



## DESIGN of ELECTRICAL INSTALLATIONS

(City & Guilds 2396 - previously known as C&G 2400)

COURSE 350: 5 DAYS inc examination + project: Max 8 Candidates

This course provides participants with all the necessary skills and knowledge to design electrical installations. The ability to design is required before new installations are constructed and also when additions or alterations to existing installations are required.

The course develops the knowledge and ability of the candidates to the required level of competence for them to sign the Electrical Installation Certificates required by BS7671.

### PARTICIPANTS

The course is intended for candidates who have already attended the 18th Edition C&G 2382 (Course 310) and the Inspection & Testing / C&G 2391 (Course 340). The course builds on the knowledge and skills that candidates have gained from these courses.

### COURSE PRESENTATION

Instructor-led practical examples of how electrical installations should be designed are given. The course consists of several design exercises for the candidates to carry out, which evaluate and explore the process of design in terms of general characteristics, protection for safety, and selection and erection. Comprehensive course notes are provided.

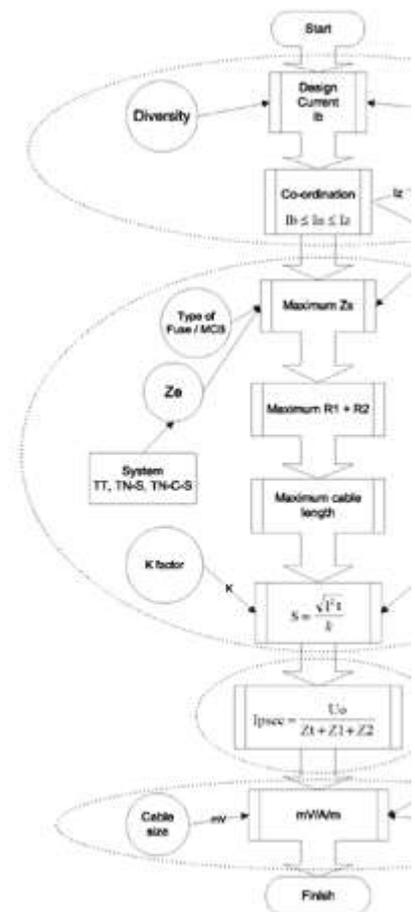
### COURSE OBJECTIVES

On completion of the course, participants will be able to

- design electrical installations, performing all necessary calculations
- verify that a design complies with the Regulations
- conduct an initial verification of a new electrical installation
- conduct an initial inspection of an electrical installation
- design, verify and inspect electrical installations in compliance with current safety legislation and BS7671.

Candidates are required to complete a 40-hour design project which involves the assessment of general characteristics, selection and erection and verification of an electrical installation.

**Successful completion of the course leads to the City & Guilds 2396: Level 4 Award in the Design of Electrical Installations.**



# What do candidates on the Electrical Installation Design course actually do?

The Electrical Installations design course (C&G 2396) is the pinnacle of the series of City & Guilds qualifications and is preceded by the courses on the wiring regulations (C&G 2382) and the inspection and testing (C&G 2391) qualifications.

The course begins by guiding the candidates through a series of searching questions with answers provided via a combination of syndicated exercises and individual efforts. This helps to build the candidates' skills and knowledge of the design process, taking each step of the design one stage at a time.

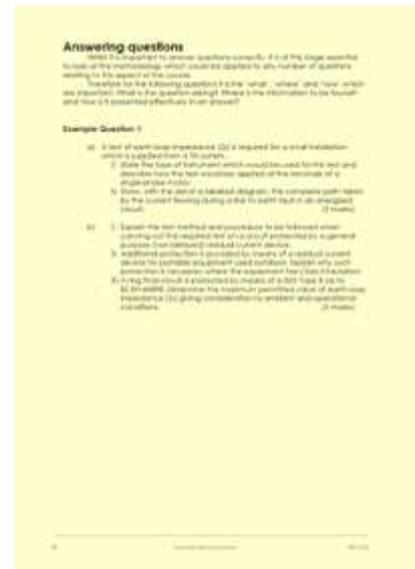
Candidates are provided with course notes which contain useful reference material, help on various topics and suggestions for answering questions in the written examination.



Page 10 of the course notes for the electrical installation design course, listing some of the equations that the candidates need to understand and use

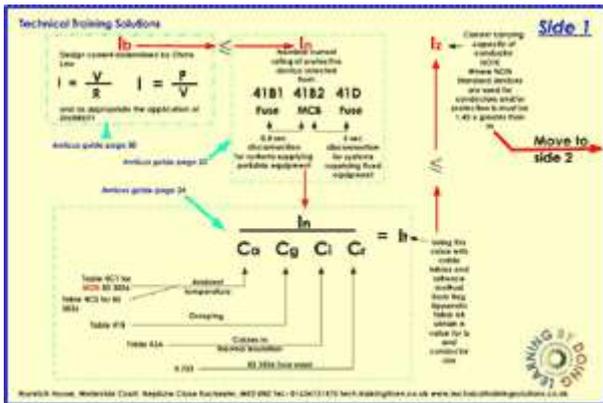


Page 11 of the course notes for the electrical installation design course, describing how electrical equipment should be selected and erected

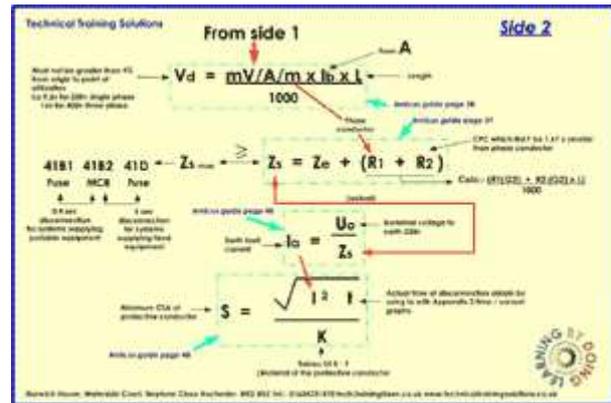


Page 12 of the course notes for the electrical installation design course, providing advice on how questions should be answered in the written examination

We also issue helpful design reference documents which list all the important stages in the design of an electrical installation. This again helps to clarify the process by which an electrical installation design should be performed.



