

**Specification of Competency Standards**  
**for the Jewellery Industry**  
**Unit of Competency**

Functional Area - Production □

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| Title      | Master jewellery electroforming techniques                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Code       | 108951L3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Range      | This unit of competency is applicable to practitioners working in the electroforming department of jewellery manufacturing organizations. Practitioners should be capable of mastering the use of electroforming equipment and the preparation of electroforming solutions. They should be able to independently operate electroforming equipment safely to complete electroforming processes for precious metals (fine gold/pure silver/karat gold) in accordance with the relevant legislations, operational guidelines and safety guidelines on electroforming. The products include hollow display items and ornaments.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Level      | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Credit     | 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Competency | <p>Performance Requirements</p> <p>1. Understand the electroforming operation</p> <ul style="list-style-type: none"> <li>• Know about the procedure of the electroforming process <ul style="list-style-type: none"> <li>○ Wax model production <ul style="list-style-type: none"> <li>▪ Carving model</li> <li>▪ Mould duplication and cutting</li> <li>▪ Wax injection</li> <li>▪ Mould trimming</li> </ul> </li> <li>○ Electroforming hollow models <ul style="list-style-type: none"> <li>▪ Installing hangers</li> <li>▪ Applying silver solution/conductive coating</li> <li>▪ Making pre-drilled holes</li> <li>▪ Preparation before electroforming</li> <li>▪ Electroforming</li> </ul> </li> <li>○ Surface treatment <ul style="list-style-type: none"> <li>▪ Trimming and sand-papering</li> <li>▪ De-waxing and removing the silver solution</li> <li>▪ Applying an acid solution</li> <li>▪ Heating in the oven</li> <li>▪ Sandblasting</li> <li>▪ Polishing</li> <li>▪ Soaking in a protective solution</li> </ul> </li> </ul> </li> <li>• Know how to solve the problem of electroforming defects</li> <li>• Know the relevant legislations on electroforming <ul style="list-style-type: none"> <li>○ Drainage and environmental protection ordinances</li> <li>○ Disposal of chemical waste ordinances</li> </ul> </li> <li>• Know how to use chemical drugs safely</li> <li>• Know the recovery treatment of electroforming solutions of precious metals</li> </ul> <p>2. Control the electroforming effects</p> <ul style="list-style-type: none"> <li>• Master the techniques for electroforming hollow items and the surface treatment</li> <li>• Control the electroforming effects <ul style="list-style-type: none"> <li>○ The weight of the finished product, which is directly affected by the thickness of the electroformed layer</li> <li>○ The surface of the electroformed layer</li> <li>○ The impact of the duration of electroforming</li> </ul> </li> </ul> |

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|                     | <ul style="list-style-type: none"> <li>○ The impact of the temperature of the electroforming solution on the electroformed item</li> <li>○ The control of the current and voltage</li> <li>• Prepare the electroforming solutions <ul style="list-style-type: none"> <li>○ Replenish gold potassium cyanide</li> <li>○ Add chemical drugs</li> </ul> </li> <li>• Recover the electroforming solutions of precious metals/chemical drugs according to the relevant legislations on electroforming</li> </ul> <p>3. Professionalism</p> <ul style="list-style-type: none"> <li>• Following the safety guidelines and codes of practice of the Dangerous Goods Ordinance and environmental protection ordinances, and other relevant legislations on electroforming, carry out jewellery electroforming safely</li> </ul> |
| Assessment Criteria | <p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> <li>• Able to understand thoroughly the safety guidelines and operational guidelines to independently operate electroforming equipment safely so as to complete electroforming processes for precious metals (fine gold/pure silver/karat gold) for products including hollow display items and ornaments; and</li> <li>• Understand the relevant legislations on electroforming so as to use the chemical drugs and prepare the electroforming solutions safely.</li> </ul>                                                                                                                                                                                                                             |
| Remark              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |