

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

Functional Area - Process Design and Development

Title	Develop and formulate automated processing procedures, methods, and equipment for die casting, casting and extrusion products to improve production efficiency, stability, and safety
Code	106490L5
Range	This unit of competency is applicable to the process design and development departments / engineering departments of enterprises engaged in the metal die casting, casting and extrusion industries. Practitioners should be capable to possess the knowledge of automation implementation within the industry
Level	5
Credit	4
Competency	Performance Requirements 1. Understand relevant knowledge of method and equipment for die casting, casting and extrusion automation processes • Understand types, specifications, and applications of various peripheral equipment for automated processing and handling die-casting, extrusion, and casting products, such as conveyor belts, vacuum machines, and multi-axis robots, etc. • Understand advantages, disadvantages, upgrades and maintenance methods of various automated processing and handling equipment for die casting, casting and extrusion on the market • Understand types, specifications, functions, and applications of various testing equipment for die casting, casting and extrusion products, such as projectors, micrometers, scanning electron microscopes (SEM), ultrasonic testing instruments, X-ray machines, and various coordinate measuring machines (CMMs), etc. • Understand advantages, disadvantages, upgrades and maintenance methods of various automated testing equipment for die casting, casting and extrusion on the market • Understand types, specifications, and applications of commonly used pneumatic, hydraulic, vibratory feeder, and programmable logic controller (PLC) components and systems • Understand data types, data formats, communication interfaces, and corresponding industrial IoT data acquisition and analysis principles and basic algorithms of various die casting, casting and extrusion automation equipment on the market • Understand basic analysis method for data from various die casting, casting and extrusion automation equipment on the market • Understand data acquisition, analysis principles and basic algorithms of various die casting, casting and extrusion automated processing equipment for handling and inspecting parts 2. Develop and formulate method and equipment for various die casting, casting and extrusion automation processes • Able to develop and select automated processes, methods, and equipment for manufacturing and inspecting die-casting, extrusion, and casting products, while meeting design requirements • Able to ensure processes and equipment are free of defects, to control and minimise failure probability • Able to evaluate effectiveness of the automation development of die-casting, extrusion, and casting products, and improve continuously

	• Able to ensure development and implementation of automated processing and testing procedures and equipment could have minimised product defect rate • Able to develop, design, and install appropriate data acquisition and analysis systems for automated production systems 3. Professional handling of method and equipment development and formulation in various die casting, casting and extrusion automation processes • Able to identify potential safety issues and possible accidents, optimise the developed and formulated systems, and improve efficiency, stability, and safety of automated systems, thereby further promoting the intelligentisation of production lines
Assessment Criteria	The integrated outcome requirements of this unit of competency are: • Able to formulate automated processing and testing plan of die-casting, extrusion, and casting products in line with enterprise development strategy and product need • Able to develop and formulate automated processing procedures, methods, and equipment for die casting, casting and extrusion products, thereby improve production efficiency and reduce cost • Able to formulate technical specifications for data collection, transmission, and analysis based on the goals of intelligentisation
Remark	This is the updated version of UoC 106490L4