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

TSC Category	Digitalisation				
TSC Title	Internet of Things (IoT) Application				
TSC Description	Oversee integration of physical devices, equipment and systems in a connected network environment to communicate, collect and exchange data				
TSC Proficiency Description	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**	**Level 6**
			\<Insert TSC Code\>	**\<Insert TSC Code\>**	**\<Insert TSC Code\>**	**\<Insert TSC Code\>**
			Operate IoT tools and systems in the control room, and interpret sensor data and dashboard information	Analyse information provided by IoT sensors, networks and dashboards to enhance work processes and operations	Manage application of IoT technologies to improve efficiency and effectiveness of operations	Formulate strategies for the application of IoT technologies to drive operational efficiency and effectiveness
Knowledge			• Concept of Internet of Things (IoT) • Types and functionalities of IoT devices • Types of circuits and sensors within devices • Types of wireless communication technologies • Data analytics techniques • Big data dashboard for task optimisation • Industry 5S approach to integration using IoT • Concept of cybersecurity	• Working principles of virtual and digital databases • Internet of Things (IoT) system interfaces • Data analytics for operating automation and/or robotics systems through system connections • Big data dashboards for task optimisation • Industry 5S approach to integration using IoT • Knowledge of documentation through IoT • Knowledge of scheduling tools integration with networks	• Conceptual and technical knowledge of IoT implementation • Connectivity in electrical equipment, systems and networks, using sensors, smart devices and other technologies for data collection and operational control • Equipment, systems and network automation • Advanced process controls • IoT guidelines and communication standards • Types of wireless communication technologies • Concept of cybersecurity and privacy applications for IoT • Data visualisation and business intelligence tools	• IoT and the architecture reference model (ARM) • Smart automation applications and technologies • Large-scale monitoring and analytics applications and technologies • Data modelling, collection and management • Data visualisation and exploration business intelligence tools

Abilities					
			• Operate automated tools and systems • Interpret control room and dashboard information • Interpret automation and robotics systems information in a networked environment to dispatch tasks • Perform tasks to interact with IoT technology in automated plants • Integrate information from multiple data sources	• Analyse automated tools and systems to perform troubleshooting • Perform system information integration to analyse big data • Review data to produce insights of business value • Understand control models, process control algorithms and strategies behind automated systems • Interpret robotics and network information to schedule production and/or maintenance works in networked environments • Coordinate tasks to interact with IoT technology in automated electrical equipment, systems and networks	• Design and develop IoT applications in a team-based environment • Establish network security protocols, communication protocols, wireless infrastructure, on-premises solutions, switches and integration of IoT ecosystems in collaboration with technology solution providers • Manage IoT applications and automation using smart devices • Interpret data in IoT applications for operational and strategic decision-making • Develop risk management approaches in relation to cybersecurity risks • Review and monitor success of IoT implementation using key performance metrics	• Formulate strategies for industrial IoT implementation to transform business operations • Conceptualise and articulate solutions making use of IoT • Create IoT solutions and develop business cases for investing in these technologies • Oversee integration projects which combine data from disparate devices, processes and applications • Determine platforms for storing and managing IoT-related information provided in networked environments • Advise others on cybersecurity risks related to IoT strategies and mitigation measures • Develop insights from strategic analysis of IoT data to enhance efficiency and service delivery