Course Introduction

This course aims to provide learners with a good understanding of the technical requirements for surge protection. The course will outline general terminology and nomenclature and will discuss the surge protection requirements according to the BS7671 standard.

Modules will also consider the need for surge protection for general electrical installations and the importance of good earthing and main equipotential bonding. The course will explore the Calculated Risk Level (CRL) for the use of SPDs in LV systems and the correct selection, installation and monitoring of SPDs.

Key learning outcomes

- Understand the technical requirements for surge protection
- Understand the surge protection requirements in BS7671
- Understand when the use of BS EN 62305 specialists would be advisable
- Understand the Calculated Risk Level (CRL) for the use of SPDs in LV systems
- Understand the correct selection and installation of SPDs for small buildings which do not require an external lightning protection system
- Understand the importance of monitoring the health status of SPDs and replacing them when they have exhausted their surge protection counts

Key features

- The course is authored and delivered by experienced lecturers and practitioners who are highly recognised in this specialised field
- The course authors are BS7671 JPEL64 committee members who are responsible for the maintenance and updating of the 18th Edition Wiring Regulations
- The course materials were drawn from BS7671 and practical cases from projects that were delivered by the authors

Course content may be subject to change or updates. Please contact the IET for the latest course content.
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**Course Units**

- Unit 1: Introduction to Voltage Surge and its Related Phenomena
- Unit 2: Causes and the Side Effects of Voltage Surges within an Electrical Installation
- Unit 3: Fundamental Theory on Voltage Surges
- Unit 4: BS7671 Fundamental Safety Requirements for Surge Protection
- Unit 5: BS7671 Selection and Erection Requirements for Surge Protection Devices
- Unit 6: Lightning Surge Protection Zones
- Unit 7: Types of Surge Protection Devices
- Unit 8: Calculated Risk Levels (CRL) and Lightning Flash Density (Ng)
- Unit 9: Methods of Connection of SPDs
- Unit 10: Example Case Studies

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**Target audience**

The course will be useful for those who are involved with the design, installation, inspection, certification and approval/review of a non-complex electrical installation meeting BS7671 requirements for surge protection:

- Building Control Officers
- Electrical Installation Designers
- Electrical Installation Inspectors
- Electrical Installers
- Electrical Design Consultants
- Lightning and Surge Protection Consultants
- Lightning and Surge Protection Installation Contractors
- Electrical Services Students or Apprentices
- Building Services Engineering Lecturers
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**Course pre-requisites**

Before embarking on the course, it is expected that learners have some knowledge of the use of Ohm’s Law and the concepts of resistance, inductance and capacitance. Ideally, the learner should be working in the field of electrical services engineering either in design/inspection or in installation/testing.

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