Page 1 of the design reference sheet for the electrical installation design course, depicting some of the equations that the candidates need to understand and use

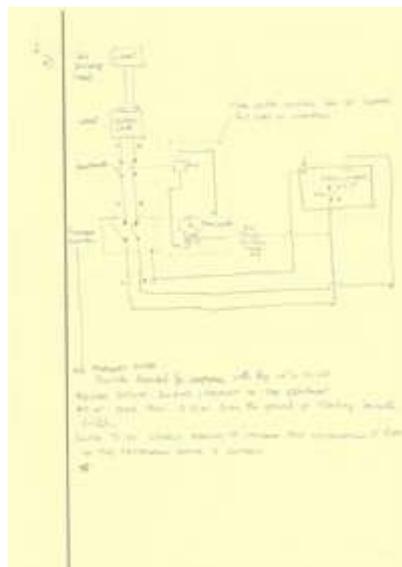


Page 2 of the design reference sheet for the electrical installation design course, depicting some of the equations that the candidates need to understand and use

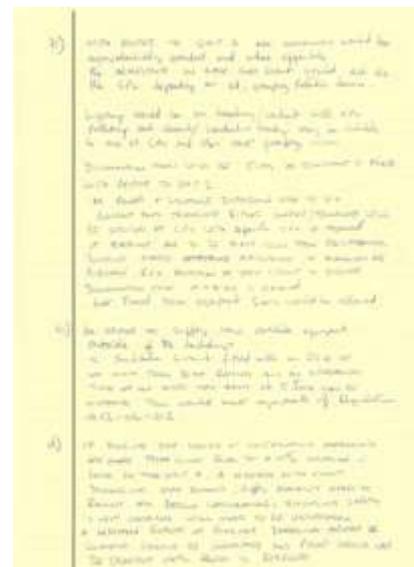
The **written examination** (which is usually scheduled in the week subsequent to the design course, to allow candidates time to 'brush up' for the exam) is a 3 hour, open book examination. The following gives some idea of the level of complexity of the questions posed in the examination.



The City & Guilds electrical design exam paper



Example of a candidate's answers to the City and Guilds exam paper



Example of a candidate's answers to the City and Guilds exam paper

Candidates on the electrical installations design course also need to complete a **design project**. This is usually started off on the course itself, but it also requires the candidates to spend time (40 hours is suggested) to complete it in their own time. Typically the project requires them to design the complete electrical installation of a commercial building, specifying all the cabling, switchgear, cable runs etc required.

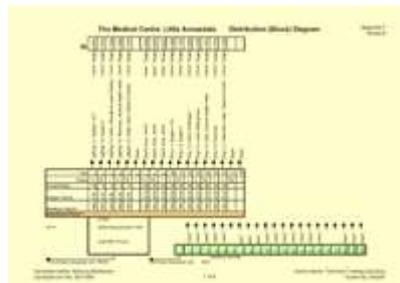


**This is an example of the design project for the electrical installation design course**

Candidate's project submissions vary in length and detail but the following are example of submissions that we have received, showing tables created to list the circuit specifications, the distribution board arrangements and the lighting circuits designed by the candidate.

Circuit No.	Description	Rating	Protection	Notes
1	Office Lighting	230V	10A	
2	Reception Lighting	230V	10A	
3	Store Lighting	230V	10A	
4	Staircase Lighting	230V	10A	
5	Office Sockets	230V	10A	
6	Reception Sockets	230V	10A	
7	Store Sockets	230V	10A	
8	Staircase Sockets	230V	10A	
9	Office Sockets	230V	10A	
10	Reception Sockets	230V	10A	
11	Store Sockets	230V	10A	
12	Staircase Sockets	230V	10A	

**This is an example of a candidate's submission for the design project on the electrical installation design course, listing the circuit specifications for the design**



**This is an example of a candidate's submission for the design project on the electrical installation design course, showing the distribution board arrangements for the design**

Circuit No.	Description	Rating	Protection	Notes
1	Office Lighting	230V	10A	
2	Reception Lighting	230V	10A	
3	Store Lighting	230V	10A	
4	Staircase Lighting	230V	10A	
5	Office Sockets	230V	10A	
6	Reception Sockets	230V	10A	
7	Store Sockets	230V	10A	
8	Staircase Sockets	230V	10A	
9	Office Sockets	230V	10A	
10	Reception Sockets	230V	10A	
11	Store Sockets	230V	10A	
12	Staircase Sockets	230V	10A	

**This is an example of a candidate's submission for the design project on the electrical installation design course, listing the lighting circuits used for the design**

Candidates also have to complete the electrical installation certificates, inspection schedule and test results schedule for their design, using the appropriate IET forms.

**If you would like to learn more about the electrical installation design course then please call us.**

**CONTACT US**

**Tel: 01634 731470**  
**Email: [tech.training@zen.co.uk](mailto:tech.training@zen.co.uk)**

Technical Training Solutions is a Private Limited Company registered in England & Wales No. 7555838  
Registered Office: Norwich House, Waterside Court, Neptune Close, Rochester ME2 4NZ  
© Technical Training Solutions 2018