

# Training Courses



## Scheduled Courses

Face-to-Face at Eurofins York



## Online Training

E-Learning on-Demand



## Bespoke Training

Tailored to Your Requirements



## In-House Courses

Face-to-Face at Your Location

# Training Courses

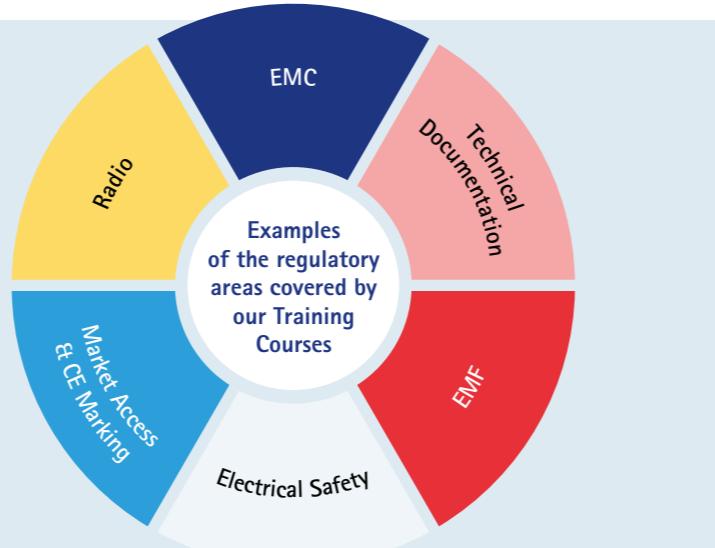
## An Introduction

Eurofins York (formerly York EMC Services) has an international reputation for providing high quality training courses for individuals and organisations. Whether it be our introductory essentials courses or our more advanced and in-depth courses, delivered online or face-to-face, our portfolio is designed to meet everyone's training needs. Attending our courses enables manufacturers to get their products to market in a timely and cost effective manner.

### About us

As a former subsidiary of the University of York (UoY) we commenced delivering bespoke EMC training in 1982 and since then our highly qualified and experienced engineers and UoY academics continue to present our courses. Many have international reputations with a history of presenting technical papers at conferences throughout the world.

Our presenters have a wealth of practical experience in their field of expertise. Above all, our courses are designed to address real-world issues facing manufacturers and their supply chains.



Our training portfolio covers key regulatory areas including the CE Marking Directives and is available through a variety of learning methods and for differing levels of pre-existing expertise.

### Overview

- **Scheduled** face-to-face courses held at Eurofins York covering:
  - **Essentials**; 1 or 2 day courses covering Regulatory, Design and Measurement Essentials
  - **Fundamentals**; unique 5 day courses providing comprehensive and in-depth understanding
  - **Knowledge Base**; advanced courses for those needing to go beyond the Essentials
- **Online Training**; online training through York Training Academy's E-learning Modules
- **Bespoke courses**; training tailored to your company's specific requirements
- **In-House**; face-to-face training at your location

All of our training courses count towards the continuing professional development (CPD) of chartered engineers, or those working towards their chartered status with professional institutions such as the Institution of Engineering and Technology (IET).

**“**I thoroughly enjoyed the course and came away having learned a great deal. It has changed the way I work – I now approach tasks with EMC in mind which makes for a whole different way of thinking, but one which is necessary in the modern world.

Electronics Technician, First Great Western

**“**I really enjoyed being taught by two knowledgeable and professional lecturers who obviously know their subject well.

Project Engineer / Manager, Carillion Rail

**“**Our in-house course was delivered in a professional and friendly manner by a knowledge and well-presented trainer.

Systems Engineering Manager,  
Balfour Beatty Rail

# Training Courses

## Regulatory Essentials

**6**  
CPD HOURS

### The EMC Directive Explained 1 day

This one-day course provides a full understanding of the EMC Directive, the regulations and the supporting standards. It includes comprehensive guidelines on both the technical and administrative requirements including the contents of Technical Documentation and the Declaration of Conformity (DoC).

