

**SKILLS FRAMEWORK FOR PRECISION ENGINEERING
TECHNICAL SKILLS AND COMPETENCIES (TSC) REFERENCE DOCUMENT**

TSC Category	Network Technology Management					
TSC	Internet of Things Management					
TSC Description	Interrelate computing devices, equipment and machines' data in a networked environment to provide specific solutions					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
		PRE-TEM-2004-1.1	PRE-TEM-3004-1.1	PRE-TEM-4004-1.1	PRE-TEM-5004-1.1	
		Apply interfacing techniques in computer systems for networking and usage of dashboard information	Analyse the information provided by the network and/or dashboard in order to apply and sustain the operational needs	Manage manufacturing operations execution, using Internet of things (IoT) solutions, for manufacturing improvement	Formulate Internet of things (IoT) platforms for storing and managing information provided by the network and/or dashboard to drive operational efficiency and effectiveness	
Knowledge		<ul style="list-style-type: none"> Knowledge basic virtual and/or digital database works Internet of things (IoT) systems interface Data analytics for operating robotics through system connections Big data dashboards for task optimisation Industry 5S approach in integration using IoT 	<ul style="list-style-type: none"> Knowledge of how virtual and/or digital database works Internet of things (IoT) system interface Data analytics for operating robotics through system connections Big data dashboards for task optimisation Industry 5S approach in integration using IoT Documentation through IoT Knowledge of scheduling tools integration with networks 	<ul style="list-style-type: none"> IoT concepts and technical knowledge of IoT implementation in manufacturing Connectivity in manufacturing using sensors, smart devices and other technologies for data collection and manufacturing control Equipment automation Factory automation Advanced process control Manufacturing execution system (MES) Security and privacy applications for IoT IoT guidelines and communication standards 	<ul style="list-style-type: none"> 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 	
Abilities		<ul style="list-style-type: none"> Operate automated tools and information Utilise system information integration Interpret control room and dashboard information Interpret robotics and network information to despatch tasks 	<ul style="list-style-type: none"> Perform troubleshooting Analyse automated tools and information Perform systems information integration to analyse big data Interpret the control models, process control algorithms and strategies 	<ul style="list-style-type: none"> Analyse big data to correlate data from different sources to devise control actions Identify applicable areas for implementing IoT solutions for manufacturing improvement 	<ul style="list-style-type: none"> Design and develop an IoT applications in a team-based environment Conceptualise and articulate solutions making use of IoT Manage data in IoT applications 	

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		<ul style="list-style-type: none"> • Perform tasks to interact with IoT in an automated plant 	<p>behind the automated systems</p> <ul style="list-style-type: none"> • Interpret robotics and network information to perform and/or schedule maintenance work • Perform task to interact with IoT in an automated plant 	<ul style="list-style-type: none"> • Use simulation tools to analyse and predict performance improvements • Implement dashboard reporting for manufacturing KPI management • Monitor the effectiveness of IoT solutions 	<ul style="list-style-type: none"> • Design applications and automations using smart devices • Synthesise data visualisation and exploration business intelligence tools 	
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