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| 1. Title | Wire up electrical control circuits for air-conditioning and refrigeration | |
| 2. Code | EMACIN301A | |
| 3. Range | Install and wire up various types of electrical control circuits for air-conditioning and refrigeration at installation sites. | |
| 4. Level | 3 | |
| 5. Credit | 9 | |
| 6. Competency | | <u>Performance Requirements</u> |
| | 6.1 Knowledge of electrical control circuits for air-conditioning and refrigeration | ♦ Understand the working principles of various types of electrical control circuits for air-conditioning and refrigeration<br>♦ Understand the drawings of electrical control works for air-conditioning and refrigeration, including being able to:<br>• Read the drawings of electrical control circuits for air-conditioning and refrigeration<br>• Read the layout plans of air-conditioning and refrigeration equipment<br>• Estimate the quantity of materials for the installation of electric control equipment according to engineering drawings and installation requirements |
| | 6.2 Methods and procedures of wiring up electrical control circuits for air-conditioning and refrigeration | ♦ Install and wire up electrical control and fire control circuits for air-conditioning and refrigeration and ventilation system equipment, including being able to:<br>• Follow the code of practice under the Electricity (Wiring) Regulations to install electric control, electrical interlock and sequential control circuits for various types of air-conditioning and refrigeration and ventilation system equipment<br>• Follow the code of practice under the Electricity (Wiring) Regulations and the Fire Services Ordinance to install fire control circuits for air-conditioning and ventilation systems<br>• Use multimeters and insulation testers to test whether the circuit is suitable to use<br>• Test whether the circuit functions properly<br>♦ Install and wire up various types of electrical control components for air-conditioning and refrigeration, including being able to:<br>• Install and wire up various types of electrical control components for air-conditioning and refrigeration, including thermostat, fan switch, flow switch, pressure control switch, oil pressure safety switch, relay, contactor and timer<br>• Test whether the electric control components function properly |

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| | | ♦ Install electric motors and wire up starting circuits, including being able to:<br>• Install single-phase and three-phase motors<br>• Follow the code of practice under the Electricity (Wiring) Regulations to install starting circuits of various types of electric motors<br>♦ Test whether the electric motor functions properly |
| | 6.3 Professionalism in wiring up electrical control circuits for air-conditioning and refrigeration | ♦ Follow the code of practice under the Electricity (Wiring) Regulations to wire up various types of electrical control circuits for air-conditioning and refrigeration safely |
| 7. Assessment Criteria | The integrated outcome requirements of this unit of competency are:<br>(i) Capable to wire up various types of electrical control circuits for air-conditioning and refrigeration according to drawings; and<br>(ii) Capable to follow relevant code of practice when carrying out electrical work. | |
| 8. Remarks | The credit value of this unit of competency is set on the presumption that the person already possesses elementary knowledge and skills of wiring up electrical control circuits for air-conditioning and refrigeration | |