1. Title	Design the railway AC overhead feeder system	
2. Code	EMRADE516A	
3. Range	Design the railway AC overhead power system linking feeder stations with the overhead lines and return lines along the railway.	
4. Level	5	
5. Credits	6	
6. Competency		Performance Requirements
	6.1 Working principles of the power supply system and preparations for its design	♦ Be familiar with the working principles of the railway AC overhead power supply system, including the power supply system of the electricity company ♦ Master the techniques of calculating the power line requirements ♦ Master the techniques of calculating the protection device requirements, including: • Overcurrent protection • Short-circuit protection • Earth fault protection • Lightning protection • Interlock protection ♦ Be familiar with the working principles of the circuit devices of the AC overhead feeder system, including: • Isolation and switching devices • Interlocking devices • Insulation devices • Overcurrent and sectional protection devices • Lightning protection devices • Earth electrode devices • Electricity quality improvement devices • Control circuits and devices, including PLC control components
	6.2 Methods and procedures of designing circuit devices for the railway AC overhead feeder system	♦ Design the length of various sections of the overhead line according to data calculations ♦ Design protection devices according to data calculations ♦ Design isolation, switching and insulation devices according to data calculations ♦ Design electricity quality improvement devices ♦ Design the control system of the overhead feeder system

	6.3 Professionalism in designing the railway AC overhead feeder system	♦ Design the railway AC overhead feeder system and devices according to the standards and requirements for work safety, health, environmental protection and quality management of railway works ♦ Understand the safety guidelines as required by the law and codes of practice in handling the tasks of designing the railway AC overhead feeder system and devices
7. Assessment Criteria	The integrated outcome requirement of this unit of competency is: (i) Capable to design effectively the railway AC overhead feeder system, and the main circuit and switches of the circuit devices according to the design requirements and standards of the overall railway system and the circuit devices of the railway AC overhead feeder system, and the safety guidelines and codes of practice; and (ii) Capable to design effectively protection devices for the railway AC overhead feeder system according to design standards.	
8. Remarks	The credit value of this unit of competency is set on the presumption that the person already possesses comprehensive knowledge of the overhead power supply system and electricity.	