Electrical products are required to comply with the new EMC Directive 2014/30/EU (which replaced 2004/108/EC on 20<sup>th</sup> April 2016). The implications of the changes for manufacturers and the supply chain are presented in full.

**6**  
CPD HOURS

### Essentials of Railway EMC 1 day

EMC is an important aspect of ensuring a safe and reliable railway and this course provides an understanding of how to manage the process to ensure that this is achieved.



All those involved in the railway industry, from manufacturers of new equipment, systems and rolling stock; refurbishers of existing assets to builders of new infrastructure will learn how EMC applies to their projects, what their regulatory obligations are and what documentation they will be expected to produce.

**6**  
CPD HOURS

### The Low Voltage Directive Explained 1 day

This course provides manufacturers of electrical and electronic equipment with an understanding of the Low Voltage (LV) Directive and how it aims to ensure that only electrically safe products reach the market. Key safety features are presented highlighting their relevance to designers and approvals engineers and reinforced by a description of the testing required to demonstrate compliance with common safety standards.

Electrical products are required to comply with the new LV Directive 2014/35/EU (which replaced 2006/95/EC on 20<sup>th</sup> April 2016). The implications of the changes for manufacturers and the supply chain are presented in full.

**6**  
CPD HOURS

### The Radio Equipment Directive Explained 1 day

From 13<sup>th</sup> June 2016 onwards, most products with an intentional transmitter and sold in Europe need to conform to the new Radio Equipment Directive (RED) 2014/53/EU, which has replaced the Radio and Telecommunications (R&TTE) Directive 1999/5/EC as the basis for CE Marking. The RED contains some significant changes for both manufacturers and the supply chain. This course explains both the technical and administrative requirements of the RED and how they differ from those of the R&TTE Directive.

**5.5**  
CPD HOURS

### The EMF Directive Explained 1 day

This one day awareness course provides an overview of the effects of human exposure to electromagnetic fields (EMFs) and the latest ICNIRP guidelines and European legislation. It explains processes for managing, measuring and reducing exposure to electromagnetic fields where necessary and the standards against which these are assessed.

The new EMF Directive 2013/35/EU came into force on 1<sup>st</sup> July 2016 (replacing the previous EMF recommendation 1999/519/EC), limiting the exposure of workers to levels of magnetic, electric and electromagnetic fields considered to be harmful.

**6**  
CPD HOURS

### The Automotive Regulations Explained 1 day

Almost all electrical and electronic devices fitted to most road-going vehicles, including after-market equipment, have to comply with UNECE Regulation 10.04.

This course provides manufacturers with a detailed understanding of the automotive EMC regulations and how they apply to different types of products. It also includes an in-depth treatment of the challenges of the relevant EMC standards when applied to new and emerging technology.

## Training Courses

### Design Essentials

#### EMC Design

2 days

13  
CPD HOURS

The use of good EMC design from the start of a development project is an essential ingredient to minimising costs and ensuring that products get to market as quickly as possible. This course both describes and demonstrates the key principles and practical aspects that product designers need to consider including shielding and filtering, PCB and circuit design and power supply topology. The presentations are interspersed with a combination of live and pre-recorded practical demonstrations to illustrate important principles and techniques.

### Measurement Essentials

#### Testing to the EMC Standards

2 days

12  
CPD HOURS

This two-day course provides an understanding of the basics of EMC, the EMC Directive and the principal EMC tests. It also provides an insight into the different levels of EMC testing and how they can be most effectively used throughout the compliance process.

Day one consists of a series of presentations introducing EMC, EMC standards and the type of EMC tests that are commonly performed. Day two consists of a series of interactive demonstrations in the laboratory showing how the principal EMC tests are carried out and the test equipment required. Small groups allow full interaction with experienced EMC test personnel.

13  
CPD HOURS

#### EMC Measurement Environments

2 days

This in-depth course is primarily aimed at engineers who need to extend their understanding of the complex issues involved in making EMC Measurements. It covers a wide range of electromagnetic compatibility (EMC) measurements in a variety of test environments and focuses on the 'science' behind the measurements as well as the measurements themselves.

