

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

Functional Area - Process Design and Development

Title	Develop and formulate intelligent processing and inspection procedures, methods, and equipment for moulds, and upgrade them to machine networking and data-driven operation
Code	111567L5
Range	This unit of competency is applicable to the process design and development departments / engineering departments of companies engaged in the tooling industries. Practitioners should be capable to review existing mould product processing flows, develop suitable automated equipment, and upgrade to machine networking
Level	5
Credit	6
Competency	Performance Requirements - Understand relevant knowledge of various automated processing methods and equipment, and upgrade to relevant knowledge of machine networking and information technology - Understand basic concepts and technologies of smart manufacturing and Industry 4.0 and be familiar with the operating principles of intelligent processing equipment and systems - Understand how technologies such as automation, machine vision, IoT, and big data are applied in the mould processing industry - Understand hardware requirements for upgrading from information silos to machine networking - Be familiar with properties of mould materials, processing technology and processing precision, and understand mould design and production process - Understand types, specifications, and applications of commonly used sensors, programmable logic controllers (PLCs), systems, etc. - Understand types, specifications, and applications of various mould automation processing and peripheral automation equipment, including transfer robots, multi-axis robots, conveyor belts, and understand methods for data acquisition from peripheral automated machinery - Understand types, specifications, functions, and applications of various automated mould inspection equipment, including coordinate measuring machines and 3D scanners, and understand data acquisition methods - Develop and formulate automated processing procedures, methods, equipment, and upgrade them to machine networking - Able to assess new mould R&D and design schemes, the ability to determine the production process of new moulds, and able to evaluate the effectiveness of automation, intelligence, and machine networking in mould development and improve continuously - Able to design new mould production processes and tooling fixtures, ensuring defects in processes and equipment, and minimise the probability of failure - Able to monitor the trial production and testing process of new moulds to ensure product quality and able to ensure the development of automated and intelligent processes and machine networking does not lead to product defects - Able to understand the application of automation and robotics in mould processing, able to evaluate and select suitable automated equipment, intelligent equipment, and robotic systems to achieve

	intelligent and automated production lines • Able to interconnect different automated production lines within factories, combining and integrating existing data sources with workshop sensors to provide comprehensive information and achieve visualisation • Able to draw layout diagrams and process flow charts for machine networking and specify technical specifications 3. Professional handling of developing and formulating various automated processes and equipment for tooling and upgrade them to machine networking • Able to possess theoretical knowledge and practical experience related to mould processing • Able to apply in-depth and specialised technologies such as automation, machine vision, Internet of Things, and big data in the field of intelligent mould processing and achieve high degree of production line informatisation • Able to arrange and configure production lines and equipment, and upgrade to machine networking
Assessment Criteria	The integrated outcome requirements of this unit of competency are: • Able to develop and formulate automated mould processing procedures, methods, and required equipment, and upgrade them to machine networking • Able to develop and formulate layout diagrams and process flow charts for machine networking and specify technical specifications
Remark	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 (0i) and CPPS