

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

Functional Area - Testing Operations

Title	Perform advanced structural diagnostic tests on concrete structures
Code	105833L5
Range	This unit of competency (UoC) covers the abilities to carry out advanced structural diagnostic tests independently by selecting and applying appropriate test methods and equipment, and analyse test data to critically evaluate near-surface defects inside and outside buildings or infrastructures.
Level	5
Credit	8 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge of advanced structural diagnostic tests and concrete building structures</p> <ul style="list-style-type: none"> • Examine the concrete components used and explain the construction method of building. • Specify the quality requirements of different building materials. • Employ the principles and concepts of advanced structural diagnostic tests. • Determine appropriate testing plan, e.g. scanning intervals. • Differentiate advanced non-destructive (NDT) techniques and test methods used for determining building defects. • Explain the principles and operation of equipment used for advanced structural diagnostic tests, e.g.: <ul style="list-style-type: none"> ○ infrared thermography, ○ penetration radar. • Specify the calibration requirement of equipment. <p>2. Perform advanced structural diagnostic tests</p> <ul style="list-style-type: none"> • Evaluate the environmental conditions of testing site (e.g. windy, sunny or rainy) to select NDT techniques suitable for advanced structural diagnostic tests. • Apply appropriate test methods and select testing equipment for advanced structural diagnostic tests. • Set up the testing equipment and optimise equipment settings. • Carry out advanced structural diagnostic tests according to test methods. • Carry out required calibration checks on testing equipment and conduct validation checks on test data. • Analyse test data to critically evaluate defects of the building or infrastructure. <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Ensure integrity and confidentiality of test data by observing the code of conduct of the laboratory. • Ensure safe work practices and use appropriate personal protective equipment at the testing site.
Assessment Criteria	<p>The integrated outcome requirements of this UoC are the abilities to:</p> <ul style="list-style-type: none"> • carry out advanced structural diagnostic tests on concrete structures independently by applying appropriate NDT techniques and testing equipment according to the requirements of test methods and test specifications, • record accurate test data by verifying equipment calibration status and checking the validity of test data within the acceptable range specified in test methods, • analyse test data to critically evaluate defects of the building or infrastructure.
Remark	