



## Track Circuit Bonding Design Course

### Aim

This course will enable a signalling designer to progress to the production of track circuit bonding design for non-electrified and AC electrified lines. The participant should already be familiar with signalling plans and basic signalling principles.

### Course Outcomes

#### Track Circuited Concepts:

- Basic Track Circuit Operation
- Series and Parallel Bonding
- Permitted Spurs
- Electrical and Physical Stagger
- Double Rail, Single Rail and Common Rail Configurations
- Fishplate Bonding, Jumper Bonding & Red Bonding
- Track Circuit Interrupters

#### External Factors Affecting Track Circuit Design

- Constraints on Joint Positions related to vehicle dimensions
- Constraints on Joint Positions imposed by track engineering
- AC Electrification Principles
- Traction Bonding Appreciation

#### Bonding Design Process (RT/E/S/1175 Train Detection)

- Constraints and Ground Rules
- Preparation
- Basic Arrangement
- Spurs from series bonded rails
- Parallel bonded rails
- Switches on parallel bonded rails
- Agree IRJ positions

#### Bonding Design Exercises

- Simple arrangements
- Full design from 1:100 plan

### Assessment and Certification

The outcome of the course will be assessed by a written design assessment.

### Practical Information

Duration: 5 days

Location: at our Derby training centre, or on your premises (subject to equipment availability)

Maximum number of delegates: 8

This course is produced and run by Signet Solutions.

For further information contact us:

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## Course Progressions

We offer many signalling technical courses, and it can be difficult to work out what's best for your needs. The following table will assist you.

### \*Development Courses in green text

These courses typically form the backbone of a career development path, and are usually taken in the order shown. *Available on an "open" basis, in which you can take individual places from our regular timetable.*

### \*Supplementary Courses in blue text

These courses provide supplementary knowledge about a specific technology or process. They can generally be taken on an "as needed" basis, without any particular order. *Available on a "private" basis, in which you sponsor the delivery of a full course. This works better for four or more delegates.*

***This is just a quick guide – please consult our individual course specifications for more detailed information. Please ask us if you have any queries.***

Signal Maintenance & Signal Installation	Signal Design	Signal Works Testing
Introduction to Signalling/ Basic Signalling 1 & 2	Basic Signalling Technology Intermediate Signalling Technology Layouts Intermediate Signalling Technology Control Tables Advanced Signaling Technology	Introduction to Signalling/ Basic 1 & 2 Mod 5 - Test Assistant Mod 3c - Verification Tester Mod 3BL - Functional Tester Mod 4 - Functional Tester Mod 2 - Principles Tester Mod 1 - Tester in Charge
SMTH - Signalling Maintenance Testing Handbook Appreciation Route Relay Interlocking - Maintenance Interlocking Design Clamp Lock Installation Clamp Lock Maintenance Cable Jointing Supplementary Back Drives + Stretcher Bars EISS Electrical Installation Skills Electrical Principles Style 63 Points Installation Style 63 Points Maintenance Westpac MK111A Maintenance + Faulting HW100 Points Maintenance EBI Track 200/T121 Track Circuits Fault Finding Techniques Mechanical Signalling	Route Relay Interlocking Route Relay Interlocking - Maintenance + Faulting Western Region E10k Circuitry Correlation Westpac MK11A - Design Location Design Project Level Crossing Design SSI Appreciation SSI Control Tables SSI Data Appreciation SSI Data Preparation Route Relay Interlocking - Mod 3BI Westpac MK11A - Testing	