AUSTRALIAN RAIL TRACK CORPORATION LTD

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Signals Standards & Equipment Training

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Applicability

ARTC Network Wide	✓	**CRIA (NSW CRN)**	✓

Primary Source

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1 Introduction

1.1 Purpose

ARTC requires that all staff working on signalling infrastructure have appropriate competency in the equipment and are knowledgeable of the ARTC Standards, Procedures and Policies.

This standard defines the requirements for equipment specific signal training courses for ARTC personnel including contractors and consultants intending to work on ARTC signalling infrastructure. It also details requirements for the knowledge of the ARTC Engineering Standards and Signalling Standards.

1.2 Scope

This standard is applicable to training courses for all existing and new signalling equipment deployed in ARTC infrastructure and provides the guidance for parties providing equipment specific training courses to ARTC.

The Inductions detail requirements for knowledge of ARTC Standards.

1.3 Standard Owner

The Manager Standards is the Standard owner and is the initial point of contact for all queries relating to this standard.

1.4 Responsibilities

The Signalling Standards Engineer is responsible for the application of this standard and the oversight of the introduction of new equipment specific signals training courses.

Suppliers or contractors intending to supply new equipment to ARTC shall produce training courses materials in accordance with this procedure.

The individual is responsible to initiate the updating of his or hers Certificate of Competency following completion of a training course.

Project managers and contractors shall ensure that personnel who are required to work with the equipment have been trained in accordance with the approved course materials

1.5 Prerequisite Requirement

All contractors or consultants intending to carry out any work on ARTC signals infrastructure must successfully complete the applicable ARTC Signalling Standards Induction course. For further information refer to Section 2 Signal Standards Induction of this procedure.

1.6 Reference Documents

List any supporting documents that relate to this procedure, or are referenced within it.

The following documents support this procedure:

Reference Document No	Title / Description
Reference Doc 1	ARTC Signals Standards Induction course SI-001

1.7 Definitions

The following terms and acronyms are used within this document:

Term or acronym	Description
Australian Qualification Framework (AQF)	The Australian Qualifications Framework is a unified system of national qualifications in schools, vocational education and training (TAFEs and private providers) and the higher education sector (mainly universities).

2 Equipment Specific Course requirements

2.1 General

Signalling design, construction and maintenance personnel work with specialised signalling equipment as part of the signalling safety system. These personnel must be competent in the design, installation, operation and maintenance of this equipment.

Signalling equipment that is not covered by the Australian national competency in Electrical Technology – Rail Signalling Certificate IV requires a training course to be provided by the supplier or contractor delivering the equipment or system.

Signalling equipment suppliers are required to provide training course materials in specialised and proprietary equipment. These courses provide specific knowledge to the personnel in addition to the general competencies that the personnel already have in the use of signalling equipment. These courses may cover maintenance, installation or design issues for the equipment or a combination of these.

These courses are to equip respective personnel with the knowledge of the equipment and processes to enable the equipment to be correctly designed, installed, commissioned, tested, maintained and ultimately de-commissioned.

2.2 Design of Training Course

The design and preparation of the training course should be consistent with the standards required to meet the Australian Qualification Framework. The course documentation must include at least the following:

- Competency Standards
- Assessment Guidelines
- Qualifications Framework
- Learning Strategies
- Assessment Resources
- Capability Development

Training courses are to be designed for delivery by suitably qualified and experienced personnel. The course materials are to be available and suitable for self paced refresher training.

Separate courses may be required to cover design, construction and/ or maintenance of new equipment.

Details for refresher training courses (No. years).

2.3 Curriculum Outline

A training course must have a Curriculum Outline that covers at least the following topics:

- Course Title;
- Prerequisites and /or Co requisites for personnel to undertake the course;
- Target Group for the course;
- Nominal Duration of the course;
- Course Purpose Statement and Objectives;
- Course Content;
- Resources required to deliver the course and where any special resources may be obtained;
- Learning Outcomes;
- Delivery Strategy;

- Assessment Strategy;
- Relationship to competency standards;
- Trainer and assessor qualifications.

