

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

Functional Area - Product Design and Development

Title	Select and apply conventional plastic materials, plastic composites and other new materials
Code	106479L4
Range	This unit of competency is applicable to the design and development departments of plastics products manufacturing industry. Practitioners should be capable to be familiar with the types, characteristics and applications of all kinds of materials, so as to select appropriate materials for products
Level	4
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Understand the types, characteristics and applications of all kinds of materials</p> <ul style="list-style-type: none"> • Understand the types, features and applications of conventional plastic materials, such as thermoplastic, thermoset and elastomers • Understand the types, features and applications of composite materials, such as high strength engineering plastics and Fiber-Reinforced Plastics • Understand the physical properties, mechanical properties, thermal properties, electrical properties and other properties such as light transmission and weather resistance of the conventional plastic materials and composite materials • Understand all types, characteristics and applications of new plastics, such as all biodegradable plastics (biodegradation, photodegradation, oxygen degradation and water solubility) and Liquid Silicon Rubber • Recognise all material database of suppliers in the market • Recognise the commonly used standards of plastic materials analysis and performance testing, such as ASTM, ISO, DIN and other international standards • Recognise the relevant international environmental protection and safety laws and regulations, such as WEEE, RoHS and EuP <p>2. Select and apply all kinds of materials</p> <ul style="list-style-type: none"> • Apply all kinds of materials database which is on the market, collect, analyse and apply relevant information of materials • In response to the customer's requirements, including function, assembly, safety and surface treatment, select and apply suitable plastic materials, composite materials or other new materials • Select the plastic materials which are suitable for lab verification • Under the principle of cost control, apply all kinds of new plastic and composite materials to enhance the function and value of metal products • With the concept of environmental design and manufacture, select and apply suitable plastic materials, composite materials or other new materials <p>3. Professional handling of selection and application of all kinds of materials</p> <ul style="list-style-type: none"> • Detailedly consider elements such as safety, risk, productivity, quality, environmental protection and cost, select and apply the commonly used plastic materials, composites and other new materials and meet all aspects of requirements
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Capable to explain and analyse the types, mechanical properties, chemical properties and applications of the conventional plastic materials, composite materials and new materials • Capable to collect, analyse and apply the relevant materials information on the market

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