

| SKILLS FRAMEWORK FOR BIOPHARMACEUTICALS MANUFACTURING SKILLS MAP – ENGINEERING AND MAINTENANCE SENIOR TECHNICIAN | | |
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| Sector | Biopharmaceuticals Manufacturing | |
| Track | Engineering and Maintenance | |
| Occupation | Technician | |
| Job Role | Engineering and Maintenance Senior Technician | |
| Job Role Description | <p>The Engineering and Maintenance Senior Technician performs installation of equipment and systems, and also supervises installation and assembly work conducted by his team and external vendors. He/She maintains equipment and systems and is expected to conduct testing of equipment and systems independently. He is the first person to investigate equipment and system failures to determine the cause and repair work required. He manages the upkeep of systems that provide energy and utilities to the manufacturing facility, perform checks and rectify disruptions in energy supply. The Engineering and Maintenance Senior Technician has specialised technical knowledge of equipment and systems within the manufacturing facility and supports the innovation of equipment, systems and controls in the manufacturing facility. He should apply Standard Operating Procedures (SOPs) and Health, Safety and Environment regulations while carrying out his duties.</p> <p>The Engineering and Maintenance Senior Technician may be required to work on a shift to provide consistent technical support within the manufacturing facility. He should have an analytical mind and enjoy exploring solutions to problems independently. He possesses the intuition to step up to guide and supervise his team and interact with others to provide support across teams.</p> | |
| Critical Work Functions and Key Tasks | Critical Work Functions | Key Tasks |
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| | Install equipment and systems | Modify technical drawings following changes in engineering plans |
| | | Perform installations and assembly of equipment and systems |
| | | Connect single use facilities with fixed process equipment |
| | | Reconfigure flexible facilities and equipment as directed to accommodate scaling up of production |
| | | Oversee installations and assembly works performed by vendors |
| | | Maintain updated documentations for installations and assembly works |
| | Maintain equipment and systems | Conduct non-destructive testing to support predictive maintenance activities |
| Perform maintenance activities following Health, Safety and Environment (HSE) and Current Good Manufacturing Practices (CGMPs) procedures | | |
| Conduct testing of equipment and systems | | |

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| | | Investigate equipment failures to identify underlying issues | | |
| | | Perform repair works of non-standard equipment and systems | | |
| | | Maintain updated documentations for testing, maintenance and repair activities and results | | |
| | | Clean equipment after performing maintenance and repairs | | |
| | | Check that housekeeping of tools is performed in line with set procedures | | |
| | Manage energy resources and utilities | Perform checks on operations of heating, ventilation and air conditioning (HVAC), water for injection, clean steam systems and other CGMP equipment | | |
| | | Perform checks on operation of boilers, compressors, water systems and other plant utility equipment | | |
| | | Rectify disruptions in the stability of energy resources and utilities supply | | |
| | | Consolidate data on energy and utility efficiency | | |
| | Innovate equipment, systems and controls | Assist in the installations of automated equipment and system components | | |
| | | Support the testing and calibration of new automated equipment, systems and controls | | |
| | | Identify malfunctions of automated equipment and systems | | |
| | | Monitor performance of automated equipment and systems | | |
| Skills & Competencies | Technical Skills & Competencies | | Generic Skills & Competencies (Top 5) | |
| | Automated Equipment and Control Systems Configuration | Level 3 | Communication | Basic |
| | Automated Operation Monitoring | Level 3 | Computational Thinking | Basic |
| | Automated Process Control | Level 3 | Interpersonal Skills | Intermediate |
| | Automated Process Design | Level 3 | Problem Solving | Basic |
| | Change Management | Level 3 | Teamwork | Intermediate |
| | Cleaning and Sterilising | Level 2 | | |
| | Continuous Improvement | Level 3 | | |
| | Engineering Drawing | Level 2 | | |
| | Equipment and Systems Repair | Level 3 | | |
| | Equipment and Systems Testing | Level 2 | | |
| | Facility Maintenance | Level 2 | | |
| | Flexible Facilities Implementation | Level 3 | | |

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| | 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 | |
| | Installation and Assembly | Level 2 | |
| | Manufacturing Equipment Operation and Control | Level 3 | |
| | Manufacturing Systems Operation and Control | Level 3 | |
| | Preventive Maintenance | Level 2 | |
| | Project Management | Level 3 | |
| | Systems Thinking | Level 3 | |
| | Technical Report Writing | Level 3 | |
| | Utilities Management | 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/biopharmmmfg | | |

The information contained in this document serves as a guide.