

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

TSC Category	Digitalisation					
TSC Title	Robotics and Automation Systems Application					
TSC Description	Integrate robotics and automation systems in operational workflows to enhance productivity and precision, and reduce reliance on manual tasks					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
			<Insert TSC Code>	<Insert TSC Code>	<Insert TSC Code>	
			Apply knowledge of robotics and automation systems in operational workflows	Evaluate the suitability of robotics and automation systems in power system operation, maintenance, surveillance and inspection	Drive adoption of robotics and automation systems, and formulate new processes to enhance operational efficiency and reliability	
Knowledge			<ul style="list-style-type: none"> Principles of robotics and automation systems Procedures for implementing and inspecting automation systems Approaches to oversee operation, maintenance, surveillance and inspection tasks using robotics and automation systems Principles of electrical and power operation, maintenance, surveillance and inspection Types of sensors and actuators used in robotics and automation systems Types and applications of control loop components and controllers Relevant regulations, industry standards, codes of practice and safety procedures 	<ul style="list-style-type: none"> Range of application for robotics and automation systems Methods of evaluating resources and skills to carry out operation, maintenance, surveillance and inspection tasks using robotics and automation systems Principles of electro-pneumatics Types of logic control programmes Concepts pertaining to performance specifications and analyses of automation systems Best practices in robotics and automation systems Relevant regulations, industry standards, codes of practice and safety procedures 	<ul style="list-style-type: none"> Organisational processes and quality guidelines Methods of developing detailed operating procedures for application of robotics and automation systems Methods to influence the adoption of new technologies Impact of automation systems on the operation, maintenance, surveillance and inspection processes Principles of change management Applications of machine learning or artificial intelligence Principles of systems interfacing Relevant regulations, industry standards, codes of practice and safety procedures 	
Abilities			<ul style="list-style-type: none"> Oversee the use of robotics and automation systems Diagnose faults in the use of automation 	<ul style="list-style-type: none"> Evaluate various robotics solutions and automation systems to compare strengths and limitations 	<ul style="list-style-type: none"> Determine range of application, resources, skill requirements and feasibility for robotics and automation systems 	

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			<p>systems for operation, maintenance, surveillance and inspections, and suggest solutions</p> <ul style="list-style-type: none"> • Identify and report any issues with automation systems • Oversee corrective actions for automatic and manual shut down of automation systems during critical and emergency situations • Review and incorporate feedback on the usage of robotics and automation systems for operation, maintenance, surveillance and inspection processes 	<ul style="list-style-type: none"> • Evaluate the feasibility of implementing robotics and automation systems for operation, maintenance, surveillance and inspection processes • Apply optimisation techniques to improve efficiency and reliability of automated processes • Assess improvements to operation, maintenance, surveillance and inspection processes 	<ul style="list-style-type: none"> • Recommend technical operating procedures for automation systems • Formulate processes and procedures for operation, maintenance, surveillance and inspection using automation systems • Drive adoption of robotics and automation systems in operations • Ensure procedures and operations are implemented according to plans and requirements • Refine parameters of autonomous processes to improve operational efficiency • Determine technological requirements to enable interfacing of the different systems 	
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