

1. Title	Verify the design of electric traction control systems of trains and perform design reviews
2. Code	EMRADE505A
3. Range	Apply the professional knowledge and techniques of electric traction control engineering to verify the design of electric traction control 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	<p style="text-align: center;"><u>Performance Requirements</u></p> <p>6.1 Design requirements for electric traction control systems of trains to match with the overall train design</p> <ul style="list-style-type: none"> ◆ Understand the design requirements for electric traction control systems of trains and master the key points. The system equipment includes: <ul style="list-style-type: none"> • Electric motors and main circuits • Traction control and protection circuits • Electronic control equipment • Regenerative brake circuits ◆ Master the key points of the overall train design and the techniques of matching the design of electric traction control systems of trains with the overall train design <p>6.2 Methods and procedures of verifying the design of electric traction control systems of trains and performing design reviews</p> <ul style="list-style-type: none"> ◆ Verify the design of the traction motor according to the requirements for the carrying capacity, acceleration rate, speed and torque of the train and voltage of the electricity power system ◆ Verify the design of main circuit contactor according to the total electric current of the traction motor, breaking capacity and working voltage of the main circuit ◆ Verify the design of the control circuit and equipment of the electric traction control system according to the requirements for the carrying capacity, acceleration rate, speed, torque and comfort of the train ◆ Verify the design of the protection circuit and equipment of the electric traction control system according to the requirements for the safety, reliability and efficiency of the traction control system of the train ◆ Verify the design of the electronic protection equipment and circuit according to the requirements for the control of the traction control system of the train ◆ Verify the design of the regenerative brake circuit, equipment and control according to the requirements for the regenerative brake function of the traction control system of the train

	<ul style="list-style-type: none"> ◆ Review comprehensively the design of the electric traction control 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 <p>6.3 Professionalism in verifying and reviewing the design of electric traction control systems of trains</p> <ul style="list-style-type: none"> ◆ Verify the design of electric traction control 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 electric traction control systems of trains
<p>7. Assessment Criteria</p>	<p>The integrated outcome requirement of this unit of competency is:</p> <ul style="list-style-type: none"> (i) Capable to verify the design of the electric traction control system equipment of trains efficiently according to relevant design standards; and (ii) Capable to review the design of electric traction control systems of trains efficiently according to the standards complying with the overall train design.
<p>8. Remarks</p>	<p>The credit value of this unit of competency is set on the presumption that the person already possesses professional knowledge of electrical engineering.</p>