Course Brochure

Training

EA Training Course Brochure

Unlock decades of expertise with our training courses

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www.eatechnology.com

Course Brochure

EA Technology

EA Technology has a unique technical heritage within the power industry stretching back over five decades. Our specialist expertise has been used to develop an extensive range of power engineering courses.

Providing applied guidance from industry practitioners, these courses offer highly effective and specialised development routes. Our training provision has been externally assured as complying with the highest standards in the field.

Most of the specialist courses in this schedule run once or twice a year and many are often oversubscribed, so please check the dates and availability of any courses that you are interested in.

We can also provide onsite training and customised training programmes so please get in touch if you have a specific requirement that you would like us to assist you with.

For further information or
to book a place visit:
www.eatechnology.com

Email: eatraining@eatechnology.com

Course index

Substations courses

Insulating Oil Diagnostics and Analysis

Days 1

This course will cover the sampling, analysis, storage and disposal of insulating oil used in transformers and switchgear and its role in condition-based asset management. It will provide participants with an understanding of this condition assessment technique which can help identify potential faults, prevent failures and improve strategic planning for maintenance, repairs and replacement.

SF_6 Training and Certification

Days 2

An essential two-day course covering the UK training requirements for anyone involved in the handling or recovery of SF6 filled high voltage switchgear, leading to certification that is required and recognised throughout the UK*.

*EU 517/2014, 2015/2065, 2015/2066 and 2015/2068 have been retained in UK legislation, but have been amended due to the UK leaving the EU and now only apply in the UK.

SF_6 Management

Days 1

This one-day course is designed to give delegates all the information that is required to ensure they stay up to date with the latest SF6 legislation. The course will assist with making asset management decisions by explaining the practical elements of running a network that includes assets containing SF6.

Delegates will also be given an understanding of what SF6 is through to the commissioning, inspection, and maintenance of their SF6 assets and the responsibilities they have to their staff working hands-on with SF6. Environmental issues will be discussed, and guidance provided on all aspects of managing a company's inventory of SF6 to show compliance with the relevant legislation.

Substation Earthing

Days 3

A three-day course providing a comprehensive review on the latest developments in earthing practice at transmission and distribution voltages. It considers specifications, regulations (CENELEC TC112), earth grids, resistivity, site areas, conductors and earth rods.

Transformers and Switchgear Technology for Power Systems

Days 3

This course is designed to give both experienced and newly qualified engineers a comprehensive overview of the role of transformers and an essential update on the latest switchgear technology to improve decision making for safe operation, maintenance and renewal.

Measuring Partial Discharge (PD)

Days 1

A two-day course from the pioneers of Partial Discharge (PD) technology, covering PD theory, PD detection instruments and PD measuring techniques. The first day of the course will focus on hand-held equipment while the second day will cover the installation and operation of the UltraTEV® Monitor in detail.

Substation Design

Days 2

High voltage substation design is a complex engineering activity that embraces engineering functions from numerous disciplines. This intensive course considers the aspects required to design a high voltage air or gas insulated substation. It looks at the design process, substation design methods and interfaces required to build a substation.

Power networks courses

Application of Variable-Speed Drives and Rotating Machines

Days 2

The introduction to this course takes delegates quickly through basic theory for rotating machines and then moves on to introduce the power electronics used in AC variable-speed drives. The application of variable-speed drives includes performance, protection and matching torque demand to torque delivery. It then moves on to external factors for selecting variable-speed drives, harmonics, filters and the interface with electricity utilities including the demonstration of a power system analysis programme.

Distributed Generation

Days 2

A two-day course focussing on distributed generation and its impact on both LV and HV networks, including connection issues, network design and operation, regulations, commercial aspects and the future of distributed generation.

Distribution Overhead Lines

Days 2

This two-day course has been designed to cover many overhead line issues of the moment including the effect of European regulations on our standards, line design, lightning protection, and helicopter and foot line patrols, including condition assessment, and live line working.