Details for each of these topics are to be provided in the standard form. See Attachment 1.

2.3.1 Prerequisites

Course designers are to advise other prerequisite or co-requisite training, qualifications or competencies required for anyone attending the course.

2.3.2 Target Group

The course designer shall identify the range of signalling personnel or other technical personnel who will undertake the course. This shall also take into consideration the activities that each of these personnel will perform in relation to the equipment.

2.3.3 Course Duration

The course designer shall outline the course duration including time for demonstration and assessment. If pre-reading is required then the time for this shall be indicated. If the course takes multiple days then the time for individual topics within the course shall be indicated.

2.3.4 Course Purpose Statement

The Purpose Statement is to indicate the competencies that the course attendees are intended to attain.

It may also indicate pathways to other courses for other competencies.

2.3.5 Course Content

The course content shall fully address all knowledge and skill that the student must attain to be competent in the nominated task or tasks.

Additionally, where signal personnel may need to reference information about the equipment when performing tasks on the equipment, then the source and availability of this information is to be clearly instructed. This information may be available via ARTC intranet/extranet or other sources

2.3.6 Resources

Typically the following course materials shall be provided by the course designer.

1) Pre-reading materials provided or identified
2) The course presenter training notes and PowerPoint presentations
3) Student notes. This should cover the topics in the PowerPoint presentations and include additional material for the student to understand the topic.
4) Equipment required for practical demonstration to be identified. This should include any details for the safe use, set up and operation of the equipment. This may also include system data or configuration information for practical examples.
5) Assessment materials.

2.3.7 Learning Outcomes

This section of the curriculum is to state clearly the knowledge the student will acquire by successfully completing this course. This shall be described in terms of specific skills, activities and competencies.

For example:

Task	Sample Outcome
Design:	Able to design an application for the equipment and interface to field equipment
Installation:	Able to install, set to work, adjust and certify equipment.
Maintenance:	Able to maintain and fault find the equipment and to certify correct operation

2.3.8 Delivery Strategy

A variety of delivery strategies are acceptable such as self-paced, learning from books and manuals, on-line course, or a class room session with an appropriately qualified trainer. The method of delivery must be matched to the complexity of the course content and training material available.

2.3.9 Assessment

The Assessment process shall confirm that the student has attained the nominated competencies. This shall be demonstrated by both knowledge of the equipment/system and ability to use, maintain or operate the equipment or to undertake design as the case may be.

The pass criteria for the assessment shall be clearly stated.

Personnel undertaking these courses are required to demonstrate they have achieved the nominated competency levels by completing an assessment by an Approved Assessor applying an approved assessment process.

Approved assessment processes may include:

- a written knowledge test and
- practical tests using the equipment or a simulator,
- practical examples of design where appropriate.

Written knowledge tests may be undertaken on hard copy questionnaire or an on-screen test that may require answers to be forwarded by email. Practical tests should include the equipment in normal operation and induced out of parameter performance of the equipment.

The assessment process is to be fully described in the course detail which is to be accepted by ARTC prior to implementation.

All assessments shall be documented and include all details of the items successfully demonstrated.

At the completion of the assessment, the results shall be reviewed with the student. If the student meets the pass level, the student shall sign the record of assessment to confirm that he/she understands the equipment/system and is confident of his/her ability to work with the equipment.

The course designer shall provide the following:

- Written materials for practical assessments;
- Provide acceptable answers for written assessments and assessment notes for practical assessments;
- Provide details of the pass criteria for the assessments.

2.3.10 Assessment Record

A formal record of the assessment shall be made and retained by the Training Provider. This Assessment Record is to include the signature by the student confirming his understanding of the course objectives, his understanding of the equipment or system and shall be signed on the Assessment Record.

