

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

Functional Area - Product Design and Development

Title	2D and 3D modeling and reverse engineering of metal products
Code	106387L3
Range	This unit of competency is applicable to design and development departments of metal products manufacturing corporations. Practitioners should be familiar with the manufacturing and production procedures of metal products, and capable to carry out 2D and 3D modeling and reverse engineering of metal products.
Level	3
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <ol style="list-style-type: none"> <li>1. Understand 2D and 3D modeling and reverse engineering knowledge <ul style="list-style-type: none"> <li>• Understand all kinds of possible manufacturing methods and production procedures of metal products.</li> <li>• Understand the design concept and needed design software of 2D and 3D modeling and reverse engineering, such as PRO/E UG Solidworks.</li> <li>• Understand reverse engineering measurement system, contact measurement method and non-contact measurement method.</li> <li>• Understand the advantages and disadvantages of measurement system.</li> </ul> </li> <li>2. Carry out 2D and 3D modeling and reverse engineering of metal products <ul style="list-style-type: none"> <li>• Operate manual and automatic instruments or other relevant tools to accurately measure 2D and 3D metal products size, such as manual calipers and optical projectors, as well as automatic instruments such as 3D coordinate measuring machines, laser scanning systems and rapid optical instruments, such as automatic camera system.</li> <li>• Use suitable software to carry out 2D and 3D reconstruction of models.</li> <li>• Select suitable laboratory and instruments to analyse metal products materials.</li> <li>• Suggest metal products production methods and technologies.</li> </ul> </li> <li>3. Professional handling of 2D and 3D modeling and reverse engineering of metal products <ul style="list-style-type: none"> <li>• Ensure the data collected from 2D and 3D modeling and reverse engineering is completed and accurate</li> </ul> </li> </ol>
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> <li>• Capable to describe products size measuring methods and instruments.</li> <li>• Capable to build and design completed and accurate 3D models and drawings, as well as mark production methods and procedures.</li> </ul>
Remark	