HV Network Planning and Design

Days 2

This two-day course combines the theory of network planning to relevant GB standards and legislation with the practice of carrying out load flow studies and calculations to ensure compliance with those standards. Fault Level, Voltage and Network Capacity Planning are all considered along with supporting knowledge in the areas of earthing design, basic HV protection and typical HV supply connection arrangements.

LV Distribution Network Planning and Design

Days 2

This network design foundation course introduces the basics of electricity distribution, the components, and the language of LV distribution networks before considering how these components are put together to produce a safe, reliable and economically viable LV distribution network. Using a series of tutorials and practical exercises, your knowledge of load diversity, thermal constraints, voltage constraints, fault level, earthing, power quality and protection will be built up in sufficient detail for you to be able, by the end of the two days, to create (and justify!) a simple compliant LV distribution network design.

VisNet® Design Course

Days 1

This course is a great addition for those enroled on to the LV Distribution Network Planning and Design Course. Delegates who attend this one-day course will be introduced to the LV network design tool VisNet Design, where they will undertake several practical excercises using the VisNet Design software to design networks with different properties including PV genertion and EV charging.

Specialist courses

Introduction to Electrical Networks and the Electricity Supply Industry

Days 1

This course has been specifically designed to demystify the terminology used to explain the purpose, principals and components of electrical networks. It is aimed at the growing workforce that play a vital role in the support, management, and evolution of modern electrical networks but do not have a power or electrical engineering background. The course will help delegates to understand industry roles and structures, develop informed perspectives and provide the context for more effective communication.

Lightning Protection for MOD Sites with Explosive Facilities

Days 2

This course takes the delegates through the basics of lightning including the major effects it has on the Ministry of Defence sites that contain explosives facilities. It takes delegates through the basics of lightning and lightning protection strategies.
The course explains JSP482 lightning protection requirements, compares national and international standards and links BS EN 62305 with MOD practice. The maintenance, testing and compliance of lightning protection systems are also covered.

Power Systems Foundation

Days 5

A comprehensive five day course offering a thorough grounding in all aspects of power systems engineering for newly qualified engineers or engineers from other disciplines. The course covers Power systems engineering up to 132kV

- Electrical Basics
- Transmission & Distribution Overview
- Power Generation & Electricity Markets
- Transformers
- Switchgear
- Cables
- Overhead Lines
- Earthing
- Electrical Protection
- Network Design
- Network Operation
- Electrical Testing and Fault Diagnosis
- Asset Management
- Pragmatic Network Analysis & Practical Challenge
- Electrical Testing and Fault Diagnosis

Project Management: Managing Electrical Projects

Days 2

This course aims to help managers, engineers and technicians to become effective managers of electrical projects. Delegates can work through case study examples to reinforce the course's key learning points. The course is equally applicable to those who manage single projects or a portfolio of electrical projects at all voltage levels from HV/LV, 132/33kV through to 400/275kV.

Lightning Protection, Risk Assessment and Design: BS EN 6230

Days 2

A comprehensive two-day course covering everything from the basics of lightning and its effects, to the use of risk assessment in the formulation of protection strategies. It will not only provide you with a clear understanding of the threat from lightning and the protection options available, but also introduce you to the economics involved in protection system selection.

Power Quality and Harmonics

Days 2

A two-day power quality course that explains the Engineering Recommendations associated with power quality, and demonstrates its practical application through worked examples and case studies.

Cables courses

Cables Part One and Accessories

Days 3

A concise yet comprehensive overview of all the main aspects of power cable engineering, from initial design and specification to ongoing asset management, including the latest cable technology and issues surrounding installation and testing.

Cables: Part Two

Days 3

A three-day course on cable system engineering, using example circuits, to take the participants from the planning stage through the preparation of technical and commercial specifications for the tender document, bid adjudication, contract award, manufacture, installation, maintenance and operation. The management of existing cable assets is considered in terms of condition assessment, life estimation, repair and diversions.

Protection courses

Commissioning and Testing

Days 2

A practical course covering the complete process of commissioning and testing new protection systems prior to initial switch-on, and the testing of existing asset protection to prove its continuing integrity.

