

1. Title	Design Direct Current (DC) machine control, starter and protection circuits		
2. Code	111492L3		
3. Range	Applicable to electrical equipment system control design, which involves designing appropriate DC machine control, starter and protection circuits according to the specific operational requirements for DC machine control and startup.		
4. Level	3		
5. Credit	3		
6. Competency			<u>Performance Requirements</u>
	6.1	Understand structure, type, working principles and application of different types of DC machine	◆ Understand the structure, types, working principles and range of application of DC motor, including: ➤ series motor ➤ shunt motor ➤ compound motor ◆ Understand the design of DC machines Armature Winding, including number of slots for each pole, number of winds, method of winding connection, etc. ◆ Understand armature reaction of DC machines and its correction method
	6.2	Master the design concept speed control, armature reaction, starter and protection circuit and for different types of DC machine	◆ Master the working principles of speed control circuits and working properties of relevant components for different types of DC machines ◆ Master the working principles of DC machine starter and protection circuits and technical requirements for relevant components ◆ Master the techniques of drawing DC machine control and starter circuit diagrams ◆ Master the working principle and wiring connection for the reversal of rotation of DC machines
	6.3	Exhibit professionalism in designing DC machine control, starter and protection circuits	◆ Follow the Code of Practice for the Electricity (Wiring) Regulations and relevant standards in designing DC machine control, starter and protection circuits.

7. Assessment Criteria	The integrated outcome requirements of this unit of competency are: (i) Capable to design DC machine control, starter and protection circuits according to the specific operational requirements for DC machine control and startup.
8. Remarks	The credit value of this unit of competency is set on the presumption that the person already possesses basic electrical and mechanical knowledge.