The course is recommended for any engineer making or specifying EMC measurements, or design engineers and others wishing to understand EMC measurements.

6  
CPD HOURS

#### Ensuring Confidence in EMC Measurements

1 day

All accredited testing and calibration laboratories operate in accordance with ISO 17025 which has, as one of its central requirements, the need to "assure the quality of the result" by validating and verifying test equipment and test set-ups. Also key is the need to generate measurement uncertainty budgets.

This one-day course demonstrates how measurement confidence can be increased in a practical and cost effective manner.

### Fundamentals

#### Fundamentals of EMC

5 days

34  
CPD HOURS

Fundamentals of EMC is a highly recommended, unique five-day course that will provide you with the design and testing knowledge required to help manage EMC and achieve EMC assurance for complex projects, or for EMC product compliance.

This course covers the basics of EMC from its underlying theory through to best practice EMC design requirements. EMC standards, the regulatory environment of testing and EMC compliance process are also fully explained along with the implications of the new EMC Directive 2014/30/EU.

Also included is a practical course held at one of our UKAS accredited laboratories to illustrate the commonly required EMC tests such as conducted emissions, radiated emissions, conducted immunity and radiated immunity.

34  
CPD HOURS

#### Fundamentals of EMC in Railways

5 days



This unique five-day course provides an in-depth study of the complex railway EMC environment, demonstrating the importance of managing EMC from project conception to completion. You will gain an understanding of the railway electromagnetic environment, how to identify the principal threats to EMC, the coupling mechanisms which may arise and how to practically immunise railway assets.

Topics covered range from aspects such as the effect of different power feeding arrangements, to those not traditionally associated with EMC, for instance the effects of earthing strategies on 'touch' potentials and stray current control. EMC Management Strategies, Standards, the regulatory process and the implications of the new EMC Directive 2014/30/EU are also covered in depth. EMC measurements are explained and the course concludes in a full day's practical training at one of our UKAS accredited laboratories to illustrate commonly required EMC tests.

## Training Courses

### Knowledge Base

#### Understanding Electromagnetics

2 days

12  
CPD HOURS

Electromagnetics is the underpinning science that defines all electronic engineering. This course is designed to take the mystery out of the subject by presenting it in an applications orientated manner.

The course comprises a basic introduction to electromagnetics which can inform other studies on topics such as antennas, propagation and EMC. It is ideal for engineers needing to have a basic understanding of the electromagnetic phenomena encountered in their workplace.

12  
CPD HOURS

#### Understanding Antennas

2 days

Antennas are found in all radio based communications systems. The properties and performance of antennas is a key determinant in the design of much of the rest of a communication or measurement system. This course describes the properties of antennas as system elements and illustrates the principles with descriptions of a selection of commonly encountered antenna types.

Basic ideas of electromagnetics and communication systems are used to describe the operation of antennas in a communications system. This course would suit engineers needing to appreciate the operation of antennas in a modern communications environment.

6  
CPD HOURS

#### Understanding Transmission Lines, Screening & Cabling

1 day

This course covers both the fundamental theory of transmission lines and its practical application to propagation, impedance matching, coupling and crosstalk, especially in the fields of EMC and RF communications. It is relevant to engineers working in fields such as EMC, digital circuit design and RF and microwave communications who require an understanding of transmission line theory and its applications to crosstalk, cable screening and related areas.

6  
CPD HOURS

#### Understanding Reverberation Chambers

1 day

This one-day course provides an introduction to the reverberation chamber as a measurement environment, and discusses the operation and underlying physics involved.

Course attendees can expect to learn how the chamber works and how and when it is advantageous to apply a reverberation chamber over a traditional semi or fully anechoic.

## Online Training

E-learning offers the flexibility to watch, listen and learn online, whenever and wherever is convenient, providing individuals and businesses alike with the ideal solution for accessing essential training without the downtime of leaving the office.



### York Training Academy

York Training Academy, a division of Eurofins York, offers a selection of its face-to-face courses as on-demand E-learning modules.

Users can purchase single modules on particular topics of interest, multiple modules to build a standard course, or pick and choose different modules to produce a bespoke training course that best suits their needs.

