

**SKILLS FRAMEWORK FOR PUBLIC TRANSPORT  
TECHNICAL SKILLS & COMPETENCIES (TSC) REFERENCE DOCUMENT**

<b>TSC Category</b>	Rail Systems Maintenance					
<b>TSC</b>	High Voltage Power Systems Maintenance					
<b>TSC Description</b>	Implement preventive and corrective maintenance activities of high voltage power systems					
<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>PTP-RSM-1015-1.1</b>	<b>PTP-RSM-2015-1.1</b>	<b>PTP-RSM-3015-1.1</b>	<b>PTP-RSM-4015-1.1</b>		
	Carry out scheduled preventive maintenance on high voltage power systems	Conduct corrective maintenance on high voltage power systems	Troubleshoot faulty high voltage power systems to locate faults and perform rectification	Diagnose root causes of high voltage power systems failure and review maintenance plans to prevent fault recurrence		
<b>Knowledge</b>	<ul style="list-style-type: none"> <li>Types and functions of high voltage power systems and equipment</li> <li>Procedures for servicing high voltage power systems in accordance to organisational maintenance procedures, Work Instructions (WI) and/or Original Equipment Manufacturer (OEM) technical manuals</li> <li>Types of tools and equipment for carrying out preventive maintenance on high voltage power systems</li> <li>Types of fault indicators on various high voltage power systems</li> <li>Types and functions of protective relays of high voltage power systems</li> <li>Risk assessment procedures</li> <li>Safety guidelines on use of tools and equipment for preventive maintenance on high voltage power systems</li> </ul>	<ul style="list-style-type: none"> <li>Types and functions of high voltage power systems and equipment that includes</li> <li>Electronics circuit diagram and electrical wiring schematics</li> <li>Principles of power protection, isolation and distribution</li> <li>Common failures of high voltage power systems and its equipment</li> <li>Risk assessment procedures</li> <li>Procedures for conducting functional checks</li> <li>Types of fault indicators on various high voltage power systems</li> <li>Procedures to dismantle, repair, rectify, replace, and re-assemble high voltage power systems components</li> <li>Types of tools and equipment for carrying out corrective maintenance on high voltage power systems</li> </ul>	<ul style="list-style-type: none"> <li>Electronics circuit diagram and electrical wiring schematics</li> <li>Fundamentals of power electronics</li> <li>Principles of power protection, isolation and distribution</li> <li>Common fault symptoms in high voltage power systems</li> <li>Methods of locating and rectifying faults</li> <li>Types of troubleshooting equipment and tools</li> <li>Procedures to dismantle, repair, rectify, replace, and reassemble high voltage power systems components</li> <li>Safety guidelines on use of tools and equipment in troubleshooting high voltage power systems</li> <li>Types and usage of Personal Protective Equipment (PPE) for high voltage power systems maintenance</li> </ul>	<ul style="list-style-type: none"> <li>Principles of power distribution and protection</li> <li>Fundamentals of power electronics</li> <li>Factors affecting the performance of high voltage power systems</li> <li>Failure investigation and prevention methods</li> <li>Methods and tools for diagnostic analysis</li> <li>Organisational maintenance procedures, Work Instructions (WI) and Original Equipment Manufacturer (OEM) technical recommendations</li> <li>Types and methods of continuity and functional tests on high voltage power systems</li> <li>Functional relationships between high voltage power systems, other power systems and the overall rail system</li> <li>Types and usage of Personal Protective Equipment (PPE) for high</li> </ul>		

**SKILLS FRAMEWORK FOR PUBLIC TRANSPORT  
TECHNICAL SKILLS & COMPETENCIES (TSC) REFERENCE DOCUMENT**

	<ul style="list-style-type: none"> <li>Types and usage of Personal Protective Equipment (PPE) for high voltage power systems maintenance</li> <li>Organisational maintenance documentation and fault reporting procedures</li> </ul>	<ul style="list-style-type: none"> <li>Safety guidelines on use of tools and equipment for corrective maintenance on high voltage power systems</li> <li>Types and usage of Personal Protective Equipment (PPE) for high voltage power systems maintenance</li> </ul>		<p>voltage power systems maintenance</p>		
<b>Abilities</b>	<ul style="list-style-type: none"> <li>Follow organisational maintenance procedures, WI and/or OEM technical manuals to carry out preventive maintenance on high voltage power systems</li> <li>Perform serviceability checks on high voltage power systems and equipment according to organisation maintenance procedures WI and/or OEM technical manuals</li> <li>Identify and respond to fault indicators on the various high voltage power systems</li> <li>Support in testing protective relays of high voltage power systems</li> <li>Adhere to safety guidelines and operating instructions for tools and equipment during maintenance work</li> <li>Record high voltage power systems maintenance activities and report occurrences of potential faults identified</li> </ul>	<ul style="list-style-type: none"> <li>Interpret work orders and prepare for corrective maintenance</li> <li>Test and check equipment performance and serviceability</li> <li>Interpret wiring and schematic diagrams of high voltage power systems and equipment</li> <li>Carry out fault identification to assist in determining causes of high voltage power systems and equipment</li> <li>Support in executing power isolation procedures during high voltage power systems maintenance</li> <li>Dismantle high voltage equipment for corrective maintenance</li> <li>Carry out rectification, repair and/or replacement of faulty components</li> <li>Reassemble and reinstate high voltage equipment</li> <li>Apply operating and safety measures in operating tools and</li> </ul>	<ul style="list-style-type: none"> <li>Prepare Permit to Work (PTW) to conduct maintenance on high voltage power systems</li> <li>Use troubleshooting tools and equipment to locate and analyse causes of high voltage power systems faults</li> <li>Perform corrective actions for identified faults on high voltage power systems</li> <li>Test serviceability of faulty high voltage power equipment and components</li> <li>Perform functional tests and reinstate high voltage power systems and equipment</li> <li>Implement safety and operating procedures on tools and equipment usage during maintenance work</li> <li>Analyse maintenance work documented for high voltage power systems to identify possible workflow improvements so as to prevent fault recurrence</li> </ul>	<ul style="list-style-type: none"> <li>Establish structured failure investigation and specify functional testing requirements</li> <li>Apply failure investigation methods to diagnose root cause failure of high voltage power system</li> <li>Review organisational high voltage power systems maintenance procedures</li> <li>Propose new and/or enhanced maintenance procedures, WI in reference to OEM technical recommendations</li> <li>Monitor overall maintenance progress of high voltage power systems to ascertain effectiveness of maintenance plan</li> <li>Develop long-term solutions by analysing diagnostic data to prevent faults and failures recurrence</li> <li>Develop troubleshooting, rectification and fault analysis methods</li> </ul>		

**SKILLS FRAMEWORK FOR PUBLIC TRANSPORT  
TECHNICAL SKILLS & COMPETENCIES (TSC) REFERENCE DOCUMENT**

		<p>equipment during maintenance work</p> <ul style="list-style-type: none"> <li>Record and collate documentation of high voltage power systems maintenance work</li> </ul>		<ul style="list-style-type: none"> <li>Develop test procedures for system performance checks</li> <li>Coordinate high voltage power systems maintenance with other rail systems maintenance needs</li> </ul>		
--	--	--	--	--	--	--