



AFRICAN ADVANCED LEVEL TELECOMMUNICATIONS INSTITUTE (AFRALTI)

## COURSE OUTLINE

<b>Title:</b>	<b>CERTIFIED FIBER OPTIC TECHNICIAN (CFOT) COURSE</b>
<b>Duration:</b>	<b>5 days</b>

### Course Overview

Fiber Optic course is designed for anyone interested in becoming a Certified Fiber Optic Technician (CFOT). This course combines theory and hands-on activities. This leads to final test required by the FOA (Fiber Optic Association) and given and graded on the final class day. The course also introduces the participant to industry standards governing outside plant and premises fiber networks. Upon successful completion, this certification is recognized by many companies all over the world including customers and installers.

### Objective

Course prepares the participant to take the CFOT (Certified Fiber Optic Technician) Test given and graded at the end of class. Participant will be able to effectively and efficiently design, install, terminate, and test multimode/singlemode fiber optic networks.

### Target Audience

IT Managers, Telecommunication Engineers, Voice, Data and Video (VDV) and FTTx Technicians.

### Core Areas Covered

1. How Fiber works, advantages and disadvantages of optical Fiber
2. Introduction to optical Fiber transmission systems
3. Manufacture of optical Fiber cables
4. Types, characteristics, classification and structure of optical Fibers
5. Optical devices
6. Optical Networks
7. Safety precautions
8. Optical Fiber installation methods

9. Optical Fiber splicing and termination methods
10. Optical Fiber link testing
11. Optical power budgeting calculations
12. Introduction to fiber-to-the-home.
13. Trouble shooting and maintenance procedures

## **Methodology**

Lectures, PowerPoint Presentation, and hands on practical in splicing, connectorization, termination and testing.

Along with chapter tests, class discussions, and substantial hands-on activities, the CFOT Test is given and graded at the end of the class. Participants will demonstrate the ability to build and test a fiber optic link.

## **Course Outline**

### **Day 1**

- Introduction to optic fiber.
- History of Fiber Optics.
- Theory of light.
- How fiber works,
- Fiber specifications (geometry, attenuation, bandwidth).
- Frequency spectrum and multiplexing (WDM)
- Fiber Optics Safety.
- Terms and Definitions.
- Hands-on Session: view samples of fibers and cables.

### **Day 2**

- How fiber optic links work (transmitter, receiver, power budget)
- Fiber Optic communication networks.
- Networks (telecom, data, CATV, etc.).
- Fiber optic technology and manufacture of optic fiber cable
- Preliminary planning and detailed survey
  - Trenching
  - Ducts and cable laying
- Standards and Code compliance.
- Reading prints and specs.
- Planning the installation.
- Pulling cable (installation hardware, guidelines to pulling, practices.
- Documentation.

### **Day 3**

- Types of Cables.
- Cable preparation
- Connectorization.
- Fusion and mechanical splicing
- Hardware (patch panels, splice closures, conduit, etc)

- Hands on:
  - Termination (one type, adhesive or prepolished/splice)

#### **Day 4**

- Continuity and tracing.
- Visual inspection of connectors and bare fiber.
- Loss with power meter and source.
- Hands on: Basic insertion loss testing with source and power meter,

#### **Day 5**

- Fiber optic design and PON
- PON
- FTTX
- Maintenance of a fiber optic link
- OTDR techniques: Trouble shooting and service restoration
- Questions and answers

**Administering of Test: Written CFOT Test (approx 2 hours)**

#### **Reference materials**

Textbook: Fiber Optics Reference Guide by Jim Hayes, Supplementary Study Materials includes Workbook and Lab Manual.

AFRALTI CFOT, CPCT, CFOS/D, CFOS/H FOA Approved School # 758

<http://foa-approved.org/schools/african-advanced-level-telecommunications-institute-afralti>

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