Power System Protection: Part One

Days 2

A comprehensive course covering the principles of power system protection. The course includes practical exercises and a 'walk through' the LV and HV system. It provides a very detailed introduction to essential protection principles at a level that does not require knowledge of complex numbers.

Power System Protection: Part Two

Days 3

This course covers the role of protection, fault characteristics and design principles for a range of networks and network assets including a detailed examination of transformers and embedded generators. The management of protection is examined including the use of new knowledge based systems to create cost-effective maintenance procedures. This course includes complex numbers and introduces inductance and capacitance.

Apprenticeship programmes

Our apprenticeship programmes are designed to be a valuable pathway for individuals already in employment seeking to develop practical skills and gain experience in a specific profession or trade.

Our specialist expertise has gained a reputation for providing an environment where apprentices and trainees can harness the latest technology through real world lessons and cutting-edge information, which is designed to complement the long-term development of apprentices.

EA Training will collaborate with businesses across the electrical power industry to upskill their employees with tailored training plans aligned with specific business needs, enhancing workforce capabilities that not only benefit the individual but also contribute to the overall growth and success of the organisations involved.

The three essential components of an apprenticeship are:

- **Programme of Study:** This involves structured learning and education related to your chosen field. The theoretical knowledge gained during this study complements the practical aspects of your job.

- **Full-Time Paid Job:** Apprenticeships provide a unique blend of on-the-job training. As an apprentice, you work in a relevant job role while earning a wage. This real-world experience is invaluable for honing your skills and understanding the intricacies of the profession.

- **End Point Assessment (EPA):** At the conclusion of your apprenticeship, you undergo an assessment known as the **End Point Assessment.** This evaluation ensures that you have acquired the necessary competencies and can apply them effectively.

EA Training offers the following apprenticeship programmes:

- **Power Industry Substation Fitter (Level 3)**
- **Power Industry Cable Jointer (Level 3)**
- **Power Industry Overhead Linesperson (Level 3)**
- **Electrical Power Networks Engineer (EPNE Level 4)**

Managed programmes

Graduate Development and Conversion Programmes

Structured development routes for a range of power engineering roles and competence levels, including graduates, apprentices, new entrants and career changers. Our modular development programmes can help increase your training capacity. We can work with you to develop and deliver structured training programmes that provide a comprehensive route to specified levels of knowledge and professional competence.

Bespoke Training

In addition to our scheduled programme of courses we can, on request, deliver courses at locations and dates to suit you. We can also develop bespoke training courses to meet your specific requirements.

Modular Workforce Development Programme

At any career stage, continuing education is essential. Our modular development provides a unique training resource to help you increase your training capacity. Our programmes, designed for cohorts of learners, are tailored to your workforce specific needs, incorporating a range of modules covering core power engineering disciplines.
We can work with you to structure the programme to supplement your existing development programmes and meet specific needs.
Our programmes are a cost-effective solution that form an essential part of your workforce development programmes.

Qualification programmes

City & Guilds Level Two Electrical Power Engineering - Transmission and Distribution

Duration 24 months

The City & Guilds level 2 Certificate in Electrical Power Engineering – Transmission and Distribution (2304-17) is available as both a structured, taught programme for groups of learners within an organisation, and as a distance-learning course for industry engineers and technicians requiring a formal qualification, apprentices and new entrants to the industry.
This unique qualification is specifically aimed at gaining the fundamental knowledge required for a career in the electricity supply industry and provides a platform for further progression on to the EAL Level 3 Diploma.

EAL Level 3 Subsidiary Diploma in Electrical Engineering Technologies for the Power Industry

Duration 24 - 36 months

The EAL qualification has been specifically developed for the electricity supply industry.

It will provide learners with the knowledge for a change in career paths or develop and underpin current employees in the sector for career progression.

This qualification is available to cohorts within an organisation and individual learners through distance learning.