The student shall be provided with a statement of attainment related to the learning outcomes of the course completed.

2.3.11 Relationship to Competency Standards

This shall indicate if the course is mandatory or a pre-requisite for a competency or for another course.

2.4 Trainer and Assessor Qualifications

The Trainer or Assessor undertaking a training course or assessment shall have a minimum of the three competencies from TAA40104 'Certificate IV in Training and Assessment'. The required three competencies are:

1) TAADES401A - Use Training Packages to meet client needs, or TAADEL404A - Facilitate work based learning;
2) TAAASS401A - Plan and organise assessment;
3) TAAASS402A - Assess competence.

If the Trainer or Assessor does not have the above competencies but can demonstrate equivalent competencies this shall be acceptable, subject to ARTC review.

For practical assessments the trainer must also possess current qualifications in the competency or competencies being assessed along with a minimum of two years' practical experience in each of the competency being assessed.

Note: Assessors who hold BSZ401A, BSZ402A and BSZ403A from the Training Package for Assessment and Workplace Training (BSZ98) do not have to upgrade their competencies to comply with the revised Australian Quality Training Framework (AQTF) standard.

2.5 Course Acceptance

Acceptance of these courses will be carried out by ARTC as a two step process. Contractors offering such courses are to submit the course for acceptance as follows:

1) Submit curriculum outline – allow 2 weeks for assessment and response by ARTC
2) Submit Course Materials – allow 4 weeks for assessment and response by ARTC

The submissions are to be submitted to the ARTC representative nominated for the project.

3 Signals Standards Induction Course

3.1 Introduction

ARTC requires that the design, installation and maintenance of its infrastructure is in accordance with the ARTC engineering standards, procedures and practices. Personnel who are to undertake these activities shall be familiar with and have access to the ARTC standards procedures and practices which are detailed in the ARTC intranet and engineering extranet.

Signal technician (electrician), signal engineers and related personnel shall undertake the Signal Standards (SI-001) induction course and be assessed on these materials.

Other trades and semi-skilled personnel shall undertake the Signalling Installation Guidelines (SI-003) induction course and be assessed on these materials.

3.2 Prerequisite Qualification

The ARTC Signals Standards Induction course has been prepared to

- Assist all signals personnel in navigating around the ARTC Extranet site
- Help identify and access key Signalling Standards and documents

The ARTC Signals Standards Induction course **is a prerequisite qualification for all staff, contractors and consultants working for ARTC on ARTC signalling infrastructure.**

3.3 Course Descriptions

The ARTC Signals Standards Induction course (Reference Documents 1) conforms to this Procedure. They are self-paced courses and available on the ARTC Intranet.

SI-001 – ARTC Signalling Standards Induction course. For all Signal Technicians, Signal Engineers and signal Project Managers.

3.4 Target Audience

The target audience for the Signals Standards Induction course is all signals personnel.

This includes contractors and consultants who intend to carry out work on ARTC signals infrastructure including but not limited to:

- Design Engineers
- Construction Engineers
- Commissioning Engineers
- Test Engineers
- Project Managers/Team Leaders
- Maintenance personnel
- Signal Technician (Electrician) – maintenance and / or construction

3.5 Self Assessment and Approved Assessors

For contractors or consultants the Assessment requirements for this course are to be carried by appropriate personnel from their own organisation or another appropriate organisation.

The personnel shall meet the requirements detailed under the trainer qualifications in the curriculum outline.

3.6 Assessment Records

The organisation shall be responsible for retaining all Assessment Records for future reference or audit by ARTC or other authorised parties.

Students shall be provided with a statement of attainment.

3.7 Course Content

The course covers the following areas:

- Overview
- Accessing ARTC Standards
- Recent Change Register
- Common Signalling Standards
- NSW Signalling Standards
  - Design
  - Construction
- Policies and Procedures
- Technical Bulletins
  - Engineering Notes Manuals
  - Engineering Instructions
  - Type Approvals
  - Waivers
- Drawing Management System

3.8 Curriculum Outline

The Curriculum Outline for the ARTC Signalling Standards Induction is provided in Attachment 3.

