



## ETCS/ ERTMS Appreciation and Application for Irish Rail

This is a suggested course outline based on an initial conversation; please feel free to re-request specific requirements.

### Aim

This course will enable a railway signal engineer to identify the key effects of the implementation of ERTMS/ ETCS on an existing railway.

### Key Features

- ERTMS trackside Levels
- ETCS trainborne Modes and Mode Profiles
- ERTMS jargon is explained in clear English terms
- “Before and after” signalling plan and performance comparisons for ERTMS Levels 1, 2 and 3
- Comparison of Iarnród Éireann Hybrid System (IÉHS) against levels 1 & 2 options
- Typical configurations of trackside, interlocking and RBC equipment
- ERTMS information and calculations
- Release Speeds and Overlaps
- Placing Marker boards, Ends of Authority, Supervised Locations and Balises
- Headway calculations for ERTMS
- Exercise: Signalling a Layout for ERTMS, covering a wide variety of lifelike situations
- Interpreting the implementation of Levels 1 & 2
- Making provision for unfitted and fallback operation

The trainborne Driver-Machine interface

### Course Outcomes

On successful completion of this course, the delegate will be able to describe how the future Application of ERTMS will affect the current technical and operational practices.

### Certification

The delegate’s achievement of the Course Outcomes will be confirmed by a certificate of attendance which will be forwarded to the nominated client contact following the course.

### Pre-Requisites

A well prepared delegate is expected to be familiar with conventional signalling principles and layout plans for Irish Rail signalling installations.

### Practical Information

Duration: 5 days

- Location: At our Derby training centre, or on your premises.

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	