TSC Category	Process Safety Management					
TSC	Process Safety Management Framework Development and Implementation					
TSC Description	Develop Process Safety Management (PSM) frameworks and implement procedures and practices to ensure the integrity and reliability of safeguards and protection systems within process plant operations					
TSC Proficiency Description	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**	**Level 6**
			ECM-PSM-3002-1.1	ECM-PSM-4002-1.1	ECM-PSM-5002-1.1	
			Interpret Process Safety Management (PSM) system policies, standards and procedures to select and apply appropriate safeguards and protection systems for process plant operations	Facilitate the development and implementation of Process Safety Management (PSM) frameworks and procedures to ensure the integrity and reliability of safeguarding and protection systems for process plant operations	Review Process Safety Management (PSM) frameworks, including policies, standards, and procedures to drive continuous improvement of PSM	
Knowledge			• PSM policies, procedures and practices • Methods for identifying process hazards and operability (HAZOP) • Risk assessment and mitigation measures • Steps to identify process zone areas of classification • Emergency shutdown devices and protection systems • Emergency shutdown cause and effect matrices • Fault tolerance and failsafe principles • Principles of HAZOP, hazard identification (HAZID) and failure modes and effects analysis (FMEA) studies • Principles of Safety Integrity Levels (SIL)	• PSM policies, procedures and practices • Principles of developing and maintaining PSM frameworks • PSM-related legislations and other legal requirements • Identification of process hazards and risk control measures • Methods to determine process zone areas of classification • Principles of fault tolerance, failsafe, 2o3, 2o2 voting safeguarding systems • Certified safeguarding systems • Principles of hazard and operability (HAZOP) , hazard identification (HAZID), failure modes and effects analysis	• PSM policies, procedures and practices • Methods and techniques in reviewing PSM frameworks • PSM-related legislations and other legal requirements • Industry best practices and international benchmarking practices in PSM • Advanced principles of hazard and operability (HAZOP) , hazard identification (HAZID), failure modes and effects analysis (FMEA), layer of protection analysis (LOPA) and quantitative risk assessment (QRA) studies	

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			• Electrical equipment in hazardous areas, codes and classifications • Human and cultural factors for PSM performance	(FMEA), layer of protection analysis (LOPA) and quantitative risk assessment (QRA) studies • Inter-relationships between process equipment and systems, with protection and safeguarding systems • Integrity of the separation between safety protection and normal monitoring and control		
Abilities			• Interpret PSM policies, standards and procedures • Identify process safety hazards and chemicals • Perform process hazard identification and risk assessment of process plants, including assessing hazard consequences, and recommend control measures • Conduct HAZOP, HAZID, and FMEA studies • Prepare process safety performance data for reporting • Perform routine site PSM performance monitoring and reporting • Recommend evaluation methods of PSM hazards in the workplace • Determine hazardous area classifications and SIL for new projects • Support the selection of safeguarding and	• Develop PSM frameworks, including policies, standards and procedures • Manage the identification of process hazards and risks on existing production assets • Drive programme compliance with existing PSM regulations and organisational standards and practices • Develop PSM tracking tools for process hazard identification, assessment consequences and control of hazards • Detail PSM roll-out and campaign for PSM frameworks • Conduct HAZOP, HAZID, PMEA, LOPA and QRA studies • Advise hazardous area classifications and Safety Integrity Levels (SIL) for new projects • Provide technical justification for the	• Formulate PSM scope, frameworks and direction • Review process hazard identification, risk analysis and evaluation • Review HAZOP, HAZID, PMEA, LOPA and QRA studies • Validate technical justifications for the selection of safeguarding and protection systems • Review process safety incident investigation processes and the effectiveness of corrective and preventive measures • Lead PSM audits and compliance reviews, and effectively communicate these across the organisation • Drive continuous improvement of PSM to align with industry best practices	

			protection systems for compliance with PSM • Improve desired outcomes of processes, human and cultural factors and workplace or work-related factors	selection of safeguarding and protection systems • Manage, maintain and process safety risk reviews and control measures • Manage process safety incident investigations by identifying root causes and recommending corrective and preventive measures		