

1. Title	Fix the faults in railway signal and control system and trackside equipment and SCADA
2. Code	EMRAOR405A
3. Range	Identify and repair the faults in railway signal and control system and trackside equipment and SCADA at railway premises, railway traffic control rooms and signal switch rooms.
4. Level	4
5. Credits	6
6. Competency	<p style="text-align: center;"><u>Performance Requirements</u></p> <p>6.1 Structure and working principles of the railway signal and control system and interlock</p> <ul style="list-style-type: none"> ◆ Understand the working principles of the railway signal and control system ◆ Understand the structure and working principles of the railway signal interlock system, including: <ul style="list-style-type: none"> • PLC • Solid-state interlock • Relay interlock • Electronic control circuits ◆ Understand the structure and working principles of the trackside equipment of the railway signal and control system, including: <ul style="list-style-type: none"> • PLC and control components • Train location detecting devices • Platform screen door control devices • Railway signal display devices • Electronic interface devices • Points • Supervisory, Control and Data Acquisition System (SCADA) ◆ Master the basic fault finding techniques <p>6.2 Methods and procedures of identifying and repairing the faults in the trackside equipment of the railway signal and control system</p> <ul style="list-style-type: none"> ◆ Able to read the engineering drawings of the railway signal and control system and check the signal system equipment and devices systematically and efficiently ◆ Analyze the information and signs of faults and check the trackside equipment and circuits of the railway signal and control system to find the root cause of fault ◆ Analyze the information and fault symptoms and check the motors, mechanical devices and status indicators of points and the control and protection circuits to find the root cause of fault ◆ Analyze the information and fault symptoms and check the SCADA functions and transmission devices to find the root cause of fault ◆ Repair the fault after finding out the faulty equipment or component ◆ Use general electrical and electronic equipment repairing and testing instruments and data logging instruments efficiently

	<p>6.3 Professionalism in identifying and repairing the faults in the trackside equipment of the railway signal and control system and the SCADA System equipment</p> <ul style="list-style-type: none"> ◆ Identify and repair the faults in the trackside equipment of the railway signal and control system and the SCADA System equipment 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 identifying and repairing the faults in the trackside equipment of the railway signal and control system and the SCADA System equipment
7. Assessment Criteria	<p>The integrated outcome requirement of this unit of competency is:</p> <ul style="list-style-type: none"> (i) Capable to identify the faults in the trackside equipment of the railway signal and control system within a reasonable period of time according to the fault symptoms; (ii) Capable to identify and eliminate the faults in the points within a reasonable period of time according to the fault symptoms; and (iii) Capable to identify the faults in the SCADA and transmission devices within a reasonable period of time according to the fault symptoms.
8. Remarks	<p>The credit value of this unit of competency is set on the presumption that the person already possesses knowledge of electronics and the railway signal system.</p>