3.9 Course Assessment Criteria

The course assessment criteria will be issued by ARTC upon request from the Approved Assessor.

4 Attachment 1 – *Curriculum Outline* (example only)

Engineering (Signalling) Standard - Form
EST-20-01 Signals Standards & Equipment Training

Form number: EST2001F-01

Curriculum Outline	
Module title & code	
Prerequisites	
Target group	
Nominal duration	
Purpose statement and objective	
Course content – training	
Resources required for this module	
Learning Outcomes	
Delivery strategy	
Assessment strategy	
Relationship to competency standards	
Trainer and assessor qualifications	

Example Only

Course Curriculum drafted by (Course Provider):

Name: . . . . . Signature: . . . . .

Title: . . . . . Date . . . . .

Organisation: . . . . .

Course Curriculum approved by (ARTC):

Name: . . . . . Signature: . . . . .

Title: . . . . . Date . . . . .

5 Attachment 2 – ARTC Signalling Standards Induction Course

The ARTC Signalling Standards Induction Course is available from ARTC.

6 Attachment 3 – ARTC Signalling Standards Induction Course SI-001 Curriculum Outline

Curriculum Outline – SI-001	
Module title & code	Signalling Standards Induction – SI 001
Prerequisites	Experienced signalling staff working in design, construction, maintenance or project management. Basic understanding of how to apply ARTC standards; Windows operating environments and ARTC Intranet/Extranet.
Target group	All signals staff working for ARTC, contractors or alliance partners who will be working on projects or other activities involving ARTC infrastructure.
Nominal duration	4 hours covering self study and assessment and review with assessor.
Purpose statement / terminal objective	To provide signalling staff with the knowledge of the range of ARTC standards documents, how to access these documents and how to identify new and updated documents.
Core content – training	• Introduction • Overview of ARTC Standards and location of the Engineering Extranet. • Groups of general standards • Signalling Standards type and location • Common Standards • NSW Standards • New Equipment & Type Approvals • Policies & Procedures • Engineering Instructions • Waivers • Engineering Notes • Technical Bulletins • Use of Engineering Forms • Updated Standards List • FAQ's
Resources required for this module	Computer with access to ARTC Intranet or Engineering Extranet. Assessment Questionnaire. Assessor Evaluation Forms.

Curriculum Outline – SI-001

Learning Outcomes	At the end of the module, signalling staff will be able to: 1. Access ARTC Signalling Standards on the ARTC Intranet or Engineering Extranet; 2. Understand the full range of Signalling Standards and related documentation; 3. Determine the appropriate standard for a particular signalling requirement; 4. Determine where to find standards for a particular signalling function; 5. Check for New Equipment Approvals; 6. Check recent updates to standards; 7. Check Engineering Instructions; 8. Identify procedures and forms to be used.
Delivery strategy	Facilitator-led classroom session using a computer with access to Engineering Extranet or a Self Paced Training Course.
Assessment strategy	Written questions and one practical exercise using Intranet/Extranet and email access.
Relationship to competency standards	**Mandatory to pass this course or approved alternative prior to issue of ARTC Signalling Certificate of Competency.**
Trainer qualifications	Competent in BSZ 403A (Workplace Assessor) 404A (Train Small Groups) modules; • TAADES401A - Use Training Packages to meet client needs, or TAADEL404A - Facilitate work based learning; • TAAASS401A - Plan and organise assessment; • TAAASS402A - Assess competence. Or Competent and experienced in delivering Signalling training.

Course Curriculum drafted by (Course Provider):

Name: . . . . . Signature: . . . . .

Title: . . . . . Date . . . . .

Course Curriculum approved by (ARTC):

Name: . . . . . Signature: . . . . .

Title: . . . . . Date . . . . .