

1. Title	Apply basic knowledge of automatic control for air-conditioning and refrigeration systems
2. Code	EMACDE203A
3. Range	Apply basic knowledge of automatic control for air-conditioning and refrigeration systems at design studios, air-conditioning and refrigeration system work sites or machine rooms to perform tasks of designing, installing, testing, commissioning, operating, repairing and maintaining air-conditioning and refrigeration systems.
4. Level	2
5. Credit	6
6. Competency	<p style="text-align: center;"><u>Performance Requirements</u></p> <p>6.1 Basic knowledge of automatic control for air-conditioning and refrigeration systems</p> <ul style="list-style-type: none"> ◆ Understand the functions and application range of automatic control in air-conditioning and refrigeration systems ◆ Understand the meanings of typical terms used in automatic control, including control object, control variables, set points, deviation, interference, sensor, controller and actuator ◆ Understand the principles of open-loop and closed-loop control systems, including: <ul style="list-style-type: none"> • Using block diagram to illustrate the composition of an automatic control system • Using block diagram with examples to illustrate the open-loop control system • Using block diagram with examples to illustrate the closed-loop control system ◆ Understand the functions and structural principles of typical controllers, including thermal switch, solenoid valve, expansion valve, pressure regulation valve and servo-motor ◆ Understand the functions and structural principles of typical actuators, including electric regulating valve and electric regulating air valve ◆ Understand the basic control principles of refrigeration system and temperature control of refrigerator ◆ Understand the principles of temperature control of air-conditioning system and fan coil unit ◆ Understand the working principles of measuring instrument of air-conditioning system, including: <ul style="list-style-type: none"> • Different types of thermometers • Different types of pressure gauges • Different types of psychrometers • Different types of level gauges • Different types of anemometers

	<p>6.2 Application of knowledge of automatic control for air-conditioning and refrigeration systems</p> <ul style="list-style-type: none"> ◆ Identify various types of automatic air-conditioning and refrigeration control system equipment ◆ Read the layout plan of automatic air-conditioning and refrigeration control system equipment ◆ Select various types of automatic air-conditioning and refrigeration control system equipment and devices
<p>7. Assessment Criteria</p>	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> (i) Capable to apply basic knowledge of automatic control for air-conditioning and refrigeration systems in general design, installation, testing, commissioning, operation, repair and maintenance; and (ii) Capable to explain to clients the basic knowledge of automatic control for air-conditioning and refrigeration systems.
<p>8. Remarks</p>	<p>This unit of competency is applicable to practitioners engaged in general design, installation, testing, commissioning, operation, repair and maintenance of air-conditioning and refrigeration system.</p>