

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

Functional Area - Testing Operations

Title	Perform basic physical and mechanical tests on soil and rock
Code	105835L4
Range	This unit of competency (UoC) covers the abilities to carry out basic physical and mechanical tests on soil and rock materials, record and analyse test data in testing laboratories.
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <ol style="list-style-type: none"> <li>1. Possess knowledge of basic physical and mechanical tests applicable to soil and rock <ul style="list-style-type: none"> <li>• Describe the fundamental physical and mechanical properties of soil and rock.</li> <li>• Employ the principles of test methods for determining fundamental physical and mechanical properties of soil and rock, e.g. classification test.</li> <li>• Identify sample conditions required in test methods, e.g. selection of samples, minimum sample size/ mass for different grains.</li> <li>• Describe sample preparation and handling procedures for soil and rock, e.g. sieving, drying, mechanical disaggregation, subdividing.</li> <li>• Identify the specification requirements of soil and rock testing.</li> <li>• Explain the principles and operation of equipment used for basic physical and mechanical tests on soil and rock.</li> <li>• Specify the calibration requirement of equipment.</li> </ul> </li> <li>2. Perform basic physical and mechanical tests on soil and rock <ul style="list-style-type: none"> <li>• Apply appropriate test methods/standards and testing equipment for basic physical and mechanical tests on soil and rock sample.</li> <li>• Carry out sample preparation according to test methods/standards.</li> <li>• Carry out physical and mechanical tests, such as moisture content, particle size distribution, density test, atterberg limits, point load test, unconfined compressive strength, on selected soil and rock sample according to test methods/standards.</li> <li>• Carry out required calibration checks on testing equipment and conduct validation checks on test data.</li> <li>• Record and analyse test data for reporting.</li> </ul> </li> <li>3. Exhibit professionalism <ul style="list-style-type: none"> <li>• Ensure integrity and confidentiality of test data by observing the code of conduct of the laboratory.</li> <li>• Follow established safe work practices and use appropriate personal protective equipment.</li> </ul> </li> </ol>
Assessment Criteria	<p>The integrated outcome requirements of this UoC are the abilities to:</p> <ul style="list-style-type: none"> <li>• carry out basic physical and mechanical tests on selected soil and rock specimen by applying appropriate testing equipment and test conditions according to the requirements of test methods/standards and test specifications,</li> <li>• record and analyse test data by verifying equipment calibration status and checking the validity of test data within the acceptable range specified in test methods/standards.</li> </ul>
Remark	