

The BTEC accredited test & measurement course provides additional training for those who wish to increase their understanding or specialise in the field of Fibre Optic testing. This course covers testing techniques and the use of standard Fibre Optic test equipment (VLS/VFL, Light Source & Power Meter, and OTDR). In addition to time spent on chromatic and polarisation mode dispersion and FTTX testing.

This course leads to a nationally recognised BTEC accredited Level 3 advanced award and is covered in 4 units.

Fibre Optic Test & Measurement

This course covers these follow topics:

Unit 1: Concepts of Fibre Optic Testing

- Introduction to fibre optic testing
- Common terms used.
- Power & Loss budgets.
- Fibre Types
- Recognising Fibre Issues
- Fibre Equipment types

Unit 2: Fibre Optic Installation & Commissioning

- Stage 1 a,1b and 2 testing
- Optical Loss Budgets
- Fusion splicing, Mechanical splicing and BFA's
- Test leads—Launch and Reference
- Standards
- Testing procedures:
 - i. Acceptance
 - ii. Installed cable
 - iii. Complete system certification
- Documentation

Unit 3: Fibre Optic Fault Finding & Testing

- Introduction to advanced testing & common terms used.
- Power & Loss budgets.
- Connectors
- Testing Equipment & Techniques:
 - i. VLS/VFL testing.
 - ii. Fibre identifier
 - iii. Microscopes
 - iv. ILM (Light source & Power Meter)
 - v. OTDR Testing
- Documentation

Unit 4: Understanding Chromatic, Polarisation Mode Dispersion and FTTx Testing

- Effects of PMD and CD
- Limitations
- How to minimise PMD and CD
- How to test PMD and CD
- Additional considerations when testing FTTx
 - I. Optimised test equipment
 - II. Certification tools

Please see additional pages for in-depth course content.

- Description:** This course covers all areas to include fault finding and commissioning fibre optic systems. This course is aimed at those who have a good understanding of fibre optics and wish to expand their knowledge and experience as well as achieve an accredited qualification in this area.
- Venue:** **Main Fibreplus Ltd Training Centre: Westbury Wiltshire.**
Centres: Westbury - Dunfermline - Peterborough - Lancaster - Surrey
- Prerequisite:** This course requires a good knowledge of fibre optic, please refer to our City & Guilds 3667-02 Qualification or Fibreplus Ltd accredited 5 day course to achieve the knowledge required to get the most from this course.
- Duration:** 5 days.
- Dates:** Available most weeks throughout the year, refer to Calendar and call for booking availability.
- Price:** Please refer to current price list. **FIBREPLUS PRICE GUARANTEE.** Not to be beaten on a like for like basis.

Introduction to Fibre Optic Testing

Common Terms

- Wavelength, Frequency, dB Loss, dBm Power
- Fibres i.e. OM1, OM2 OM3 & OS1 G652 to G657
- Absorption and scattering, Electromagnetic Spectrum
- Optical Bands O, E, S, C, L & U
- BS Symbols for system diagrams

Health & Safety Considerations

- HASAW
- PPE
- Electricity at Work Regulations
- COSHH
- Laser Safety BS60825

Issues

- Micro & Macro bends
- Dynamic Range
- Ghosts
- Gainers
- Dead zones
- Events
- Bandwidth Limitations, Dispersion, Attenuation

System testing procedures

Stage 1

A) Acceptance Testing

- Testing Optical fibre on the drum
- Internal & External Checks
- Length
- Attenuation Co-efficiency

Stage 1

B) Testing Laid Cable

- Testing of the fibre section
- Termination options for testing
- Loss testing
- Attenuation Co-efficiency
- Bending issues, Micro & Macro

Stage 2

Final Testing of complete system

- Termination options for testing
- Loss testing
- Bending issues, Micro & Macro
- Over sheath resistance testing
- Earthing & Bonding
- Checking Labels Identification i.e. Laser / Cable /Fibre
- Documentation & Schematics

PMD & CD Testing

- Length & Bandwidth Limitations
- Testing for PMD & CD
- How to minimise PMD & CD

Post Testing

- Schematics & Test Documentation
- Maintenance & Trouble shooting

FTTx Testing

- FTTx Considerations
- FTTx test equipment

Equipment

Standard Equipment

- Launch & Tail Leads
- Reference Leads Issues
- Single & Multi-mode fibre issues

BFA & Mechanical Splices

- Use of Bare Fibre Adapters for testing
- Correct uses of Mechanical Splices

Fibre Identifiers, Mandrels & Microscopes

- Correct uses & importance

Understanding Connectors & Adapters

- Type i.e. SC, FC/PC, MPx, LC & ST etc.
- Polish i.e. Flat, Angled, Super & Super Angled
- Faults. Assessing performance of Connector and Adapters

Visible Light Source (VFL) & Loss Test Set (ILM)

- Limitations & Uses
- Understanding the various ILM Kits
- Cutback methods
- Various Referencing methods
- Understanding correct uses
- Active Equipment Testing
- Results and Documentation

OTDR (Optical Time Domain Reflectometer)

- Understanding correct use
- Reflective & Non-Reflective Events
- Interpreting Results
- Fault Locating
- Launch & Tail Leads
- Results and Documentation
- OTDR Dynamic Range



Exam and Assessment Method

- Written Exam
- Practical Assessment

Main Training Centre

Fibreplus Ltd. Unit 1 - 4 Brook Lane,
Westbury, Wiltshire. BA13 4ES

Tel:- 01225 636041 email:-enq@fibreplus.co.uk