The E-learning modules are available through our website [www.yorkemc.com](http://www.yorkemc.com) with new ones being regularly added. Please contact us to ensure you are kept up to date with the latest additions.



## Bespoke and In-House Training

Many organisations can benefit from bespoke training programmes and courses, tailored specifically to their needs.

In addition to our comprehensive training schedule, our courses can be adapted or developed as a bespoke solution to your organisation's individual requirements. These courses can be in many forms from one-day "Introductory" awareness activities through to programmes with several multi-day courses.

With 30 years' experience as a training provider and links with the University of York, we are experts in developing bespoke solutions.

We can develop or adapt any of our training courses to ensure your employees are provided with the level of training most appropriate to them.

Costs can be minimised by drawing on our extensive range of course modules involved in our scheduled and online courses, or we can prepare teaching materials directly addressing your specific brief.

## About Eurofins York Your Smart Route to Compliance

**York EMC Services**

Eurofins York (formerly York EMC Services) is an organisation with over 25 years experience providing regulatory and compliance consultancy, compliance testing, certification, training and instrumentation.

We are owned by Eurofins Product Testing which provides global testing and compliance services to clients across multiple industries.

We operate from four sites across the UK which includes three UKAS accredited test laboratories, near Bristol, Leeds and in Grangemouth, with our headquarters in York.

**“** I would like to express my thanks for completing the Safety testing of our Mains Filter Module; once again Eurofins York has carried out a most professional and bespoke service at the pace which we required. Eurofins York has consistently maintained a first class track record throughout many years of trading, much to the credit of the excellent staff and management.

Compliance Manager, SG Gaming

### Benefits

Cost and time away from the office are often the main barriers to training. In-house courses offer an alternative that can be a more cost-effective and flexible approach to learning. Training can be held at your premises or a venue of your choice, reducing the need for employee overnight stays and travel expenses.

We have extensive experience of working with organisations to develop new bespoke training covering a broad spectrum of topics from a design, test or regulatory perspective.



### In-house courses have been provided to a variety of organisations including:

- AD Comms
- BP
- BT
- Angel Trains
- Alstom
- Carillion
- COMREG (IRL)
- DSRL (Dounreay)
- Duco
- GE Aviation
- HMNB Clyde
- Home Office
- Invensys Rail
- Geoquip
- GP CLBT (PI)
- Government Agencies
- Leonardo
- NATO
- Network Rail
- Nuclear Engineering
- Ofcom
- Pace
- QA
- RAIB
- Rohde & Schwarz
- Siemens

### Subjects have included:

- Introduction to EMC
- EMC Directive and Technical Documentation
- EMC Design
- EMC Testing
- EMF Awareness & Measurements
- EMC in Railways
- Modulation and Coding
- Analogue Electronics for Digital Engineers
- Fundamentals of Electromagnetics
- Electrical Safety
- Machinery Safety
- Principles of Transmission Lines
- Principles of Antennas
- European Automotive EMC Regulations
- Small Terminal Satellite Systems (VSATs)

### Our service portfolio covers:

- EMC and electrical safety testing
- Radio equipment testing
- Electromagnetic site surveys
- EMC, Radio and Safety Consultancy and Research
- Electromagnetic modelling
- Training

### Our instrumentation portfolio covers:

- Broadband reference sources
  - Dual mode comb / noise generators
  - Comb generators
  - Noise generators
- Harmonics and flicker generators
- Compact wideband antenna
- Cable coupling clamp



**“** The service we received from Eurofins York was exceptional, they are experts in their field and went above and beyond what was expected from them. The advice that was offered regarding ways to reduce EMF in the workplace was gratefully received and we have implemented some of the ideas already.

Senior Facilities Engineer, Cummins

**“** Eurofins York always had the best engineers in the business and now they have the equipment and facilities to match!

John McManus, Senior Engineer, Bibliotheca Ltd

**To contact us**

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## Your Smart Route to Compliance

- **Compliance Testing**
- **Consultancy Services**
- **Training**
- **Test Instrumentation**

