1. Title	Apply the knowledge of air and water systems of central air-conditioning system
2. Code	EMACDE301A
3. Range	Apply the knowledge of air and water systems of central air-conditioning system to perform tasks of design, installation, commissioning, testing, operation, maintenance, repair, project management and sales of central air-conditioning systems at design studios, or air-conditioning and refrigeration system work sites or sales outlets.
4. Level	3
5. Credit	6
6. Competency	Performance Requirements 6.1 Knowledge of air and water systems of central air-conditioning system ♦ Understand the classification of air-conditioning systems, including: • Classifying the construction of air-conditioning systems according to the cooling medium in the air-conditioned space (such as all air systems, air-water systems and direct expansion systems) • Classifying the construction of air-conditioning systems according to the distribution of air-handling equipment (such as centralized systems, semi-centralized systems and distributed systems ♦ Understand the nomenclatures and functions of different types of equipment of a central air-conditioning system, including: • Air-handling equipment for central air-conditioning • Refrigeration equipment for central air-conditioning • Air system equipment for central air-conditioning • Water system equipment for central air-conditioning • Control system equipment for central air-conditioning ♦ Understand the working principles of fan coil type air-conditioning systems, including: • Construction and working principles of fan coil type air-conditioning systems • Methods of fresh air delivery of fan coil type air-conditioning systems • Methods of water supply of fan coil type air-conditioning systems

		♦ Understand the working principles of air system of central air-conditioning system, including: • Types and functions of air-handling equipment • Types and functions of air distribution equipment (including fans and air ducts) • Types and functions of air diffusion equipment (including supply air grilles, return air grilles, air diffusers and VAV boxes) ♦ Understand the working principles of chilled water system of central air-conditioning system, including: • Working principles of open-type and closed-type chilled water systems • Working principles and characteristics of direct-return and reverse-return chilled water systems • Working principles and application properties of constant flow and variable flow chilled water systems • Working principles and characteristics of primary pump and secondary pump chilled water systems ♦ Understand the working principles of cooling water systems of central air-conditioning system, including: • Working principles of open-type and closed-type cooling water systems • Functions and working principles of cooling water system of central air-conditioning system • Classification, working principles and characteristics of cooling towers
	6.2 Application of the knowledge of air and water systems of central air-conditioning system	♦ Apply the knowledge of air and water systems of central air-conditioning system to solve the problems involved in the design, installation, commissioning, testing, operation, maintenance, repair, project management and sales of central air-conditioning works; communicate with the sector and clients
7. Assessment Criteria	The integrated outcome requirement of this unit of competency is: (i) Capable to apply the knowledge of air and water systems of central air-conditioning system to solve the problems involved in central air-conditioning works; communicate with the sector and clients.	
8. Remarks	This unit of competency is applicable to practitioners of general central air-conditioning works. The credit value of this unit of competency is set on the presumption that the person already possesses basic knowledge of air-conditioning, refrigeration and ventilation systems.	