Open Awards Qualification Unit

This unit forms part of a regulated qualification. Barring applies (see below).

1 Unit Details

Unit Title:	Fibre Optics Installation and Testing
Unit Reference Number:	M/618/8298
Level:	3
Credit Value:	5
Minimum GLH:	30

2 Learning Outcomes and Criteria

Learning Outcome (The Learner will):	Assessment Criterion (The Learner can):
1. Understand the terminology and principles of light transmission through optical fibres	1.1 Explain the difference between analogue and digital transmission
	1.2 Explain the physics behind the wavelength windows used for fibre optic transmission
	1.3 Explain the structure of an optical fibre and how light travels along a fibre
2. Understand the principles of working safely with optical fibres	2.1 Identify the main environmental, optical, chemical, electrical and fibre fragment hazards
	2.2 Explain safe working practices to minimise the hazards
3. Understand the components of a fibre-based communications network	3.1 Explain the standard features of fibre optic cables
	3.2 Propose solutions to common cable requirements
	3.3 Explain the functions of the basic component parts of an optical connector

4.	Understand the standard techniques used to join fibres	4.1	Explain at least two common problems occurring when joining fibres
		4.2	Evaluate appropriate method for joining fibres in different circumstances
		4.3	Select appropriate joining methods for fibres in a range of different circumstances
		4.4	Recommend measures to reduce connector reflectance
5.	Know how to work out system power budgets	5.1	Explain why dB units are used in fibre optics
		5.2	Analyse loss budgets and compare against power budgets and measured link loss, in dBs
6.	Know how to prepare a fibre optic cable and join cables by fusion splicing	6.1	Select appropriate tools for stripping, cleaning and cleaving a fibre in preparation for splicing and termination
		6.2	Safely use appropriate tools for stripping, cleaning and cleaving a fibre in preparation for splicing and termination
		6.3	Explain the main steps involved in performing a fusion splice and splice together two fibres
		6.4	Summarise the principal causes of poor fusion splices
		6.5	Plan the dressing of fibre into cable trays
7.	Understand test requirements and perform standard tests on optical fibre systems	7.1	Plan appropriate tests and equipment for network commissioning and fault finding
		7.2	Critically compare laboratory and field equipment used for inspecting fibre connectors
		7.3	Explain different methods of referencing a light source and power meter
8.	Know to perform OTDR testing on optical fibre networks and overcome common measurement problems	8.1	Select suitable test parameters and appropriate launch and tail leads for OTDR measurement taking
		8.2	Analyse features/events on the OTDR trace such as: connectors; splices; bends; and combination events
		8.3	Identify problems such as poor launch coupling, mismatches and ghosts
		8.4	Explain the reasons for problems such as poor launch coupling, mismatches and ghosts, and suggest how to overcome the problems

This Unit is barred with K/618/8297 L2 Fibre Optics Introduction

Required Equipment LIst
In order to deliver this unit centres will need to have the following equipment for every **six** (6) learners on the course: Three (3) fusion splices with cleavers Three (3) sets of fibre tools Three (3) fibre trays Joint enclosure Pigtails, fibre, cable, sleeves Connector and cable samples Mechanical splices 2 x OTDRs with test leads Light source and power meter Visible fault locator 2 x Fibre test boxes