

**Specification of Competency Standards**  
**for the Testing, Inspection and Certification Industry**  
**Unit of Competency**

Functional Area - Testing Operations

Title	Design testing fixtures and tools to perform tests
Code	105850L4
Range	This unit of competency (UoC) covers the abilities to design suitable testing fixtures and tools by analysing the application of fixtures with the knowledge of design considerations to carry out physical and mechanical tests in testing laboratories or during on-site testing.
Level	4
Credit	4 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge of design and applications of testing fixtures and tools</p> <ul style="list-style-type: none"> <li>• Describe the purposes of testing fixtures and tools for a particular physical or mechanical test.</li> <li>• Identify the types and applications of testing fixtures and tools.</li> <li>• Identify the factors in design considerations of testing fixtures hardware for the physical or mechanical test.</li> <li>• Employ the concepts and operating principles of automation system.</li> <li>• Explain the functions and operation of automation elements and controller.</li> <li>• Identify the limitations of different automation systems, e.g. speed, force, cleanliness, electromagnetic interference generated.</li> </ul> <p>2. Design testing fixtures and tools</p> <ul style="list-style-type: none"> <li>• Analyse the test request and identify sample characteristics that may affect the choice and design of testing fixtures and tools.</li> <li>• Analyse the applications and settings of testing fixtures and tools, e.g. types of locators and clamping devices, types of workholding devices.</li> <li>• Design, produce and apply suitable testing fixtures and tools for carrying out the physical or mechanical test.</li> <li>• Select appropriate automation system, elements of automation and controller.</li> <li>• Review the design and application of testing fixtures and tools by analysing the test results against the required specifications of test standards/methods.</li> </ul> <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> <li>• Ensure the testing fixtures and tools are designed and applied to produce reliable and reproducible test results.</li> </ul>
Assessment Criteria	<p>The integrated outcome requirements of this UoC are the abilities to:</p> <ul style="list-style-type: none"> <li>• design and apply suitable testing fixtures and tools for carrying out physical or mechanical test by analysing their applications and considering design factors,</li> <li>• review the design and application of testing fixtures and tools to produce reliable and reproducible test results.</li> </ul>
Remark	