TSC Category	Rail Systems Maintenance					
TSC	Low Voltage Power Systems Maintenance					
TSC Description	Implement preventive and corrective maintenance activities of low voltage power systems					
TSC Proficiency Description	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**	**Level 6**
	PTP-RSM-1018-1.1	**PTP-RSM-2018-1.1**	**PTP-RSM-3018-1.1**	**PTP-RSM-4018-1.1**		
	Carry out scheduled preventive maintenance on low voltage power systems	Conduct corrective maintenance on low voltage power systems	Troubleshoot faulty low voltage power systems to locate faults and recommend rectification methods	Diagnose root causes of low voltage power systems failure and review maintenance plans to prevent fault recurrence		
Knowledge	• Types and functions of low voltage power systems and equipment • Procedures for servicing low voltage power systems in accordance to organisational maintenance procedures, Work Instructions (WI) and/or Original Equipment Manufacturer (OEM) technical manuals • Types of tools and equipment for carrying out preventive maintenance on low voltage power systems • Types of fault indicators on various low voltage power systems • Types and functions of protective relays • Risk assessment procedures • Safety guidelines on use of tools and equipment for preventive maintenance on low voltage power systems • Types and usage of Personal Protective	• Types and functions of low voltage power systems and equipment • Electronics circuit diagram and electrical wiring schematics • Principles of power protection, isolation and distribution • Common failures of low voltage power systems and its equipment • Risk assessment procedures • Procedures for conducting functional checks • Types of fault indicators on various low voltage power systems • Procedures to disassemble, assemble, repair, replace and rectify low voltage power equipment • Types of tools and equipment for carrying out corrective maintenance on low voltage power systems	• Electronics circuit diagram and electrical wiring schematics • Fundamentals of power electronics • Principles of power protection, isolation and distribution • Common fault symptoms in low voltage power systems • Methods of locating and rectifying faults • Types of troubleshooting equipment and tools • Safety guidelines on use of tools and equipment in troubleshooting low voltage power systems • Types and usage of Personal Protective Equipment (PPE) for low voltage power systems maintenance	• Principles of power distribution and protection • Fundamentals of power electronics • Factors affecting the performance of low voltage power systems • Failure investigation and prevention methods • Methods and tools for diagnostic analysis • Organisational maintenance procedures, Work Instructions (WI) and Original Equipment Manufacturer (OEM) technical recommendations • Types and methods of continuity and functional tests on low voltage power systems • Functional relationships between low voltage power systems, other power systems and overall rail systems • Types and usage of Personal Protective Equipment (PPE) for low		

	Equipment (PPE) for low voltage power systems maintenance • Organisational maintenance documentation and fault reporting procedures	• Safety guidelines on use of tools and equipment for corrective maintenance on low voltage power systems • Types and usage of Personal Protective Equipment (PPE) for low voltage power systems maintenance		voltage power systems maintenance		
Abilities	• Follow organisational maintenance procedures, WI and/or OEM technical manuals to carry out preventive maintenance on low voltage power systems • Perform serviceability checks on low voltage power systems and equipment according to organisation maintenance procedures, WI and/or OEM technical manuals • Identify and respond to fault indicators on various low voltage power systems • Adhere to safety guidelines and operating instructions when using tools and equipment during maintenance work • Record low voltage power systems maintenance activities and report occurrences of potential faults identified	• Prepare Permit to Work (PTW) to conduct maintenance on low voltage power systems • Interpret work orders and prepare for corrective maintenance • Test and check equipment performance and serviceability • Interpret wiring and schematic diagrams of low voltage power systems and equipment • Apply fault identification procedures to determine causes of faults on low voltage power system and equipment • Apply power isolation procedures during low voltage power systems maintenance • Dismantle low voltage power systems and equipment for corrective maintenance • Carry out rectification, repair and/or replacement of faulty components and reassemble • Perform functional tests and reinstate low voltage	• Use troubleshooting tools and equipment to locate and analyse causes of low voltage power systems faults • Recommend corrective actions for identified faults on low voltage power systems • Implement safety and operating procedures on tools and equipment usage to troubleshoot low voltage power systems • Analyse maintenance work documented for low voltage power systems to identify possible workflow improvements so as to prevent fault recurrence	• Establish structured failure investigation and specify functional testing requirements • Apply failure investigation methods to diagnose root cause failure of low voltage power system • Review organisational low voltage power systems maintenance procedures • Propose new and/or enhanced maintenance procedure and WI in reference to OEM technical recommendations • Monitor overall maintenance progress of low voltage power systems to ascertain effectiveness of maintenance plan • Develop long-term solutions by analysing diagnostic data to prevent faults and failures recurrence • Develop troubleshooting, rectification and fault analysis methods		

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		power systems and equipment • Apply operating and safety measures in operating tools and equipment during maintenance work • Record and collate documentation of low voltage power systems maintenance work		• Develop test procedures for system performance checks • Coordinate low voltage power systems maintenance with other rail systems maintenance needs		