

SKILLS FRAMEWORK FOR BIOPHARMACEUTICALS MANUFACTURING SKILLS MAP – PRODUCTION SENIOR TECHNICIAN/PRODUCTION TECHNICIAN/ ASSISTANT BIOTECHNOLOGIST		
Sector	Biopharmaceuticals Manufacturing	
Track	Production	
Occupation	Technician	
Job Role	Production Senior Technician/Production Technician/Assistant Biotechnologist	
Job Role Description	<p>The Production Senior Technician/Production Technician/Assistant Biotechnologist follows Standard Operating Procedures (SOPs) to operate and monitor manufacturing equipment, and responds to alerts during production. He/She handles biopharmaceutical materials within the facilities and performs cleaning and sterilisation activities. He is tasked with the day-to-day operations of individual manufacturing equipment. He must adhere to Health, Safety and Environment (HSE) regulations at all times in order to protect both employees as well as the quality of the biopharmaceutical products.</p> <p>The Production Senior Technician/Production Technician/Assistant Biotechnologist works on a rotating shift in the production line of a manufacturing facility that requires strict adherence to regulatory requirements. He may also be assigned to work within a cleanroom environment. He enjoys solving problems independently but has the intuition to seek supervision and help when needed. He is proactive in improving production operations within the scope of his tasks and is a good team player who interacts effectively with his co-workers.</p>	
Critical Work Functions and Key Tasks	Critical Work Functions	Key Tasks
	Implement materials management procedures	Store materials according to Standard Operating Procedures (SOPs)
		Dispose degraded and contaminated materials according to SOPs
		Input information into the inventory management system
		Carry out batch dispensing operations
	Clean equipment and facilities	Prepare materials, equipment and solvents required for cleaning and sterilisation
		Perform manual and automated cleaning and sterilisation of equipment, containers, cleanrooms and facilities
		Perform Clean-in-Place (CIP) and Sterilise-in-Place (SIP) procedures for bioreactors, machinery, vessels, piping and other production line components
		Deliver cleaning and sterilisation samples to the laboratories for testing
Produce pharmaceutical and nutritional products	Perform calibration and pre-startup checks on manufacturing equipment according to SOPs	
	Monitor manufacturing equipment and systems during production following Health, Safety and Environment	

		(HSE) regulations and Current Good Manufacturing Practices (CGMPs) procedures		
		Respond to system alerts and malfunctions		
		Shut down manufacturing equipment and systems upon completion of production processes and offload materials		
		Operate filling and packaging equipment		
		Dispose waste and rejected by-products appropriately		
	Produce biologics	Assist to prepare cell culture media and buffers		
		Perform calibration and pre-start-up checks on bioreactors, purification and final filling equipment according to SOPs		
		Assist to monitor bioreactors, purification and final filling equipment following HSE procedures and CGMPs		
		Record parameters of critical production during operations		
		Assist to harvest cell cultures		
		Operate filling equipment to place products into packaging containers		
		Dispose waste and rejected by-products appropriately		
	Improve production operations	Record parameters of critical equipment and updates to batch and log sheets		
		Identify opportunities to improve production activities within one's work areas		
	Skills & Competencies	Technical Skills & Competencies		Generic Skills & Competencies (Top 5)
Automated Operation Monitoring		Level 3	Communication	Basic
Automated Process Control		Level 3	Digital Literacy	Basic
Bioreactor Operation and Control		Level 3	Interpersonal Skills	Basic
Biorisk Management		Level 2	Problem Solving	Basic
Cell Culture		Level 3	Teamwork	Basic
Change Management		Level 3		
Chemical Risk Management		Level 2		
Chromatography Equipment Operation and Control		Level 3		
Cleaning and Sterilising		Level 2		
Continuous Improvement		Level 3		
Emergency Shut-down and Restart		Level 2		
Engineering Drawing		Level 2		
Equipment and Systems Repair		Level 2		
Filtration Equipment Operation and Control		Level 3		

	Flexible Facilities Implementation	Level 2	
	Good Manufacturing Practices Implementation	Level 3	
	Hazards and Risk Identification and Management	Level 3	
	Health, Safety and Environment Procedures Implementation	Level 2	
	Innovation Management	Level 3	
	Manufacturing Equipment Operation and Control	Level 3	
	Manufacturing Systems Operation and Control	Level 3	
	Materials Management	Level 2	
	Process Monitoring	Level 3	
	Production Optimisation	Level 2	
	Project Management	Level 3	
	Systems Thinking	Level 3	
	Technical Report Writing	Level 3	
	Vendor Management	Level 3	
Programme Listing	For a list of Training Programmes available for the Biopharmaceuticals Manufacturing sector, please visit: www.skillsfuture.sg/skills-framework/biopharmmgf		

The information contained in this document serves as a guide.