

TSC Category	Discipline Engineering Specialisation					
TSC	Reliability Engineering Management					
TSC Description	Manage life cycle costing, root cause failure analyses, reliability modelling and assessments, fit-for-purpose analyses and failure patterns of plant and equipment to provide reliability engineering technical support to production, maintenance and project teams					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
				ECM-DEG-4011-1.1	ECM-DEG-5011-1.1	ECM-DEG-6011-1.1
				Interpret reliability engineering techniques, methods and standards, life-cycle analyses and equipment risk analyses to provide reliability engineering support to production, maintenance and project teams	Investigate reliability engineering techniques, methods and standards, life-cycle analyses and equipment risk analyses and reliability modelling techniques to manage reliability engineering support to production, maintenance and project teams	Set direction for reliability engineering strategies to drive high availability, integrity and reliability of plant equipment and systems
Knowledge				<ul style="list-style-type: none"> Life cycle costing principles Root Cause Failure Analysis (RCFA) incident investigation Reliability-centred maintenance principles Reliability assessment methods Principles of equipment criticality assessments Principles of process and equipment risk assessments Data acquisition and correlation techniques Weibull life data analysis principles Maintainability engineering principles Principles of remnant life assessments Risk-based inspection methods 	<ul style="list-style-type: none"> Reliability-centred maintenance techniques Decision analysis techniques and fundamental statistical principles Equipment criticality analysis techniques Data correlation techniques Engineering risk assessment techniques Maintainability engineering techniques Equipment reliability benchmarking techniques Predictive technology methods and techniques Reliability Block Diagrams (RBD) modelling techniques 	<ul style="list-style-type: none"> Maintenance strategy review; failure patterns and maintenance types Decision analysis techniques and fundamental statistical principles Remnant life study strategies and tools Equipment reliability benchmarking strategies Predictive technology methods and techniques Fit-for-purpose analysis strategies Reliability growth modelling strategies

				<ul style="list-style-type: none"> • Fault Tree Analysis (FTA) modelling strategies 		
<p>Abilities</p>				<ul style="list-style-type: none"> • Apply RCFA to equipment in the four families of static, rotating, instrument and/or control and electrical distribution • Conduct reliability-centred maintenance studies • Conduct reliability assessments, based on the Reliability Management System (RMS) • Apply equipment criticality assessments on equipment in the four families of static, rotating, instrument and/or control and electrical distribution, taking various mitigation options into account • Conduct process and equipment risk assessments and recommend mitigations • Apply remnant life studies to equipment in the four families of static, rotating, instrument and/or control and electrical distribution 	<ul style="list-style-type: none"> • Audit the application of Root Cause Failure Analysis (RCFA), ensuring correct equipment choices are made and identify the case classification; wrong from start, something has changed, deterioration, human error • Manage reliability-centred maintenance studies • Manage decision analyses, based on fundamental statistical principles identifying improvement options • Analyse multi-criteria decisions with different statistical scenarios • Manage the reliability assessment process to ensure procedures have been followed, identifying gaps in reliability and recommend solutions • Manage equipment criticality assessments to ensure correct procedures have been followed, using external sources of information • Manage process and/or equipment risk assessments and ensure mitigations have been selected 	<ul style="list-style-type: none"> • Develop strategies to improve life cycle costing processes so that they can be completed at lower cost in shorter time • Develop strategies to improve Root Cause Failure Analysis (RCFA) processes so that they can be completed at lower cost in shorter time • Audit the maintenance strategy review process to ensure correct procedures have been followed and develop strategies to improve the maintenance strategy • Audit reliability-centred maintenance studies to ensure correct procedures have been followed and develop strategies to improve the maintenance strategy • Develop strategies to improve reliability assessment processes so that they can be completed at a lower cost in a shorter time • Review and endorse process and/or equipment risk assessments and situations where novel risks are identified in new processes • Review and endorse remnant life studies to ensure correct options have been selected

						<ul style="list-style-type: none">• Review and endorse fit-for-service (FFS)/purpose analyses to ensure correct options have been selected
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