

1. Title	Apply basic AC and DC circuit theories to assess general design performance of electrical machines
2. Code	EMELDE301A
3. Range	Applicable to general electrical machinery design. Apply a series of knowledge relevant to the start-up of AC and DC circuits, transformers, electric motors and generators, etc. to assess the design performance of simple AC and DC circuits and general electrical machinery.
4. Level	3
5. Credit	6
6. Competency	<p style="text-align: center;"><u>Performance Requirements</u></p> <p>6.1 Master basic AC and DC circuit calculations</p> <ul style="list-style-type: none"> ◆ Master basic DC circuit calculations such as the application of various kinds of basic circuit theories, properties of materials and resistance, temperature coefficient of conductors, voltage drop and electric power, etc. ◆ Master the calculations of circuit impedance, voltage, current, phase difference, power factor, and the application of basic circuit theories of AC circuits, etc. <p>6.2 Assess general electrical machinery and transformer design performance</p> <ul style="list-style-type: none"> ◆ Calculate the copper loss, core loss and mechanical loss of simple electrical machinery and transformers and understand the causes and improvements for the loss ◆ Understand electrical machinery the relationship between efficiency and the loss and use formulae to calculate the work efficiency of electrical machinery ◆ Assess design performance of simple electrical machinery in no load and full load conditions including: running current, starting current, output torque, input electric power, power factor control, turning speed, temperature rise, stable limit, output power, etc. ◆ Assess transformer input and output design performance
7. Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <p>(i) Capable to assess the design performance of simple electrical machinery; and</p> <p>(ii) Capable to assess the design performance of simple transformers.</p>
8. Remarks	