

WHO WE ARE

Element Oxford is located in Abingdon, Oxfordshire. The company was established in 1972, originally as the Culham Lightning Studies Unit (CLSU). Formerly a part of AEA Technology plc, Culham Lightning was acquired by Cobham plc in 2000, and Element Material Technology Warwick in 2018.

Element Oxford, provides test facilities and specialist technical support on lightning's effects and on lightning protection. The laboratory is a centre of excellence on the effects of lightning on aircraft with capabilities that include:

- In-depth knowledge of the effects of lightning strikes on aircraft structure and systems.
- Wide range of testing services at a fully-equipped lightning simulation laboratory in Abingdon (UK). Transportable equipment also available for off-site testing at customer premises.
- Consultancy on all stages of aircraft lightning protection design and certification, through review, testing and analysis.
- Computer simulation and modelling of lightning effects in complex structures and installations

BACKGROUND TO THE COURSE

The Lightning Protection of Aircraft Short Course series was started to disseminate to industry the considerable wealth of knowledge gained by Element in this important field over the past 40 years. This Short Course is revised and updated annually to include the latest information relevant to present and future aerospace vehicles, and their certification.

LOCATION

The course takes place in Abingdon, located 8 miles (13km) south of Oxford in the UK. The course has an interactive group approach, and to maximise the benefit to delegates, each course is limited to 25 people.

COURSE OVERVIEW

- Characteristics of lightning, its interaction with, and its effect on aircraft.
 - Where does the lightning strike the aircraft (zoning)?
 - Lightning threat definition for certification and testing.
- Standards and specifications for civil and military aircraft.
- Procedure for certification.
- Lightning damage to metal and composite aircraft structures.
 - Damage mechanisms and protection against damage.
- Damage and interruption of electrical systems by induced voltages from lightning.
 - How they arise, how they can be determined by simulation and test and how to protect against them.
- Test techniques for the certification of systems and equipment.
- Hazards to fuel systems.
 - How they arise, how protection can be provided for fuel systems and structures and demonstrated by test.
- Lightning damage to antennas and radomes.
 - Protection of dielectrics against puncture and reduction of transients induced on receivers.
- P-Static charging problems of dielectrics including windscreens.
- Simulated lightning demonstrated in the laboratory.
- Interactive problem solving class.
- Protection methods against the effects of Lightning for Structure, Fuel and Avionics Systems

COURSE SPEAKERS



Stephen Haigh, MA (Oxon), Consultant

Stephen has been at the company since 1986 and has worked on protection of fuel systems from lightning hazards and associated testing techniques, and on support of aircraft



Dan Morgan, Laboratory Manager & Technical Advisor

Dan joined the company in 2009 and has been actively involved in the fuels and structures testing programmes, and has developed a new electrostatic testing facility and is now the manager of the group. Dan Morgan is the secretary of the EUROCAE WG31 committee which addresses lightning testing standards.



Stephen Boag, PhD (Nottingham), Technical Advisor

Stephen has been with the company since 2016. He is responsible for both testing and consultancy/modelling for the support of aircraft system qualifications through the prediction of induced transients. He is experienced with testing at the equipment, system and even aircraft level, having performed numerous whole aircraft tests and system tests.

Presentations are also given by other experienced members of Element.

PLEASE PHOTOCOPY THIS FORM IF YOU WISH TO REGISTER MORE THAN ONE DELEGATE.

WHO SHOULD ATTEND?

The course is aimed typically at professional engineers working in the field of aerospace design and development, manufacture and certification. It covers the protection of structures and systems against lightning strikes. No previous knowledge of the subject of lightning protection is assumed and all concepts will be explained as the lectures proceed.

DELEGATE DETAILS

NAME DR MR MRS MISS _____
ORGANIZATION _____
ADDRESS _____
_____ POSTCODE _____
TELEPHONE _____
FAX _____
E-MAIL _____
NATIONALITY _____

BOOKINGS

I wish to make a firm booking for: (please tick)

Short Course on Lightning Protection of Aircraft

13-15 November 2019

EARLY BOOKING RATES

Early booking rates are valid for firm bookings made before 13 September 2019.

For Element use only

Invoice **Paid**

BC _____ **Date** _____

FEES

FEE RATE	FEE	VAT @ 20%	TOTAL	PLEASE TICK
EARLY BOOKING RATE	£1,395.00	£279.00	£1,674.00	
STANDARD RATE	£1,617.00	£323.40	£1,940.40	
EARLY BOOKING - MULTIPLE DELEGATE BOOKINGS	£1,225.00	£245.00	£1,470.00	
STANDARD RATE - MULTIPLE DELEGATE BOOKINGS	£1,472.00	£294.40	£1,766.40	

Please tick here if you would prefer not to receive details about future events or services offered by Element.

Element reserves the right to change, postpone or cancel at short notice any part of its published programme due to unforeseen circumstances. In the unlikely event of cancellation, a full refund will be made of the registration fee. Element disclaims any further liability. Element's Special Terms and Conditions - Conferences and Courses apply. E & O.E.

PRICES

The price for the short course from Wednesday 13 November to Friday 15 November 2019, includes lunch and mid-morning/afternoon refreshments on all days. The cost of hotel accommodation is not included; however a list of recommended hotels will be enclosed with the lecture programme information. This will be mailed/e-mailed to you after your registration. The price also includes one copy of the short course notes (for each attendee).

WAYS TO BOOK

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F: +44 (0)1235 540 980

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13/15 Nuffield Way, Abingdon, Oxfordshire, OX14 1RL,
United Kingdom.

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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 bank transfers, cheque (payable to **Element Oxford**) and credit card (2.7% admin fee applies). Bank transfers, free of all charges, can be made to Element Materials Technology trading as Element Oxford via: Barclays Bank plc, PO Box 1824, Wimborne, Dorset, BH21 1YJ; sort code: 20-96-96, account no 00898821. When paying by bank transfer, please quote the course name 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. After this, 15 day deadline transfers cannot be accepted and cancellations will be subject to payment in full. Substitutions can be made at any time.