

**POWER ENGINEERING COMPETENCY FRAMEWORK FOR POWER ENGINEERING PROFESSIONALS IN PUBLIC SERVICE  
TECHNICAL SKILLS AND COMPETENCIES (TSC) REFERENCE DOCUMENT**

<b>TSC Category</b>	Maintenance Management					
<b>TSC Title</b>	Preventive Maintenance Management					
<b>TSC Description</b>	Manage preventive maintenance workflows, procedures and practices to optimise electrical equipment and systems availability and reliability					
<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>
		<Insert TSC Code>	<Insert TSC Code>	<Insert TSC Code>	<Insert TSC Code>	
		Apply workflows, procedures and practices to carry out preventive maintenance tasks for electrical equipment and systems	Oversee preventive maintenance workflows, procedures and practices for electrical equipment and systems	Review preventive maintenance workflows, procedures and practices to drive high quality and reliability of electrical infrastructure	Formulate or approve preventive maintenance strategies according to industry best practices and regulatory requirements	
<b>Knowledge</b>		<ul style="list-style-type: none"> <li>• Fundamentals of preventive maintenance</li> <li>• Maintenance procedures for electrical equipment and systems</li> <li>• Operating principles and normal functionalities of electrical equipment</li> <li>• Methods of identifying early warning signs of potential problems with equipment</li> <li>• Equipment troubleshooting principles and practices</li> <li>• Maintenance data analysis and trending interpretation</li> <li>• Types of maintenance tools and equipment and their functions</li> <li>• Condition-based monitoring systems, applications and uses</li> <li>• Applications of computer-based maintenance management systems</li> <li>• Relevant regulations, industry standards,</li> </ul>	<ul style="list-style-type: none"> <li>• Fundamental principles of maintenance management</li> <li>• Principles of Overall Equipment Effectiveness (OEE)</li> <li>• Equipment failure investigations</li> <li>• Failure and Root Cause Analysis (RCA) methods</li> <li>• Inventory control and management techniques</li> <li>• Practices such as risk assessments, Job Safety Analysis (JSA) related to maintenance work</li> <li>• Predictive maintenance methods</li> <li>• Relevant regulations, industry standards, codes of practice and safety procedures</li> </ul>	<ul style="list-style-type: none"> <li>• Fundamental principles of maintenance management and asset integrity</li> <li>• Methods of determining Overall Equipment Effectiveness (OEE)</li> <li>• Principles of condition monitoring analysis and techniques to analyse condition monitoring data</li> <li>• Methods to develop calibration and maintenance plans</li> <li>• Techniques to determine mean time between failure (MTBF)</li> <li>• Data and statistical information analysis</li> <li>• Plant inspection principles and techniques</li> <li>• Predictive maintenance methods through technology applications</li> <li>• Automated inspection methods</li> <li>• Relevant regulations, industry standards,</li> </ul>	<ul style="list-style-type: none"> <li>• Fundamental principles of maintenance management and asset integrity</li> <li>• Principles of electrical and power systems, and their calibration</li> <li>• Requirements of proactive maintenance strategies and their implementation</li> <li>• Vendors' equipment maintenance and inspection requirements</li> <li>• Equipment maintenance optimisation techniques</li> <li>• Business value, costs and implications of preventive maintenance activities</li> <li>• Methods of calculating return on investment</li> <li>• Predictive maintenance and automation technologies</li> <li>• Relevant regulations, industry standards, codes of practice and safety procedures</li> </ul>	

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		codes of practice and safety procedures		codes of practice and safety procedures		
<b>Abilities</b>		<ul style="list-style-type: none"> <li>Identify appropriate maintenance procedures and practices</li> <li>Conduct preventive maintenance tasks for electrical equipment and systems</li> <li>Conduct routine monitoring and inspection for equipment and systems</li> <li>Assist in the troubleshooting and rectification of equipment and systems</li> <li>Identify and locate applicable vendors' maintenance procedures</li> <li>Apply safe maintenance work procedures</li> <li>Follow maintenance work instructions</li> <li>Select and use tools and equipment for maintenance inspections and repairs</li> <li>Record routine maintenance work</li> <li>Ensure compliance with industry standards, regulatory and project requirements</li> </ul>	<ul style="list-style-type: none"> <li>Oversee maintenance procedures and practices</li> <li>Supervise routine monitoring and inspection of process equipment and systems</li> <li>Verify preventive maintenance on equipment and systems</li> <li>Oversee equipment and system troubleshooting and rectification</li> <li>Review maintenance work instructions and safe work procedures</li> <li>Review selection of tools and equipment for maintenance inspections and repairs</li> <li>Conduct risk assessments and adhere to relevant risk control measures when performing maintenance work</li> <li>Record and log maintenance and inspection activities</li> <li>Review compliance with industry standards, regulatory and project requirements</li> </ul>	<ul style="list-style-type: none"> <li>Review preventive maintenance workflows, procedures and practices</li> <li>Validate routine monitoring and inspection of equipment and systems</li> <li>Interpret failure history, lead analysis and suggest corrective actions</li> <li>Review preventive maintenance activities</li> <li>Review maintenance and inspection data, records and feedback</li> <li>Ensure timely equipment and system troubleshooting and rectification</li> <li>Review recording of maintenance and inspection work</li> <li>Analyse maintenance logs and documentation to identify trends and common issues</li> <li>Lead work area inspections, risk assessments and JSA for maintenance work</li> <li>Provide input for maintenance inspection reports</li> <li>Manage compliance with industry standards, regulatory and project requirements</li> </ul>	<ul style="list-style-type: none"> <li>Review equipment and system performance</li> <li>Evaluate condition monitoring analysis to predict required maintenance type and timing for different equipment and systems</li> <li>Develop or approve maintenance workflows and procedures detailing key maintenance activities and their priorities</li> <li>Manage resources needed to implement preventive maintenance plans</li> <li>Analyse mean time between failures (MTBF) from maintenance and other maintenance performance criteria</li> <li>Recommend solutions to minimise or eliminate machine or system malfunctions and improve deterioration rates</li> <li>Outline standard quality and safe procedures to adhere to during maintenance work</li> <li>Issue maintenance work instructions</li> <li>Review and approve maintenance and inspection reports</li> <li>Drive compliance with industry standards, regulatory and project requirements</li> </ul>	

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