

**SKILLS FRAMEWORK FOR BIOPHARMACEUTICALS MANUFACTURING
TECHNICAL SKILLS & COMPETENCIES (TSC) REFERENCE DOCUMENT**

TSC Category	Production					
TSC	Automated Process Control					
TSC Description	Use automated process control to reduce process variations and detect process deviations					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
			BPM-OPR-3001-1.1	BPM-OPR-4001-1.1		
			Set up and monitor automated process control systems	Troubleshoot and optimise automated process control systems to reduce process variations and detect equipment or process deviations		
Knowledge			<ul style="list-style-type: none"> Types of manufacturing data sources and control requirements Types of process control systems and algorithms Process control concepts Control charts Process control performance metrics Process capability indices 	<ul style="list-style-type: none"> Communication data flow between equipment, manufacturing automation and process control automation Sensor systems, sensor platforms and associated standards Process control data sources 		
Abilities			<ul style="list-style-type: none"> Read process control maps Set up process control automation systems Monitor automated process control systems Refine process control algorithms and models to meet manufacturing requirements Respond to alarms according to Standard Operating Procedures (SOPs) Complete reports on automated process control performance 	<ul style="list-style-type: none"> Work with the Process Development/Materials Science and Technology department to determine feasibility of process control automation to meet manufacturing requirements Guide the set-up and tuning of process control algorithms and models to meet manufacturing requirements Troubleshoot process control automation Analyse and correlate multiple process control data sources from equipment for process control and improvement 		

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				<ul style="list-style-type: none">• Review impact of automated process control on process variations and deviations detection• Implement improvements to automated process control systems		
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