

1. Title	Operate central control and monitoring system (CCMS) of air-conditioning and refrigeration systems
2. Code	EMACOR301A
3. Range	Operate CCMS to perform tasks of commissioning, testing, operation, repair and maintenance for air-conditioning and refrigeration systems at air-conditioning and refrigeration system control rooms.
4. Level	3
5. Credit	6
6. Competency	<p style="text-align: center;"><u>Performance Requirements</u></p> <p>6.1 Knowledge of CCMS operation</p> <ul style="list-style-type: none"> ◆ Understand the functions, structure and application structure of air-conditioning and refrigeration CCMS, including: <ul style="list-style-type: none"> • Functions of CCMS of air-conditioning and refrigeration systems • Functions of CCMS components of air-conditioning and refrigeration systems • Construction of CCMS of air-conditioning and refrigeration systems • Meanings of typical terms for CCMS of air-conditioning and refrigeration systems • Difference between direct digital controller (DDC) and analog controller ◆ Understand basic knowledge of typical building automation system software, including being able to list: <ul style="list-style-type: none"> • Brand names of typical building automation system operating software • Functions of typical building automation system operating software • Trade standards and protocols of typical building automation system ◆ Understand the functions and construction of various types of direct digital controllers and network components, including: <ul style="list-style-type: none"> • Functions and construction of direct digital controllers • Functions and construction of the extension accessories of direct digital controllers • Functions and construction of network components ◆ Understand the control procedures of central air-conditioning systems, including: <ul style="list-style-type: none"> • Automatic control procedures of variable air volume system • Automatic control procedures of fan coil • Automatic control procedures of fresh air supply system • Automatic control procedures of air-handling unit ◆ Understand the starting procedures and maintenance procedures of CCMS

	<p>6.2 Methods and procedures of CCMS operation</p> <ul style="list-style-type: none"> ◆ Operate CCMS to control and monitor the normal operation of central air-conditioning equipment ◆ Start CCMS ◆ Perform general maintenance for CCMS ◆ Shut down CCMS <p>6.3 Professionalism in operating CCMS of air-conditioning and refrigeration systems</p> <ul style="list-style-type: none"> ◆ Follow the operation manual instructions to operate the CCMS of air-conditioning and refrigeration systems independently ◆ Understand the safety guidelines as required by the law and the code of practice when undertaking the operation of CCMS of air-conditioning and refrigeration systems
7. Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <p>(i) Capable to operate CCMS of air-conditioning and refrigeration systems systematically and efficiently; and</p> <p>(ii) Capable to follow the operation manual to perform the operation of CCMS of air-conditioning and refrigeration systems.</p>
8. Remarks	<p>The credit value of this unit of competency is set on the presumption that the person already possesses elementary knowledge of air-conditioning and refrigeration automatic control.</p>