



Principles Of Fibre Optic Communication Cabling Course

(City & Guilds 3667 Level 2 Unit 101 Principles of Communication Cabling)

This course is concerned with the health and safety working practices and the basic principles of communication systems. This unit is part of the core of the City and Guilds 3667-02 certification in communications cabling and must be completed in addition to the optional units to achieve the full level 2 Certificate in Communications Cabling.

Course 101 is mandatory to and must be taken with any one additional unit, either 102, 103, or 104.

Course Duration

We require you to study this training material on this subject that will be sent to you or presented to you online, at home at your own pace.. This material will have a number of knowledge reviews contained within it, which must be completed before attendance at the training centre:

We require this so that four days of the period of time you are with us, is spent on the fibre cabling practical activities. Thus ensuring that when you leave us, you are competently able to do the job.

No other training provider provides this level of practical practice.

TO BOOK A PLACE AND DISCUSS COSTS PLEASE CALL 059 917 5249

FIBRE SPLICING COURSE SUMMARY THAT THIS UNIT APPLIES TO

This intensive 5-day course will provide you with the knowledge and skills that you need to install, splice, terminate and test fibre optic cabling in a typical datacom's or Telecom's environment,

This course focuses on the components, equipment and working practices that are typically used for local area networks, and Telecommunications networks where most of the key tasks have to be performed on either multimode or singlemode cabling that can be indoors or outdoors

The knowledge and skills acquired can also be applied to fibre optic systems used for CCTV, security, industrial process control and sensor applications.

LEVEL OF AWARD

City & Guilds 3667 Level 2 Unit 101, 40 recommended guided learning hours 6 QCF credits

COURSE PRE-REQUISITES

Optical fibre is very small so you will need reasonable eyesight (or suitable glasses – contact lenses), not be colour blind and have the ability to work with your hands.

COURSE CONTENT

Identify the safe working practices in communication systems

Underpinning knowledge You will be able to:

- State the rules for safe working when undertaking installation including:
 1. Statutory requirements
 2. Working in confined spaces and
 3. Electrical safety
- State the rules for safe working when carrying out preparation in terms of
 1. Safe use of cutting and stripping tools
 2. Safe handling and containment of cleaning materials
 3. The disposal of waste material
- State the rules for safe working and any special precautions when splicing in terms of
 1. Identification of hazardous working conditions
 2. Selection and use of tools and materials
 3. The dangers of high voltage systems employed in fusion splicing machines
- State the rules for safe working and any special precautions to be observed when terminating the cables in terms of
 1. Identification of hazardous working conditions
 2. Correct and safe use of tools and equipment
 3. Correct waste disposal
 4. Storage of tools
 5. Safe working when handling cable
 6. Care in using chemicals for cleaning

Describe the basic principles of communication systems

- SI Units and symbols
 1. Identify basic SI Units
 2. Identify names and symbols for preferred SI prefixes
 3. Identify waves and wave motion
 4. Define amplitude, wavelength (λ), frequency (f) and the unit of frequency (hertz)
 5. State the relationship velocity, frequency and wavelength ($v = f\lambda$)
 6. Define "efficiency" in terms of input and output energy
 7. Care in use of resins and adhesives.

Basic electricity (DC)

1. Recognise the international standard symbols for electrical components
2. State the effects of an electrical current
3. Distinguish between electrical conductors and insulators
4. State the SI units of current (ampere), potential difference (volt) and resistance (ohm)
5. State Ohm's law and use the law to solve simple electrical circuit Problems.

Communication Systems

1. State the meaning of "telecommunications"
2. Identify basic communication systems
3. Outline the basic principles of cable systems
4. State the sources of interface
5. List sources of distortion
6. Identify the properties of Differing types of transmission links (channels)

7. Identify various methods of communicating over a channel
8. Identify types of information carried by communication systems
9. State the systems available for communication
10. Categorise signals into audio, video and data types
11. State the differences between analogue and digital signals
12. State the meaning of bandwidth
13. State the meaning of the baseband of complex signals
14. Recognise that analogue Information may be converted to digital signals and vice versa.
15. State that variation of the amplitude, frequency or phase of a carrier wave can be used to convey information .
16. State the meaning of "gain" in communication systems
17. State the meaning of "attenuation" in communication systems
18. Explain why gain and Attenuation are usually measured in decibels (dBs)
19. State the relationship for the power ratio expressed in dBs for a number of ratios and vice versa.
20. Calculate in dBs the overall gain and/or attenuation of simple systems given the gain/attenuation of the individual stages
21. Explain the meaning of multiplexing in communication systems
22. State the advantages and disadvantages of optical fibre compared to copper.

Data Communication

You will be able to:

1. Explain the meaning of a network
2. State that data networks allow computers or other data terminals to exchange information
3. State the advantages of digital communication over analogue methods
4. Recognise that digital networks carry binary information
5. Distinguish between "bits" and "bytes"
6. State the meaning of bit error rate and give typical figures for copper and optical fibre
7. Explain that there are two Methods of transporting data: serial and parallel
8. Explain the advantages and disadvantages of transmitting data by serial and parallel methods
9. Identify applications for serial data communication and parallel data Communication.
10. Explain why "modems" are Required for computer communication over analogue lines.
11. State that there are three main categories of computer net-