1. Title	Apply diodes and transistors in electronic control circuits
2. Code	EMCUDE311A
3. Range	Understand the structure, properties and working principles of basic electronic components (diode and transistor); and use these components in rectifier, amplifying and logic circuits to meet the functional requirements of the control circuit design.
4. Level	3
5. Credit	8
6. Competency	Performance Requirements

6.1 Structure, properties and working principles of diode and transistor

- ♦ Understand the structure, properties and working principles of diode and transistor
- ♦ Understand the working principles of rectifier circuit and stabilizing circuit

6.2 Use diodes and transistors in electronic control circuits

- ♦ Use diodes and related components to design the following electronic control circuits according to the functional requirements of the control circuit design
  - • Bridge type rectifier circuit
  - • Stabilizing circuit
- ♦ Use transistors in amplifying circuit and switch circuits according to the functional requirements of the circuit design
  - • Use transistors and related components to connect as an amplifying circuit based on the understanding in the structure of transistor and working principles of amplifying circuit and
  - • Apply the following connecting methods to achieve different amplifying effects and results
    - ‣ Common base connection
    - ‣ Common emitter connection
    - ‣ Common collector connection
  - • Use transistors and related components to design a switch circuit according to the functional requirements of the circuit design
- ♦ Use diodes and transistors in logic circuits according to the functional requirements of the circuit design
  - • Use diodes, transistors and related components to connect in the following logic circuits
    - ‣ ‘OR’ Gate
    - ‣ ‘AND’ Gate
    - ‣ ‘Not’ Gate
    - ‣ ‘Exclusive OR’ Circuit
    - ‣ ‘NAND’ Gate
    - ‣ ‘NOR' Gate

7. Assessment Criteria	The integrated outcome requirement of this unit of competency is: (i) Capable to design an electronic control circuit according to the functional requirements of the circuit design, with the functions of full wave rectification and stabilization, electronic control switch, logic control and signal amplification.
8. Remarks	The credit value of this unit of competency is set on the presumption that the person already possesses basic knowledge of electricity.