

1. Title	Analysis of non-destructive test (NDT) – Ultrasonic Testing
2. Code	EMCUMA311A
3. Range	Use ultrasonic testing instruments, at servicing centres or locations with operating equipment, to detect, analyze and examine internal damages of metallic equipment.
4. Level	3
5. Credits	3
6. Competency	<p style="text-align: center;"><u>Performance Requirements</u></p> <p>6.1 Techniques and principles of ultrasonic testing for internal damages of metallic equipment</p> <ul style="list-style-type: none"> <li>◆ Understand techniques and principles of ultrasonic testing and examination for internal damages of metallic equipment</li> <li>◆ Understand the advantages and limitations of ultrasonic testing, especially with reference to those of liquid penetrant testing, magnetic particle testing and x-ray testing</li> </ul> <p>6.2 Methods and procedures of analyzing and examining damages on metal equipment</p> <ul style="list-style-type: none"> <li>◆ Understand the influence of the metallic internal structure on damage examination and analysis</li> <li>◆ Use ultrasonic testing instruments effectively to analyze and examine internal damages or structure defects such as voids and pores on the metal equipment</li> <li>◆ Use ultrasonic instruments to measure and calculate crack positions and size</li> <li>◆ Mark the position with cracks effectively</li> <li>◆ Base on the pros and cons of various types of NDTs to recommend on and conduct ultrasonic testing so as to confirm the positions and degree of work piece damages or structure defects</li> <li>◆ Keep record of testing effectively</li> </ul> <p>6.3 Professionalism in inspecting and examining damages on metal equipment</p> <ul style="list-style-type: none"> <li>◆ Have adequate hands-on practice in ultrasonic testing for internal damages according to professional qualification requirements, and record and analyze damages</li> <li>◆ Inspect and analyze damages on metal equipment or structure defects safely according to guidelines on the use of materials and code of practice</li> <li>◆ Understand international standards or in-house guidelines, and report the positions and size of damages or structure defects identified according to requirements</li> </ul>

7. Assessment Criteria	<p>The integrated outcome requirement of this unit of competency is:</p> <ul style="list-style-type: none"> <li>(i) Capable to use ultrasonic testing effectively to detect, examine and analyze internal damages or structure defects of the metallic equipment; to measure and calculate crack positions and size and to record and mark properly; and</li> <li>(ii) Capable to point out the pros and cons of ultrasonic testing with reference to those of liquid penetrant testing, magnetic particle testing and x-ray testing</li> </ul>
8. Remarks	<p>The credit value of this unit of competency is set on the presumption that the person already possesses the competency of EMCUMA202A “Non-destructive test (NDT) - ultrasonic testing”.</p>