
ELECTRICAL WIRING STANDARDS

NATIONAL RULES FOR ELECTRICAL INSTALLATIONS - ET 101 2008

(INCLUDING AMENDMENTS 1 AND 2)



YOU WILL LEARN:

- The essentials of the ET 101 Standard
- How to find your way around ET 101
- Harmonisation issues with European standards
- Principles and practice of shock protection
- Calculation of circuit impedances
- Discrimination between devices
- Cable sizing
- Earthing and bonding
- Inspection and testing requirements
- Certification requirements

WHO SHOULD ATTEND:

- Electrical Engineers
- Electrical Trades Persons
- Electrical Apprentices
- Engineering Managers
- Maintenance Managers
- Private Electrical Contractors
- Building Services Engineers
- Graduate Electrical Engineer Trainees
- Electrical Design Staff
- Maintenance and Shutdown Planning Staff

The Workshop

Internationally there has been steady progress towards the harmonisation of electrical wiring standards. European standards are based on the International IEC 364 under the umbrella of Harmonisation Document HD 384. The format of these is reflected in the ETCI National Rules ET 101: 2008 and the UK IEE Wiring Regulations BS 7671:2008.

This course is designed to provide up to date information and training on the current edition of National Rules ET 101: 2008. It will consist of in-depth teaching on all aspects of the national rules and their application with many practical examples and sample design calculations. The course includes references to safety, maintenance, inspection and testing. In addition, it provides a summary of some of the basic principles necessary for a good understanding of electrical installation technology.

Pre-requisites

You will need a fundamental understanding of electrical systems. We will provide this material to you if you feel you would like some further pre-course reading.

Please bring a calculator (or computer) and pen along to the course to assist with the calculations.

Practical Sessions

This is a practical, hands on workshop enabling you to work through practical exercises which reinforce the concepts discussed. There will be at least 8 exercises to illustrate some of the calculations that are required during installation design, to reinforce the knowledge gained on the course.

The Program

INTRODUCTION TO IRISH NATIONAL RULES

- Structure of international and Irish national rules
- Foundation electrical principles - terminology and definitions
- Scope of national rules
- Growth of electrical distribution systems and polyphase circuits
- Types of earthing systems
- Requirements for safety and planning of electrical installations
- Definitions

EARTHING ARRANGEMENTS

- Need for earthing in electrical systems
- Supply system earthing
- Protective earthing of consumer installations
- TN-C-S systems
- Earth faults
- Earth electrodes
- Equipotential bonding

PLANNING OF ELECTRICAL INSTALLATIONS

- Purpose, supplies and structure
- External influences
- Compatibility and maintainability
- Safety services
- Continuity of service
- Voltage band

ELECTRICAL HAZARDS AND PROTECTION

- Electrical hazards
- Codes for degree of protection by enclosures
- Principles of basic and fault shock protection
- Calculation of disconnection times
- Thermal effects
- Protection against voltage disturbances
- Isolation and switching

SELECTION AND ERECTION OF EQUIPMENT

- Common rules and wiring systems
- Isolation, switching, control and monitoring
- Earthing arrangement and protective conductors
- Luminaries and lighting installations
- Safety services

INSPECTION AND TESTING

- Initial verification
- Testing
- Periodic inspection and reporting
- Certification and reporting

SPECIAL INSTALLATIONS OR LOCATIONS

- Locations of increased shock risk such as bath or shower, swimming pools, hot air saunas
- Construction installations, agricultural and horticultural premises
- Installations in restrictive conductive locations
- Caravans and marinas
- Medical locations
- Exhibitions
- Solar photovoltaic power supply systems
- Outdoor lighting, mobile units, temporary installations such as fairgrounds and amusement parks
- Floor and ceiling systems
- Maintenance gangways

MAINTENANCE CONSIDERATIONS

SAMPLE DESIGN CALCULATIONS

SUMMARY, OPEN FORUM AND CLOSING