EAL Level 4 Diploma in Power Engineering

Duration 24 - 36 months
Delivery In person

This Power Engineering qualification is designed for individuals who have prior technical education or experience and want to advance their knowledge in the Power Engineering sector.
The course equips learners with the expertise to manage complex electricity network challenges, ensuring a safe electricity supply under normal and abnormal conditions. Learners will develop specialised skills in applying company and client network strategies to plan, manage, control, construct, maintain, repair, and replace assets within the electricity network.

The qualification provides the advanced knowledge and specialist skills required to work in the Power Engineering sector. It covers key electrical power principles, including AC/DC theories, circuit theory, waveforms, and three-phase systems, alongside power distribution methods and the effects of harmonics. Learners will develop expertise in network design, operations, and the limitations of plant and equipment, as well as managing electricity networks in both normal and fault conditions. The qualification also emphasises safe working practices, risk management, and the application of industry regulations. Additionally, learners will explore project management.

Accredited programmes

Electrical Distribution Engineering Programme (EDEP) – Distance Learning

Duration Maximum 24 months

Our programme is a comprehensive, self-paced, online training programme tailored for power engineering professionals. It comprises eight technical modules that span the breadth of electricity distribution system knowledge, from component-level design and operation to network-wide planning and regulation.

The programme is structured to build competence in key areas including transformers, protection systems, cables and network design, supporting professional development across utilities, asset management, and engineering roles.

On completion, learners gain 160 hours of CPD and a strong foundation for advanced engineering practice.

City & Guilds Accredited Electrical Power Engineering Foundation Programme – Distance Learning

Duration 6 months

This course provides essential underpinning knowledge of the UK electricity transmission and distribution network. Commencing with an overview of the network, learners will gain an understanding of its construction, the principles, operation and function of its component parts and how the network is managed.

The programme also covers how electricity is generated, the regulatory system, system earthing, protection, testing and fault diagnosis.

On completion of the study the learner has the option to undertake an online assessment and candidates who successfully complete the assessment will receive a City & Guilds Accredited Foundation Certificate.

City & Guilds Accredited Protection Commissioning and Testing Programme (PCT)

Duration 24 months

This programme comprises of three modules, our 2-day Power System Protection: Part One course, 3-day Power System Protection: Part Two course and our 2-day Commissioning and Testing course.

Each designed to offer the most up to date and best working practises within the field of protection and commissioning.

To meet the programme requirements, it is expected delegates attend and complete the three modular assessments, within 24-months of commencement of the first course.

City & Guilds Accredited Earthing and Protection Programme (E&P)

Duration 24 months

This programme comprises of three modules, our 3-day Substation Earthing course, 2-day Power System Protection: Part One course and 3-day Power System Protection: Part Two course.

Each module is designed to offer the most up to date and best working practises within the field of earthing and protection, while the programme overall enforces the understanding of the crossover between these two critical areas of engineering.

To meet the programme requirements, it is expected delegates attend and complete the three modular assessments, within 24-months of commencement of the first course.

City & Guilds Accredited Individual Modular Development Programme

Duration 24 months

Our City and Guilds accredited individual modular development programme is designed for individual learners to help you increase your training capacity by giving you access to a unique and extensive training resource. Designed as a structured training programme, that provides a comprehensive route to specified levels of knowledge and professional competence.
The programme comprised of courses covering core power engineering disciplines in which students will complete one core course, followed by a minimum of 4 additional courses, providing a tailored programme for your specific needs.
The modules provide essential theoretical and practical knowledge that can underpin your continued career development.

Global Footprint

EA Technology is an engineering and technology business that provides intelligent energy solutions for designers, installers, operators, and owners of power network assets.

Founded in 1966 we have over 50 years' experience in the industry and 5 regional offices around the world to support our global customer base.

We work with a lot of our clients on a long-term basis to help them safeguard their power networks.

We advise our clients on strategy and implementation of a range of technology solutions to manage power assets, delivering maximum life and minimise cost.

For further information and advice please contact us on
+44 (0) 151 339 4181 or email **sales@eatechnology.com / www.eatechnology.com**

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ea technology

Safer, Stronger, Smarter Networks

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