



Fibre Optic Cabling in an External Environment (City & Guilds 3667 Level 2 Unit 103)

COURSE CONTENT

HEALTH & SAFETY: INTRODUCTION

SHAW ACT: It's the law!

Using risk assessments

What are the hazards of working on fibre optic cabling systems?

External site safety issues

Gas Testing

SAFETY WITH FIBRE OPTICS

Working with fibre optics

Hazardous substances

Fibre offcuts

Optical power

Laser safety standards

Good practices,

THE USE OF FIBRE OPTICS IN TELECOMS NETWORKS

Communications

Benefits and drawbacks of fibre

Basic components

Fibre in telecoms networks

Installation tasks

OPTICAL FIBRES

What is light?

Electromagnetic spectrum

Wavelengths & frequencies

SI number units

Optical fibre structure

How light travels along a fibre

Multimode & singlemode fibre

Chromatic dispersion & PMD

Operational parameters

Singlemode fibre vs multimode fibre

Fibre types for telecom/datacoms

Fibre manufacturing

FIBRE OPTIC CABLES

Outdoor cables: characteristics

Indoor cables: characteristics

Cable types

FIBRE OPTIC CONNECTORS

Connector basics & types

FIBRE OPTIC TELECOM SYSTEM COMPONENTS

Joint Enclosures.

Optical Distribution Frames.

CHOOSING AN INSTALLATION METHOD

Direct termination methods

Splicing on pigtails

Fusion splicing

Mechanical splicing

Fusion vs mechanical splicing

JOINING FIBRES IN A TELECOMS ENVIRONMENT

Definitions

Causes of loss

Performance requirements

INSPECTING & CLEANING CONNECTORS

Why do we inspect connectors?

Why do we clean connectors?

Cleaning equipment & technology

Connector inspection equipment

Inspection pass/fail criteria

Connector care: do's and don'ts

PUTTING FIBRE OPTIC CABLE IN PLACE

Handling fibre optic cable

Special issues

Cable laying on short routes

Cable pulling on external routes

Blown fibre and blown cable

FIBRE OPTIC CABLE MANAGEMENT

What is cable management?

Why is cable management needed?

Where is it particularly critical?

How can you manage cable?

CABLE PREPARATION

Overview of the process

Cable preparation tools

Fibre coatings

Stripping tools for fibre coatings

Cleaning chemicals & techniques

Sample procedure

CLEAVING FIBRES

Fibre cleaving

Problems when cleaving

FUSION SPLICING

Fusion splicing procedure

Splicing parameters

Problems after fuse

Splice machine maintenance

Splice machine cleaning

Electrode care

MECHANICAL SPLICING

Procedures

CABLE JOINTING AND TERMINATION

Working outdoors

Jointing preparation

Splicing the fibres

Finishing the job

CONTINUITY TESTING

Testing cabling: continuity

POLARITY IN FIBRE OPTIC INSTALLATIONS

Simplex installations
Duplex installations
Labelling

TESTING TELECOMS LINKS

What are we testing?
Insertion loss acceptance criteria
Optical power & loss measurement (ILM)
Insertion loss measurement
Validity of results & Modal effects
Reference grade test cords
Other routine test equipment
Compiling a test report

OTDR INTRODUCTION

What can and OTDR do for us?
How does an OTDR work?
Inside the OTDR
Summary

OTDR CAPABILITIES

Distance measurements
Fibre loss measurements
Splice loss measurements
Connector losses
Link return loss

OTDR LIMITATIONS

Dynamic zone
Dead zone
Resolution

USING THE OTDR

Step by step guide
Manipulating the trace
Measurement parameters

OTDR MEASUREMENT CONFIGURATIONS

Cable on a drum
Installed cable before termination
Connectorised systems

COMMON OTDR ISSUES

Poor launch conditions
Interfacing with bare fibres
Ghosts
Fibre mismatches & saturation

ENSURING A GOOD QUALITY INSTALLATION

Quality assurance
Installation procedure

ASSESSMENTS

Online multiple choice assessment
Installation exercise
Testing installation
Completing documentation

COURSE SUMMARY

This intensive 5-day course will provide you with the knowledge and skills that you need to install, joint, terminate and test fibre optic cabling in a typical telecoms environment.

This course focuses on the components, equipment and working practices used for telecoms systems in long distance networks,

where most of the key tasks have to be performed on cabling that is mainly at least 24 fibres or more in an external (outside plant) environment.

LEVEL OF AWARD

City & Guilds 3667 Level 2 Unit 103, 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.

WHY TRAIN WITH BROADBANDCAREERS

- ✚ high quality training from a reputable, respected company.
- ✚ Well structured, up to date courses. Written by experienced trainers to meet business and learner needs
- ✚ Comprehensive, illustrated, indexed, course.
- ✚ Study material written in plain English
- ✚ The best learning environment as near to real working environment as possible.
- ✚ Study techniques including online and home
- ✚ hands-on practical exercises using a wide range of equipment
- ✚ Focus is on the practical with needless theory omitted



COURSE OBJECTIVES

- ✚ understand how and why fibre optic cabling is used in a telecoms environment for core, metro and access networks.
- ✚ understand how singlemode optical fibres work and the issues that can affect performance
- ✚ identify telecoms link components and explain their uses
- ✚ work safely in an external environment and on fibre optic telecoms systems
- ✚ follow recommended installation practices
- ✚ prepare fibre optic cabling for splicing within a joint enclosure and ODFs
- ✚ fusion splice and manage fibres in a cable joint enclosure
- ✚ joint a customer drop cable into a main network cable
- ✚ terminate fibre optic cables by splicing on pre-terminated pigtails
- ✚ test fibre optic telecoms links using recognised procedures
- ✚ troubleshoot fibre optic cabling

COURSE DURATION

This course requires your attendance for five days, in order to complete theory assessment tests. Practical activities and practical assessment.

However We require you to study the training material sent to you or presented to you online. This material will have a number of knowledge reviews contained within it and 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. Consists of practical training and practice. 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