| | |
|---|---|
| 1. Title | Design central air-conditioning control systems |
| 2. Code | EMACDE401A |
| 3. Range | Apply specialized knowledge of central air-conditioning control systems to perform tasks of designing, installing, inspecting, commissioning, testing, operating, repairing and maintaining central air-conditioning systems at design studios, or work sites, machine rooms or control rooms with central air-conditioning systems. |
| 4. Level | 4 |
| 5. Credit | 9 |
| 6. Competency | Performance Requirements<br>6.1 Knowledge of central air-conditioning control systems<br>♦ Understand the principles of air and temperature control, including:<br>• Principles of temperature control by mixing of fresh air and primary return air<br>• Principles of temperature control by mixing of secondary return air and conditioned air<br>• Principles of temperature control by electrical heaters<br>• Principles of temperature control by water spraying to cool air<br>♦ Understand the principles of humidity control, including;<br>• Principles of indirect control of relative humidity by fixing the dew point<br>• Principles of direct control of relative humidity by not fixing the dew point<br>♦ Understand the principles of automatic control of variable air volume systems, including:<br>• Principles of air delivery control in variable air volume systems<br>• Principles of temperature and humidity control in an air-conditioned room with a variable air volume system<br>• Principles of static pressure control in the air ducting of variable air volume systems<br>• Principles of balanced control of the supply air fan and return air fan<br>• Principles of air volume control of fans<br>• Principles of control of a variable air volume system in multi-room environment |

| | | |
|---|---|---|
| | | ♦ Understand the principles of interlock control in air-conditioning systems, including:<br>• Principles of interlock control of the supply air fan and return air fan in an air-conditioning system<br>• Principles of fan speed control<br>• Principles of fire safety control in air-conditioning systems<br>♦ Understand the principles of the automatic control system of fan coils |
| | 6.2 Design central air-conditioning control systems | ♦ Apply specialized knowledge of central air-conditioning control systems to solve the problems involved in designing, installing, inspecting, commissioning, testing, operating, repairing and maintaining central air-conditioning systems |
| 7. Assessment Criteria | The integrated outcome requirement of this unit of competency is:<br>(i) Capable to apply specialized knowledge of central air-conditioning control systems to solve the problems involved in designing, installing, inspecting, commissioning, testing, operating, repairing and maintaining central air-conditioning systems. | |
| 8. Remarks | The credit value of this unit of competency is set on the presumption that the person already possesses general knowledge of central air-conditioning systems. | |