

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

**Functional Area - Product Manufacturing**

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| <b>Title</b>      | Implement digitalisation of metal stamping and sheet metal processing equipment and related configurations, provide real-time visualisation dashboards for production status in metal stamping and sheet metal processing workshops                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Code</b>       | 111575L4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Range</b>      | This unit of competency is applicable to the product manufacturing departments / production departments of companies engaged in the metal stamping and sheet metal industries. Practitioners should be capable to utilise appropriate technologies based on the status of metal stamping and sheet metal processing equipment to enable interoperability among various systems, thereby promoting real-time monitoring                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Level</b>      | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Credit</b>     | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Competency</b> | <p><b>Performance Requirements</b></p> <ol style="list-style-type: none"> <li>Understand relevant knowledge of metal stamping and sheet metal equipment and their configuration digitalisation <ul style="list-style-type: none"> <li>Understand basic concepts and technologies of smart manufacturing and Industry 4.0, and be familiar with operation principles of intelligent processing equipment and systems</li> <li>Understand process parameters in metal stamping and sheet metal processing that affect product quality and efficiency (e.g., stamping speed, folding speed, die pressure, die temperature, and shear blade radius), and identify useful data to be collected</li> <li>Understand methods and techniques for collecting production data in metal stamping and sheet metal processing, including sensors, barcodes, and radio frequency identification systems (RFID)</li> <li>Understand methods and techniques for connecting metal stamping and sheet metal equipment and related configurations to a network, as well as advantages and disadvantages of different technical solutions in the market</li> <li>Understand logic of data acquisition and system integration</li> <li>Understand equipment communication protocols and interface standards</li> <li>Understand application of automation, machine vision, Internet of Things (IoT), big data, and other technologies in intelligent metal stamping and sheet metal processing equipment</li> </ul> </li> <li>Apply digitalisation of metal stamping and sheet metal intelligent equipment and related configurations <ul style="list-style-type: none"> <li>Able to be familiar with principles of automation and intelligent technologies in metal stamping and sheet metal processing equipment, including the application of PLC control systems, sensors, actuators, machine vision, IoT, and big data in intelligent metal product equipment</li> <li>Able to master data analysis and statistical methods, and to utilise data analysis tools and software to analyse and mine equipment data to support and advise decision-making</li> <li>Able to filter and collect useful data generated in the metal stamping and sheet metal processing production process, and perform analysis</li> <li>Able to understand data interaction and collaboration mechanisms between equipment, enabling visualisation of the usage rate, production efficiency, and fault alerts of metal stamping and sheet metal processing equipment and related configurations</li> </ul> </li> </ol> |

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|                            | <ul style="list-style-type: none"> <li>• Able to plan existing systems in the enterprise (including MES, ERP, QMS, WMS, etc.), and integrate them to achieve a single source of data</li> <li>• Able to utilise different technologies (including cloud computing, IoT, big data, etc.) to interconnect workshop equipment and related configurations for metal stamping and sheet metal processing, and to provide centralised real-time monitoring status (including capacity, defect rate, and equipment utilisation, etc.) according to the needs of production department, while optimising production process parameter controls</li> </ul> <p>3. Professional handling of the digitalisation of metal stamping and sheet metal equipment and related configurations</p> <ul style="list-style-type: none"> <li>• Able to perform digitalisation of metal stamping and sheet metal processing equipment and related configurations based on existing information</li> <li>• Able to balance and meet various requirements, including safety, risk, capacity, quality, environmental protection, and cost</li> </ul> |
| <b>Assessment Criteria</b> | <p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> <li>• Able to utilise different technologies (including cloud computing, IoT, big data, etc.) to provide real-time visualisation of the production status in metal stamping and sheet metal processing workshops through the digitalisation of equipment and related configurations</li> <li>• Able to respond to the enterprise's intelligent production needs by planning and implementing innovative approaches to intelligent production and logistics, conducting preliminary analysis and integration of information to support the achievement of intelligent production</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Remark</b>              | <p>Individuals who possess the above knowledge and competency are also required to possess the knowledge and competency of “Understand various requirements of physical and electronic drawings, and be familiar with metal product manufacturing processes to effectively communicate with internal staff and customers regarding metal products and processes (106491L3)”</p> <p>Individuals who possess the above knowledge and competency are able to support the enterprise to achieve the Industry 4.0 digital maturity level of visualisation (1i)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |