up activities with internal and external stakeholders • Review pre-commissioning and commissioning activities in areas of expertise • Provide discipline specific fault-finding and troubleshooting support • Manage plant test runs and equipment performance runs • Monitor and report commissioning and start-up progress activities against plan • Review contractor and vendor commissioning and start-up activities • Review commissioning and start-up reports • Review SIMOPS activities • Review process and power energisation of process plants 	<ul style="list-style-type: none"> • Determine commissioning and start-up requirements according to specifications, design drawings and regulatory requirements • Formulate effective commissioning and start-up strategic plans • Lead and oversee all pre-commissioning and commissioning activities • Drive and implement SIMOPS plans • Accountable for commissioning and start-up risk assessments • Drive handover and completion certification processes • Verify commissioning documentation in accordance with the organisation's requirements 	

			<ul style="list-style-type: none">• Apply relevant WSH procedures for a given work area	<ul style="list-style-type: none">• Verify system and design faults using appropriate technical information, fault-finding and diagnostic techniques to identify circuit, equipment and component irregularities and non-conformances• Identify follow-up actions for identified irregularities and non-conformances in circuits, equipment or components		
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