

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

Functional Area - Product Design and Development

Title	Die casting and foundry die assembly and structural design
Code	106573L5
Range	This unit of competency is applicable to design and development departments of the corporations of Tooling Manufacturing Industry. Practitioners should be familiar with the principles of die casting and foundry die, capable to integrate customers requirements and relevant international standards, and carry out die casting and foundry die assembly and structural design
Level	5
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Understand the knowledge of die casting and foundry die design</p> <ul style="list-style-type: none"> • Understand the customer's requirements on appearance and functions • Understand the relevant international standards of design of die casting and foundry die • Understand the manufacturing process and its features of die casting and foundry mould, material selection, milling, heat treatment, EDM, wire cutting, grinding, polishing, surface treatment • Understand the properties and applications of all kinds of die casting die materials • Understand the characteristics and applications of all kinds of die casting die and relevant materials, such as sand, wax, plaster, concrete and plastics • Understand different structures and functions of different die casting and foundry dies • Understand die casting and foundry die requirements on different product materials (such as copper, zinc, aluminum and magnesium) • Understand the function and application of all kinds of die casting and foundry die components • Understand the die structure, installation and coordination of components • Recognise relevant die of other new metals, such as magnesium and aluminum • Recognise the principles and applications of Semi-solid metal moulding • Recognise the principles and applications of advance die manufacturing technology such as 3D printing • Understand the types and specifications of surface treatment of the commonly used die casting and foundry dies • Recognise the commonly used types, structures, specifications and working principles of the commonly used equipment of die casting and foundry <p>2. Carry out die casting and foundry die design</p> <ul style="list-style-type: none"> • Examine the precision, shape, quantity and production requirements, select appropriate die material • Formulate appropriate size, design, and strength for die structure • According to the requirements of different products, select the appropriate die and steel • Examine the precision, shape, quantity and production requirements, select the required functional system for die casting and foundry die • Integrate and formulate the concept design of die casting and foundry die • Assign all functional design requirements to each members of the design team and carry out management • Lead die casting and foundry die design team to complete all functional designs, and integrate all designs into a completed die casting and foundry die structural design • According to the appearance and functionality required of different products, select the appropriate mould for surface treatment

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	<ul style="list-style-type: none">• Communicate with internal and external customers and stakeholders and achieve consistent standards 3. Professional handling of die casting and foundry die assembly and structural design <ul style="list-style-type: none">• Carefully consider elements of safety, risk, capacity, quality, environmental protection and cost etc, carry out die casting and foundry die assembly and structural design and also meet all aspects of requirements
Assessment Criteria	The integrated outcome requirements of this unit of competency are: <ul style="list-style-type: none">• Capable to collect and integrate customers requirements and relevant international standards, formulate casting and foundry die assembly design• Capable to consider the appearance and functions requirements of products, complete the overall structural design of casting and foundry die
Remark	