

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

Functional Area - Product Manufacturing

Title	Heat treatment and surface texturing of metals
Code	106520L4
Range	This unit of competency is applicable to the production department of the corporation of metal product manufacturing industry. Practitioners should be capable understand the knowledge of all kinds of heat treatment, so as to base on the factory's equipment configuration to carry out heat treatment and surface modification, and arrange qualified professional heat treatment processing of the corporation
Level	4
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Understand the techniques and technologies of all kinds of heat treatment and surface modification of metals</p> <ul style="list-style-type: none"> <li>• Understand the features of all kinds of heat treatment, including tempering, quenching, low temperature annealing, austempering, precipitation hardening treatment, surface hardening, press quenching and depressing exercise</li> <li>• Understand all kinds of defects and prevention methods of heat treatments, such as stress cracks, deformation, internal hardness is lower down, crystal grain coarsening and decarburization</li> <li>• Understand the factors affecting the quality of heat treatment and surface modification, such as the tempering temperature is too low, protective gas shortage, temperature anomalies, and the setting of parameters</li> <li>• Recognise the relevant construction and working principle of the equipment of heat treatment and surface modification</li> <li>• Understand relevant method and techniques of heat treatment and surface modification of metals</li> </ul> <p>2. Carry out heat treatment and surface modification of metals</p> <ul style="list-style-type: none"> <li>• Determine if the products are suitable for heat treatment and surface modification of metals</li> <li>• Correctly select and operate the equipment of heat treatment and surface modification of metals</li> <li>• Base on the factory's equipment configuration to carry out heat treatment and surface modification of metals</li> <li>• Select suitable service providers to carry out heat treatment and surface modification of metals and also explain the relevant requirements of heat treatment and surface modification to service providers</li> <li>• Review the production efficiency of heat treatment and surface modification of metals</li> <li>• Analyse the common problems of heat treatment and surface modification of metals and carry out improvements</li> </ul> <p>3. Professional handling of heat treatment and surface modification of metals</p> <ul style="list-style-type: none"> <li>• Follow safety guidelines and related codes of practice, in accordance with the requirements of technologies and techniques, product specifications and production efficiency, carry out heat treatment and surface modification of metals and solve production problems</li> </ul>
Assessment Criteria	The integrated outcome requirements of this unit of competency are:

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	<ul style="list-style-type: none"><li>• Capable to carry out heat treatment and surface modification of metals and solve production problems in accordance with the drawings and requirements of technologies and techniques</li><li>• Capable to operate relevant equipment of heat treatment and surface modification of metals independently and make simple daily maintenance</li><li>• Capable to select suitable service providers to carry out heat treatment and surface modification of metals and also explain the relevant requirements of heat treatment and surface modification to service providers</li></ul>
Remark	