

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

Functional Area - Process Design and Development

Title	Design and plan the manufacturing process of die casting and foundry products
Code	106603L6
Range	This unit of competency is applicable to the engineering or manufacturing development department of the corporation of metal die casting and foundry product. Practitioners should be capable to master all kinds of manufacturing plans and process of die casting and foundry products.
Level	6
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Understand relevant knowledge of design and plan the manufacturing process of die casting and foundry products</p> <ul style="list-style-type: none"> • Understand characteristics and principles of all die-casting and foundry technologies, including hot chamber die casting, cold chamber die casting and semi-solid forming. • Understand design requirements and terms of die-casting and foundry product, such as holes and back off, thickness of injection moulding, uniformity and enhancement methods, stripping slope of mould release, gate location and fusion line position. • Understand the before and after processes and characteristics of die-casting and foundry, such as tooling design, selection of mould steel, correct injection moulding parameters, finished products analysis, dimensional tolerances and shrinkage, processing and surface treatment • Know the impact of die cast alloys and various internal elements of the casting product performance, such as the impact of hot chamber die cast alloying elements of aluminium, magnesium, copper, cadmium, lead, tin, iron and silicon, on the strength of the hardness, wear resistance, extensibility and dimensional stability of the casting products. • Know the engineering analysis methods and tools, such as the processing of roadmap, work flowcharts, work factors analysis and work measurement. • Understand the latest technology and CAD/CAE/CAM software (such as Magma) etc of the design and manufacturing die-casting and foundry product <p>2. Design and plan the manufacturing process of die casting and foundry product</p> <ul style="list-style-type: none"> • Analyse and review the customers requirements on die casting and foundry products • In accordance with customers requirements on cost, environmental protection, quality, functions and appearance, propose the best manufacturing plan and process of materials, facilities and die casting and foundry technologies • Analyse and design the manufacturing process of die casting and foundry products, and formulate manufacturing schedule • Balance the manufacturing time and product quality in order to optimize the manufacturing process • Communicate with customers, product development and marketing staff and feedback to improve product design, so as to enhance product quality, reduce costs and optimize production efficiency <p>3. Professional handling of design and plan the manufacturing process of die casting and foundry product</p> <ul style="list-style-type: none"> • Carefully consider elements of safety, risk, capacity, quality, environmental protection and cost etc, design, plan and optimise die-casting and foundry products manufacturing process, ensure safety operation and also meet all aspects of requirements

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Assessment Criteria	The integrated outcome requirements of this unit of competency are: <ul style="list-style-type: none">• Capable to design and plan the best manufacturing plan and process of die casting and foundry products in accordance with customer's different requirements.• Capable to formulate manufacturing schedule and flexibly revise it with idiopathic cases
Remark	