1. Title	Verify the design of friction brake systems of trains and perform design reviews
2. Code	EMRADE506A
3. Range	Apply the professional knowledge and techniques of friction brake engineering to verify the design of friction brake systems of trains and perform design reviews according to the design requirements and matching with the overall train design.
4. Level	5
5. Credits	9
6. Competency	Performance Requirements 6.1 Design requirements for friction brake systems of trains to match with the overall train design ♦ Understand the design requirements for friction brake systems of trains and master the key points. The system equipment includes: • Brake mechanical and pneumatic devices • Control equipment • Wheel slide protection devices of trains • Parking brake devices ♦ Master the key points of the overall train design and the techniques of matching the design of friction brake systems of trains with the overall train design 6.2 Methods and procedures of verifying the design of friction brake systems of trains and performing design reviews ♦ Verify the design of the friction brake mechanical devices of the train according to the designed deceleration rate and speed of the train ♦ Verify the design of the friction brake pneumatic devices of the train according to the matching of designed deceleration rate and brake mechanical devices of the train ♦ Verify the design of the friction brake system and equipment of the train according to the designed deceleration rate and speed of the train and the performance requirements for deceleration ♦ Verify the design of the friction brake pneumatic system and equipment of the train matching with the regenerative brake of the train ♦ Verify the design of the wheel slide protection devices of the train, including that of the electrical, pneumatic and electronic equipment, according to the functional requirements for wheel slide protection ♦ Verify the design of the parking brake devices according to the functional requirements for parking safety of the train ♦ Review comprehensively the design of the friction brake system of the train according to the requirements for the overall train design and the functional requirements of the system ♦ Consider the safety, reliability, comfort, environmental protection and efficiency of trains during design reviews

	6.3 Professionalism in verifying and reviewing the design of friction brake systems of trains	♦ Verify the design of friction brake systems of trains and perform design reviews 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 verifying and reviewing the design of friction brake systems of trains
7. Assessment Criteria	The integrated outcome requirement of this unit of competency is: (i) Capable to verify the design of the friction brake system equipment of trains efficiently according to relevant design standards; and (ii) Capable to review the design of friction brake systems of trains efficiently according to the standards complying with the overall train design.	
8. Remarks	The credit value of this unit of competency is set on the presumption that the person already possesses professional knowledge of electrical and mechanical engineering.	