

Specification of Competency Standards
for the Manufacturing Technology.
Unit of Competency.

Functional Area - Product Manufacturing

Title	Implement digitalisation of injection moulding and other plastic processing equipment and related configurations, and provide real-time visualisation dashboards for production status in injection moulding and other plastic processing workshops
Code	111577L4
Range	This unit of competency is applicable to the product manufacturing departments / production departments of companies engaged in the plastics industries. Practitioners should be capable to utilise appropriate technologies based on the status of plastic processing equipment to enable interoperability among various systems, thereby promoting real-time monitoring
Level	4
Credit	6
Competency	Performance Requirements - Understand relevant knowledge of plastic processing equipment and configuration digitalisation - Understand basic concepts and technologies of smart manufacturing and Industry 4.0, and be familiar with the operation principles of intelligent processing equipment and systems - Understand process parameters in plastic processing that affect product quality and efficiency (e.g., injection speed, pressure, plastic temperature, etc.), and identify the data to be collected - Understand methods and techniques for collecting production data in plastic processing, including sensors, barcodes, and radio frequency identification systems (RFID) - Understand methods and techniques for connecting plastic processing equipment and related configurations to a network, as well as the advantages and disadvantages of different technical solutions in the market - Understand logic of data acquisition and system integration, and the communication protocols and interface standards for equipment - Understand application of automation, machine vision, Internet of Things (IoT), big data, and other technologies in intelligent plastic processing equipment - Apply digitalisation of plastic processing intelligent equipment and related configurations - Able to be familiar with principles of automation and intelligent technologies in plastic processing equipment, including the application of PLC control systems, sensors, and actuators - Able to master data analysis and statistical methods, and utilise data analysis tools and software to analyse and mine equipment data to support and advise decision-making - Able to filter and collect useful data generated in the plastic product manufacturing process, and perform analysis - Able to implement data interaction and collaboration between equipment, and understand the mechanisms of data exchange and coordination between systems, enabling visualisation of the usage rate, production efficiency, and fault alerts of plastic processing equipment and related configurations - Able to plan the existing systems in enterprise (including MES, ERP, QMS, WMS, etc.), and integrate them to achieve a single source of data - Able to utilise different technologies (including cloud computing, IoT, big data, etc.) to interconnect workshop equipment and related configurations for plastic processing, and provide centralised real-

	time monitoring status (including capacity, defect rate, and equipment utilisation, etc.) according to the needs of the production department, while optimising production process parameter controls 3. Professional handling of the digitalisation of plastic processing intelligent equipment and related configurations • Able to perform digitalisation of plastic processing equipment and related configurations based on existing information • Able to balance and meet various requirements, including safety, risk, capacity, quality, environmental protection, and cost
Assessment Criteria	The integrated outcome requirements of this unit of competency are: • Able to utilise different technologies (including cloud computing, IoT, big data, etc.) to provide real-time visualisation of the production status in plastic processing workshops through the digitalisation of equipment and related configurations • Able to respond to the enterprise's intelligent production needs by conducting preliminary analysis and integration of information to assist in achieving intelligent production
Remark	Individuals who possess the above knowledge and competency are also required to possess the knowledge and competency of “Understand various requirements of physical and electronic drawings, and be familiar with plastic product manufacturing processes to effectively communicate with internal staff and customers regarding metal products and processes (106493L3)” Individuals who possess the above knowledge and competency are able to support the enterprise to achieve the Industry 4.0 digital maturity level of visualisation (1i)