

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

Functional Area - Product Manufacturing

Title	Arrange heat treatment of tooling
Code	106413L3
Range	This unit of competency is applicable to the production department of the corporation of tooling manufacturing industry. Practitioners should be capable to understand the knowledge of arranging heat treatment of tooling, arrange qualified professional tooling processing corporations to process tooling or parts, and simple heat treatment of tooling in the workshop
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Understand arranging commonly used heat treatment of tooling</p> <ul style="list-style-type: none"> • Understand the general characteristics of the steel, such as carbon steel, cast iron, alloy steel, and tool steel • Understand the technology and principles of commonly used heat treatment of tooling, such as vacuum heat treatment • Understand the usages, methods and techniques of commonly used heat treatment, such as quenching, tempering and annealing normalization • Understand the impact of different fuel gas to heat treatment, such as oxygen, and ethyne • Recognise the structure, safety operation and maintenance methods of commonly used heating and cooling device • Recognise the characteristics and application of coolant • Recognise vacuum heat treatment and other advanced heat treatment process <p>2. Arrange heat treatment of tooling</p> <ul style="list-style-type: none"> • Analyse the design requirements of tooling and characteristics of the tooling materials, select the appropriate heat treatment method • Preliminary evaluate the parameters of heat treatment of tooling, such as heating temperature, heating rate, holding time, cooling and cooling rate, so as to meet the standards quality of tooling • Determines whether the plate is suitable for the heat treatment and also safely carry out simple heat treatment • Carry out simple heat treatment in the workshop, including quenching, tempering, annealing and also operate relevant equipment • Identify the heat treatment requirements of tooling workpieces, arrange sending the workpiece to professional heat treatment manufacturers and carry out heat treatment • Identify whether the heat treatment manufacturers have sufficient equipment and ability to carry out the necessary hardness of workpiece and other specifications of the heat treatment • Identify and systematic analyse the common quality problems of heat treatment of tooling and carry out improvement • Arrange for appropriate testing and carry out general quality inspection <p>3. Professional handling of arrangign heat treatment of tooling</p> <ul style="list-style-type: none"> • Follow safety guidelines and codes of practice of heat treatment of tooling, in accordance with the design drawings, specifications and maintenance requirements, carry out simple heat treatment of tooling
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> • Capable to determine whether the plate is suitable for heat treatment

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	<ul style="list-style-type: none">• Capable to correctly select and operate the commonly used equipment and supporting tools of heat treatment of tooling, carry out simple heat treatment in the workshop• Capable to arrange suitable manufacturers for carry outing professional heat treatment of tooling• Capable to determine after heat treatment, if the quality of tool is in compliance with the specifications
Remark	