## 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?
- Summary

### 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 LANS
- Communications
- Benefits and drawbacks of fibre
- Basic components
- Fibre infrastructure in a LAN
- Fibre infrastructure for CCTV

### OPTICAL FIBRES
- What is light?
- Electromagnetic spectrum
- Wavelengths & frequencies
- SI number units
- Optical fibre structure
- How light travels along a fibre
- Multimode & singlemode fibres
- Operational parameters
- Singlemode fibre vs multimode fibre
- Fibre types for datacomms
- Fibre manufacturing

### FIBRE OPTIC CABLES
- Outdoor cables: characteristics
- Indoor cables: characteristics
- Cable types

### FIBRE OPTIC CONNECTORS
- Connector basics & types

### FIBRE OPTIC LAN SYSTEM COMPONENTS
- Cabinets, racks, frames
- Patch panels
- Transmitters (light sources)
- Receivers (detectors)

### CHOOSING AN INSTALLATION METHOD
- Direct termination methods
- Splicing on pigtailed
- Fusion splicing
- Mechanical splicing
- Fusion vs mechanical splicing
- Pre-terminated fibre assemblies

## JOINING FIBRES IN A DATACOMMS 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

### TERMINATION PROCEDURES
- Epoxy polish
- Anaerobic adhesive
- Hot-melt

### 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

### CONTINUITY TESTING
- Testing cabling: continuity
ENSURING A GOOD QUALITY INSTALLATION
- Quality assurance
- Installation procedure

POLARITY IN FIBRE OPTIC INSTALLATIONS
- Simplex installations
- Duplex installations
- Labelling

TESTING DATACOMMS LINKS AND CHANNELS
- 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
- Compiling a test report

OTDR INTRODUCTION
- How does an OTDR work?
- Inside the OTDR
- Summary

OTDR CAPABILITIES
- Distance measurements
- Fibre loss measurements
- Splice loss measurements
- Connector losses

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

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, splice, terminate and test fibre optic cabling in a typical datacomms environment,

This is characterised by low fibre count cables (typically less than 24 fibres) terminated in patch panels/equipment racks.

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

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 102, 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.
- Up-to-date, well structured 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

At the end of this course you will be able to:

- recognise how and why fibre optic cabling is. Used for communications systems.
- Recognise how optical fibres work and the issues that can affect performance.
- Recognise and use the correct terminology and current standards.
- Identify typical components and explain their uses.
- Work safely with optical fibres in an internal environment.
- Follow recommended installation procedures.
- Prepare fibre optic cabling for connectorisation and splicing.
- Terminate fibre optic cabling by fitting connectors.
- Terminate fibre optic cabling by fusion and mechanical splicing.
- Test fibre optic links using recognised procedures.

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 practice.

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