

<b>TSC Category</b>	Engineering Construction, Operations and Maintenance					
<b>TSC</b>	Preventive Maintenance					
<b>TSC Description</b>	Perform scheduled maintenance procedures on equipment without halting business operations to reduce and minimise failures					
<b>TSC Proficiency Description</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Level 4</b>	<b>Level 5</b>	<b>Level 6</b>
		<b>EGS-MAI-2011-1.1-1</b>	<b>EGS-MAI-3011-1.1-1</b>	<b>EGS-MAI-4011-1.1-1</b>	<b>EGS-MAI-5011-1.1-1</b>	
		Perform routine inspections and maintenance of equipment	Oversee preventive maintenance activities	Develop technical preventive maintenance plans to reduce and minimise failures	Lead preventive maintenance activities, and provide technical expertise and business operations perspectives	
<b>Knowledge</b>		<ul style="list-style-type: none"> <li>Preventive maintenance procedures</li> <li>Operating principles and normal behaviour of equipment to be maintained</li> <li>Methods of identifying equipment faults</li> <li>Methods of identifying early warning signs of potential problems with equipment</li> <li>Measures for identifying probable causes of faults</li> <li>Factors that increase maintenance requirements of equipment used</li> <li>Health and safety policies and practices related to maintenance procedures</li> <li>Maintenance recording procedures</li> </ul>	<ul style="list-style-type: none"> <li>Maintenance procedures for equipment</li> <li>Principles and techniques of calibrations</li> <li>Principles of mechanical, electrical civil, and instrumentation and control systems</li> <li>Principles of mechanical electrical, civil, and instrumentation and control engineering</li> <li>Principles of Overall Equipment Effectiveness (OEE)</li> <li>Health, Safety and Environment (HSE) policies, procedures and regulations</li> </ul>	<ul style="list-style-type: none"> <li>Methods of determining Overall Equipment Effectiveness (OEE)</li> <li>Principles of condition monitoring analysis</li> <li>Methods of developing calibration and maintenance schedules</li> <li>Techniques for determining Mean Time Between Failure (MTBF)</li> <li>Techniques to analyse condition monitoring data</li> <li>Engineering services processes</li> </ul>	<ul style="list-style-type: none"> <li>Advanced principles of mechanical, electrical civil, and instrumentation and control systems, and their calibration</li> <li>Advanced principles of engineering and calibration</li> <li>Requirements of proactive maintenance strategies and their implementation</li> <li>Operating principles and procedures for all equipment and systems</li> <li>Business values, costs and implications of preventive maintenance activities</li> <li>Methods of calculating return on investment (ROI)</li> </ul>	
<b>Abilities</b>		<ul style="list-style-type: none"> <li>Perform routine checks on equipment or structures</li> <li>Identify nature of maintenance activities and tools required</li> <li>Prepare equipment for maintenance</li> <li>Select tools according to task requirements</li> </ul>	<ul style="list-style-type: none"> <li>Review equipment and facility performance records and documentation</li> <li>Implement preventive maintenance guide, and ensure equipment and facilities are serviced and adjusted as required</li> </ul>	<ul style="list-style-type: none"> <li>Analyse equipment to determine performance of equipment and systems</li> <li>Undertake condition monitoring analysis to predict required maintenance types and timings for different equipment</li> </ul>	<ul style="list-style-type: none"> <li>Establish key performance indicators and targets for maintenance activities</li> <li>Evaluate maintenance Standard Operating Procedures (SOPs)</li> <li>Provide expert technical guidance on new or non-routine engineering and</li> </ul>	

**SKILLS FRAMEWORK FOR ENGINEERING SERVICES  
TECHNICAL SKILLS & COMPETENCIES (TSC) REFERENCE**

		<ul style="list-style-type: none"> <li>• Perform cleaning, fluid replacement waste removal and other routine maintenance procedures on equipment</li> <li>• Replace worn machine parts</li> <li>• Return equipment to operating order and store tools according to workplace procedures</li> <li>• Adhere to relevant Health, Safety and Environment (HSE) risk control measures when conducting maintenance work</li> <li>• Report maintenance activities according to workplace reporting requirements</li> <li>• Update maintenance and repair logs</li> </ul>	<ul style="list-style-type: none"> <li>• Schedule maintenance activities in consultation with affected work areas to minimise disruption</li> <li>• Conduct repair work of non-standard equipment and machinery</li> <li>• Estimate time and costs needed for maintenance and repair activities</li> <li>• Analyse maintenance logs and documentation to identify trends and common issues</li> <li>• Submit requests to replenish stock required for maintenance works as needed</li> <li>• Review preventive maintenance activities to ensure early warning signs of potential problems with equipment are identified in a timely manner</li> <li>• Ensure maintenance works are conducted in compliance with Health, Safety and Environment (HSE) policies, procedures and regulations</li> </ul>	<ul style="list-style-type: none"> <li>• Develop maintenance Standard Operating Procedures (SOPs) and guides that detail the key maintenance activities and procedures to be performed</li> <li>• Estimate resources needed to implement preventive maintenance plans</li> <li>• Review logs of all repair works pending and conducted, and maintain records of the solutions applied to each case</li> <li>• Analyse MTBF from maintenance and other maintenance performance criteria</li> <li>• Develop solutions to minimise or eliminate machines or systems malfunctions and reduce deterioration rates</li> <li>• Direct reliability studies</li> <li>• Implement tool and equipment inventory control procedures</li> <li>• Outline standard quality and safety procedures to adhere to during maintenance work</li> </ul>	<p>maintenance activities and processes</p> <ul style="list-style-type: none"> <li>• Facilitate training on new engineering and maintenance processes</li> <li>• Evaluate the tangible and intangible benefits of enhancements to preventive maintenance processes</li> <li>• Assess current practices with relevant stakeholders to determine any facility and equipment reliability implications</li> <li>• Develop plans for root cause analyses and reliability studies</li> <li>• Review effectiveness and ROI of preventive maintenance activities</li> <li>• Recommend changes to enhance preventive maintenance processes and effectiveness</li> </ul>	
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