

# Understanding Power Quality

# COBHAM

## Date to be confirmed

Cobham Technical Services  
AccessERA



A reliable supply of high-quality electrical power is essential for business-critical manufacturing operations and information systems. Poor power quality can risk disruption to production processes and damage to sensitive equipment.

This popular two day training course is designed for engineers involved in the management and maintenance of electrical power quality, including building owners, facilities managers, consulting engineers and electrical power system engineers. It covers the key requirements for power quality to ensure electrical systems operate effectively with no loss of performance and provides delegates with vital knowledge about power quality measurements and problems that can arise from harmonics and voltage fluctuations. It includes an update on current power quality standards, the usual cause and effects of power disturbances and how to resolve them.

### Your programme

#### Day one

**08.45** Registration and refreshments

**09.00** **Harmonics tutorial**

- What are harmonics?
- Why harmonics are important?
- Effects on harmonics.

**09.30** **Overview of Power Quality (PQ)**

- Standards
- Terminology and definitions
- Cause and effects.

**10.30** Refreshments

**10.45** **Monitors and recorded information**

- The types of equipment available
- Uses and benefits
- Type of data recorded.

**11.00** **Conducting a PQ survey**

- Methodology
- Aims and objectives
- Monitoring locations
- Collection of data.

**12.35** Lunch

**13.30** **Introduction to PQ instruments**

- Instrument range
- General capability
- Unique features.

Presentations by:

John Outram from Outram Research Ltd  
(Ranger PQ)

Ian Murdoch from IMH Technologies Ltd  
(Dranetz-BMI)

Steve Robinson from Power and Energy Monitors Ltd  
(FLUKE).

**14.15** **PQ instrument application workshop**

Tuition provided in three parallel  
45 minute sessions covering:

- User interface
- Setting and trigger options
- Data download.

**15.00** Refreshments

**15.15** **PQ instrument application workshop continued**

**16.45** **Group discussion**

**17.00** Close.

#### Day two

**08.45** Refreshments

**09.00** **Data analysis**

- Case studies
- Analysis of real data.

**10.30** Refreshments

**10.45** **Data analysis continued**

- Comparisons of waveforms and RMS data
- Understanding and linking information.

**11.30** **Harmonics and G5/4 survey**

- Methodology
- Procedures and processes
- Data collection.

**12.30** Lunch

**13.30** **PQ Solutions**

**15.00** Refreshments

**15.30** **Voltage dip mitigation**

**16.30** **Discussion**

**17.00** Close.

### Ever thought about in-company training?

This course can be delivered at your site. To discuss your training requirements, please call The Events Team on +44 (0)1372 367439.

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## Your speakers



### George McDowell - Head of Power Systems, Cobham Technical Services

George is an internationally renowned electrical power engineer. His work has focused on design, power quality, failure analysis, solving operational problems of power systems and electrical systems, involving him in a broad spectrum of applications in different sectors.



### Luke Taylor - Power Systems Engineer, Cobham Technical Services

Luke's main activities in the power systems group include the transient and steady state analysis of power systems, the coordination of protection systems and arc flash hazard analysis as well as training users of ERACS power systems analysis software.



### Stephanie Horton - Independent Power Systems Consultant

Stephanie is an experienced electromechanical power systems engineer with an established reputation in the engineering industry. Her unique experiences and abilities give customers a valuable insight into both conventional and intricate power systems problems.

## Booking form

Please photocopy this form if you wish to register more than one delegate. Send a second person at a discounted price!

### Delegate details

Name <small>Dr Mr Mrs Miss</small>
Job Title
Organisation
Address
Postcode
Telephone
Fax
E-mail
VAT number <small>(EU customers only)</small>
<input type="checkbox"/> Please tick if you are happy to receive further information about Cobham Technical Services via e-mail. It is our policy NOT to supply your details to third parties.

### Bookings

I wish to make a firm booking for:

**Understanding Power Quality**  Date to be confirmed

### Fees\*

Fee rate	Fee	VAT@17.5%	Total	Please tick
<b>Early Booking Rate</b>	<b>£740.00</b>	<b>£129.50</b>	<b>£869.50</b>	
<b>Standard Rate</b>	<b>£780.00</b>	<b>£136.50</b>	<b>£916.50</b>	

\*AccessERA subscribers and additional delegates receive a 10% discount on these rates. For more information on booking rates, please go to: <http://shop.era.co.uk>. If you subscribe to AccessERA and would like to use your AccessERA credits to attend, please contact The Events Team on: +44 (0)1372 367439.

### Payment method

Purchase order no.....

Payment of £..... is enclosed **OR** please charge to:  
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Name of cardholder.....

Card number

Expiry date   Issue No

Payment has been made by bank transfer

VAT registration no: GB 209 7152 66

For AccessERA use only Project No 40003.....

Invoice  Paid  AccessERA credits

BC12..... Date.....

### Venue:

Your course will take place at Cobham Technical Services, Cleeve Road, Leatherhead, Surrey KT22 7SA, UK. It is a 15 minute walk from Leatherhead main-line station. Visitor car-parking is available on-site. A location map and directions are available at: [www.era.co.uk/location](http://www.era.co.uk/location).

### Early booking rates:

Early booking rates are valid up to one calendar month before the date of the course and can only be claimed at the time of booking.

### Additional booking rates:

Additional booking rates are applicable to second and subsequent delegates and may only be claimed at the time of booking.

### Did you know?

An AccessERA subscription is an excellent way of accessing technical advice and information in the right format at the right time. All AccessERA subscribers receive a 10% discount on the current course price at time of booking, when the booking is made directly with the Events Team. To find out more, please call us on: +44 (0)1372 367439 or e-mail: [era.accessera@cobham.com](mailto:era.accessera@cobham.com).

### Ways to book:

- <http://shop.era.co.uk>  
Total security is assured and normal booking conditions apply.
- +44 (0)1372 367439 - please be prepared to quote a purchase order number or supply us with credit card details.
- +44 (0)1372 367009\*
- The Events Team, Cobham Technical Services, Cleeve Road, Leatherhead, Surrey KT22 7SA.

\* Please note that booking forms received without payment will be considered binding and invoiced automatically.

### Enquiries:

Please contact The Events Team by calling: +44 (0)1372 367439 or e-mail: [era.events@cobham.com](mailto:era.events@cobham.com).

### How to pay:

Payment must be made before attendance at the event and must be made in £ sterling only. Acceptable methods of payment are by cheque (payable to ERA Technology Ltd), credit card or bank transfer. Bank transfers, free of all charges, can be made to ERA Technology Ltd via: Barclays Bank PLC, PO Box 1824, Wimborne, Dorset, BH21 1YJ; sort code: 20-96-96, account no. 00327433. When paying by bank transfer, please quote the relevant course, reference number and the delegate and company name.

### Cancellations and transfers:

Cancellations and transfers must be received in writing. Cancellations and transfers received up to the 15th working day prior to the event will be subject to a charge of 20% of the invoiced course fee + VAT or 20% of the AccessERA credits charged. After this, 15 day deadline transfers cannot be accepted and cancellations will be subject to payment in full or 100% of the AccessERA credits charged. Substitutions can be made at any time.

### Cobham Technical Services:

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