Nationally recognised training

Rail Signalling Control and Wiring System Concepts

(Rail signalling core wiring specialisation units)

HRD Integrated Services technical training

Phone 03 9747 2386 Email admin@hrdi.com.au Web www.hrdi.com.au

Brief info

Course code: RS–CWS

Course cost

- PoA. Contact HRD for a quote.

Duration

- 3–5 months, part time

Training delivered

- As 3 modules in blocks, 4–6 weeks apart
- Min 6, max 8 persons per group

Assessment format

- In-class/workplace assignments and learning module theory tests
- Workplace practical assessments

Venue

- Rail Academy–Newport or interstate training venue

What to bring

- Maintenance instructions
- Notebook, highlighters and pens
- Safety vest and boots

Outcome

- Nationally-recognised Statement of Attainment issued on demonstration of competence.

The principles of rail signal systems, controls and wiring course develops the knowledge and skills needed to work safely and competently as an installer in rail signalling construction.

Course Content

What the course covers. The HRD *Rail Signalling Control and Wiring Systems Concepts* accredited course covers the knowledge and skill components of four essential construction installer units of competency:

- UEERS0001 Assemble and wire internal electrical signalling equipment
- UEERS0011 Install and maintain rail track circuit leads and bonds
- UEERS0019 Test copper rail signalling cables
- UEERS0017 Repair rail signalling power and control cables.

HRD training balances practical skill development with essential theory.

RPL/RCC. Recognition of prior learning/current competence is available to eligible existing employees.

RPL for this course confirms employee knowledge and skill currency and helps meet rail regulator demands for a qualified workforce.

Focus

Core knowledge and skills. Training and assessment in the HRD *Rail Signalling Control and Wiring Systems Concepts* focuses on the key skills needed by installers in a construction role and maintainers, or those wishing to enter the *Certificate IV in Electrical–Rail Signalling* stream.

Expert industry trainers. HRD trainers are experts in their field with national and international trade and training experience. Their detailed knowledge of all aspects of rail signalling control and wiring systems is backed by years of on–ground construction and maintenance experience.

Prerequisites

Participants must be:

- Enrolled in or have completed a *Certificate III Electrotechnology Electrician* (or equivalent), or hold an unrestricted electrical licence.
- Ideally (but not essentially) employed in a rail infrastructure role with access to essential equipment.

The HRD *Rail Signalling Control and Wiring System Concepts* course is a comprehensive program that develops competent, work–ready rail signalling wiring and equipment installers locally and nationally.

HRD–RS-CWS Rail Signalling Control and Wiring System training

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Rail Signalling Control and Wiring System Concepts
HRD Learning module overview

HRD's *Rail Signalling Control and Wiring System Concepts* course is a comprehensive program of learning and assessment providing the opportunity to develop competence in the knowledge and skills critical to a rail signalling installer role.

The course also offers an entry point into the *Certificate IV in Electrical–Rail Signalling* for apprentices and qualified electricians.

RS-3.1 Rail signalling systems concepts (5–7 days)

Pre-requisite: employment in related areas of the rail network; unrestricted electrical licence

This module provides a broad approach to:

- the fundamental principles of the jurisdictional signalling system of the learner cohort
- rail signalling equipment located in control rooms and wayside, including signal systems; signal equipment; train protection; points; track circuits; interlocking; and telemetry systems.

The participant will be introduced to signal control principles, plan reading and signalling circuits.

RS–3.2 Rail signal control systems concepts (5 days)

Pre-requisite: successful completion of RS–3.1

Learning for the RS–3.2 module emphasises the application of safe working systems and signalling systems.

Content also focuses on control systems; mechanical and relay interlocking; and level crossing controls.

RS–3.3 Rail signal wiring systems (5 days)

Prerequisite: successful completion of RS–3.2

The RS–3.3 (the 'wiring units') learning module covers the practice of wiring and cabling found in the signalling system. It includes practices of jointing and termination and cable specification.

RS–3.3.1 UEERS0001 Assemble and wire internal electrical rail signal equipment (16-20 hours) covers the regulatory requirements and work procedures for assembling and mounting components, performing internal wiring, terminating cables and wiring, and testing to certify equipment.

RS–3.3.2 UEERS0011 Install and maintain rail track circuit leads and bonds (8-12 hours) covers the regulatory requirements and work procedures for installing tack circuit leads and bonds to rail, and testing procedures to certify equipment.

RS–3.3.3 UEERS0019 Test copper rail signalling cables (8-10 hours) offers training in the fundamental principles and practices required to verify the insulation and continuity of a copper rail signal cable; and to record tests on a C/TC–3 and a C/TC–4 test result form.

RS–3.3.4 UEERS0017 Repair rail signal power and control cables (8-12 hours) provides learners with the knowledge and skills to safely isolate cables, and to use approved materials and tools to joint multi–core control and power cables.

The HRD assessment model

HRD Assessment

HRD's robust assessment practices have an eye to reliability, consistency and safety.

HRD uses a rigorous three stage assessment process for the *Rail Signalling Control and Wiring System Concepts* course:

- An assignment (with theory and practical components) is completed using local/ enterprise documents and work procedures.
- A theory assessment identifies learning gaps and confirms a learner's readiness to undertake the next training module.
- Workplace practical assessment (WPA) is the final measure of competence.

Workplace practical assessment

Workplacepractical assessment (WPA) measures competence more than once.

WPA typically occurs on a unit-by-unit basis. It asks the candidate to perform work tasks competently by demonstrating knowledge and skills according to safety-critical requirements and using organisational work orders or maintenance instructions.

Participants in the full *Rail Signalling Control and Wiring System Concepts* course typically undertake two WPAs for each unit of competency on completing the last training module.

A note about competence

A learner assessed as competent in a VET program has met a minimum national standard.

Competence doesn't mean that a graduate exiting training can work to the same level as an experienced employee. Graduates need mentoring and support to develop experience.

RPL

RPL for the 'Control and Wiring System' units' is available to eligible candidates who have currency of employment in signal construction.

HRD RPL assessment asks for quality, current evidence. Our view is that 'safety–critical' underpins competence in the rail context.

Practical skills demonstration to support documentary evidence is essential. This ensures that industry can be confident that the person can really do the job, *safely*, *today*.

RS–3 Assessment

- 3 research assignments (RS-3.1, RS-3.2, RS3.3)
- 2 written assessments (RS-3.1 and RS3.2)
- Workplace practical assessments:
  - 2 x UEERS0001
  - 2 x UEERS0011
  - 2 x UEERS0019
  - 2 x UEERS0017

The topics and subjects covered in this learning program meet the essential knowledge and skills of four units of competency.

Learning is contextualised to meet rail operator rail signalling practices and technologies.

HRD–RS-C3 Rail Signalling training

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