1. Title	Use programmable logic controller (PLC) to upgrade control equipment
2. Code	EMCUDE502A
3. Range	For electrical and mechanical engineering design, use PLC human-machine interface software, groupware and PLC network system to write monitoring and management system programmes for electrical and mechanical equipment and production; and integrate PLC systems of different levels into a large PLC integrated production control, operation control, monitoring and management system.
4. Level	5
5. Credit	9
6. Competency	Performance Requirements

<table>
<tr><td></td><td colspan="2" style="text-align:center">Performance Requirements</td></tr>
<tr>
<td>6.1</td>
<td>Operating principles of PLC software system</td>
<td>♦ Understand the operating principles of PLC software system</td>
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<td>6.2</td>
<td>Use PLC to upgrade control equipment</td>
<td>
♦ Use PLC human-machine interface software to set up the production control system

Use PLC human-machine interface software, processor emulation software, programmable/testing software and communication software to write programmes and set up human-machine interface PLC electrical and mechanical equipment and production control system
Test and debug the PLC human-machine interface control system
Modify and rationalize the PLC human-machine interface control system

♦ Use PLC human-machine interface groupware to set up the monitoring, alarm and management system

Use PLC human-machine interface groupware to set up label database and information list, and use the database to set up the alarm and management system
Use groupware to save group data record, and use the analytical function to analyze group data trend to achieve the alarm and management functions
Manage the safety of groupware data system

♦ Integrate PLC systems of different levels into a large PLC integrated monitoring and management system

Use large PLC software and network software to integrate PLC systems of different levels into a large integrated production control, operation control, monitoring and management system
Use PLC software to help analyze data

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	• Use information technology and network to transfer PLC data and information • Test and debug the large integrated PLC system
7. Assessment Criteria	The integrated outcome requirements of this unit of competency are: (i) Capable to use PLC human-machine interface software to set up a safe, reliable, accurate, convenient and direct operation monitoring, alarm and management system for electrical and mechanical equipment; and (ii) Capable to integrate different levels individual PLC systems of the same production line of a plant into a large integrated monitoring, alarm and management system.
8. Remarks	The credit value of this unit of competency is set on the presumption that the person already possesses basic computer knowledge.