

# Wind Farms - a project manager's guide to the electrical aspects

## Course overview

The early recognition of potential issues and the early introduction of project planning interventions are essential for the smooth delivery of wind farm projects.

This course is designed to help project managers and other engineers, who may not be experienced in electrical engineering, to understand these issues and formulate appropriate solutions.

The course will give you a comprehensive overview of electrical design, standards, procurement and testing for all the required equipment, including switchgear, transformers, cable systems, protection, earthing and enclosures, as well as looking at distribution, transmission and network connections.

Please note that this course is only intended as a general introduction to electrical engineering equipment, principles and practice. For a more in-depth understanding of switchgear, transformers, cables, protection, network planning or distributed generation, please see our range of more detailed courses.

**Cost:** Two-day course: £935 + VAT

**Location:** EA Technology, Capenhurst, Chester, CH1 6ES

## Who should attend?

This course is aimed at all parties involved with renewable energy generation and its connection to the electrical power network who need a basic understanding of the electrical engineering principles involved. This includes engineers and managers from the planning, design, installation and operation sides of generation, along with consultants, project managers, contractors and construction companies. You do not need an electrical engineering background to attend this course, although a basic understanding would be useful.

## Benefits of attending this course

- Gain an overview of the benefits of reducing carbon emissions
- Appreciate the risks and financial gain of wind farms
- Develop a robust overview of the principles of wind generation distribution
- Understand the important parameters in specification, installation and commissioning
- Spot problems early and devise appropriate solutions in advance
- Ensure smooth delivery of your wind farm project

Substations Courses

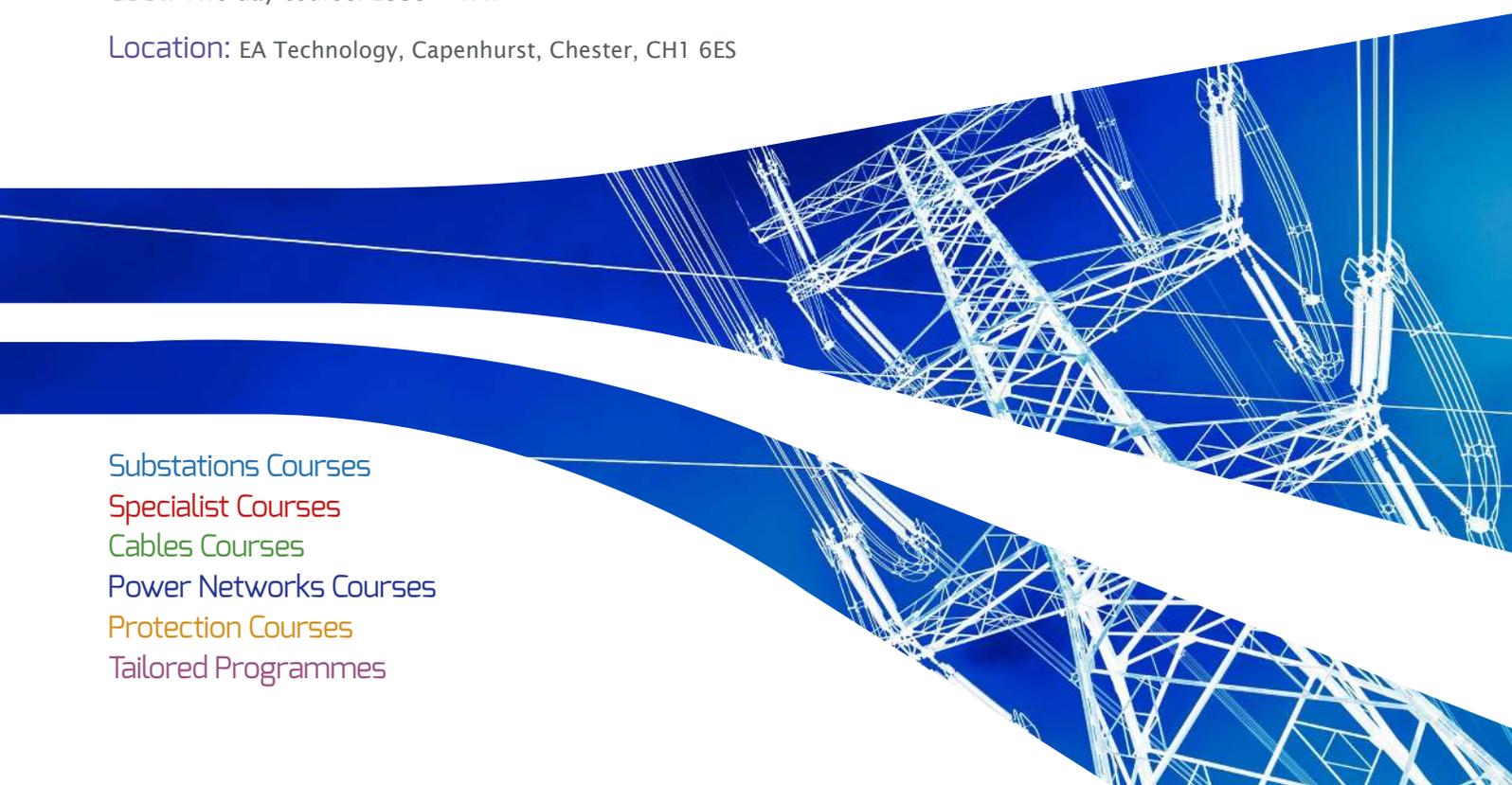
Specialist Courses

Cables Courses

Power Networks Courses

Protection Courses

Tailored Programmes



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## Course programme

### Day one

#### Introduction to Wind Farm Electrical Networks

- The national scene
- A wind farm project
- Wind farm electrical infrastructure
- Electrical terminology

#### Switchgear and Enclosures

- Types of switchgear and their implications
- Mechanisms, VT and other ancillaries
- Fault Level and performance
- Installation in restricted spaces
- Commissioning and testing

#### Standards, Testing and Procurement

- Differences in specification and standards
- Ensuring quality in procurement

#### Transformers

- Types of transformer used in wind farms
- Performance and rating
- Ensuring an expected life

#### Network Interface

- Grid code compliance
- Interfacing with the DNO (and National Grid)
- The process, steps and timescales

### Day two

#### Protection for Medium and Large Wind Farms

- Background regulations, standards and specifications
- Requirements for protection and earthing systems in wind farms
- Types of protection relays and systems
- Application of protection to interconnect wind farms with electricity systems
- Wind Farm internal protection
- Example designs
- Commissioning and testing

#### Earthing Systems, for Medium and Large Wind Farms

- Background regulations, standards and specifications
- Requirements for earthing systems
- Review of the purpose of the earthing system
- Earth system design methods and parameters
- Rise of earth potential and issues arising
- Earth systems for lightning protection
- Installation, commissioning and testing
- Example designs

#### Power Cables

- Standards and specifications
- Cables materials and construction
- Cable ratings

Programme may be subject to amendment



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