

Certified Fiber Optic Technician - FOA

4.5 Days, 3.2 CEUs

In this course, students will learn how to understand the limitations of bending, effects of temperature, how to effectively splice and connectorize fiber optics, troubleshoot a system, and confirm the quality of connections and splices. All these skills are necessary to properly install and repair fiber optics systems.

Participants completing the course exercises and lab requirements will be given the Fiber Optic Association (FOA) exam for Certified Fiber Optic Technicians. This exam is proctored by a certified FOA instructor and participants must score a minimum of 70% to meet the FOA certification requirements. This course is intended for electrical contractors, electricians, IT technicians, communications technicians, and any personnel that specifies, installs, and restores fiber optics systems.

Lab and Classroom Attire

AVO is committed to the personal safety of each participant and requires safety glasses, long pants and ANSI rated "safety-toe" work shoes for lab activities. Lecture courses may involve a tour of a work or shop area and for this reason open-toe shoes and shorts are not considered appropriate attire for the classroom.

Learning Objectives

To receive 3.2 CEUs, the participant must attend 4.5 days of class (32 contact hours) and attain a minimum grade of 70% on the final exam. Upon completion of this course, the participant will demonstrate that they are able to:

- Identify and specify components for a fiber optic system.
- Determine the appropriate fiber for different applications.
- Install fiber optic cable and test for EIA/TIA acceptable losses.
- Utilize fiber optic test equipment including an optical time domain reflectometer (OTDR), light source, and power meter.
- Perform fusion splices and test them mechanically according to EIA/TIA standards.
- Identify damage to cables and the associated causes.
- Utilize attenuators to adjust power levels (dBm) at the receiver.

SCOPE

Day 1* (7 contact hours)

- I. Introduction
 - A. Schedule
 - B. Course Outline
- II. Fiber Background (1 hr)
 - A. History of FOA
 - B. History of Fiber Optics
 - B. Justifying Fiber Installations
- III. Basics of Fiber Optics (1 hr)
 - A. Terms and Definitions
 - B. Systems of Measurement

- IV. Fiber Optic Communications (1 hr)
 - A. Applications
 - B. Technology
 - C. Benefits and Advantages
- V. Fiber Optic Transmission Systems and Components (1 hr)
 - A. Data Links and Transmission Systems
 - B. Optic Data Link
 - C. Optical Sources
 - D. Optical Detectors
 - E. Exercise

- VI. Optical Fiber (1 hr)
 - A. Components
 - B. Construction
 - C. Types of fibers
 - D. Attenuation
- VII. Fiber Optic Cable (2 hrs)
 - A. Types
 - B. Applications
 - C. Installation Specifications
 - D. Environmental Specifications
 - E. Cable Ratings and Markings

*Class scheduling times may vary based on discussions and size of class

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Day 2 (7 contact hours)

- VIII. Connectors and Splices (1 hr)
 - A. Fiber Joints and Connectors
 - B. Types of Connectors
 - C. Types of Splices
 - D. Mechanical Splice
 - E. Fusion Splice
 - F. Exercise
- IX. Labs (5 hrs)
 - A. Mechanical Splices on Multi-Mode and Single-Mode Fiber
 - B. Types of Connectors
 - C. Types of Splices
 - D. Exercise
- X. Network Design (1 hr)
 - A. Determine Needs
 - B. Determine Routing Requirements
 - C. Create Installation Plan

Day 3 (7 contact hours)

- XI. Testing Labs (7 hrs)
 - A. Continuity
 - B. Visual Inspection of Connectors
 - C. Optical Power
- Day 4 (7 contact hours)
- XII. Testing Labs (7 hrs)
 - D. Loss Testing
 - E. OTDR Testing
 - F. Labs

Day 5 (4 contact hours)

- XIII. Fiber Optic Installation (1.5 hrs)
 - A. Types of Installation
 - B. Cable Pulling
 - C. Microtrenching
 - D. Restoration
- XIV. Review of CFOT Exam (0.5 hr)
- XV. FOA Exam (2 hrs)



STANDARD EQUIPMENT LIST
Certified Fiber Optic Technician - FOA
COURSE NUMBER 404C, Rev 4

REVISED: 11/4/2024

BY: Alan Mark Franks

DAYS: 4.5 DAYS

NOTE: CFOT exams and answer guides are not included in student packets and will be placed in the instructor class folder

TEXT (PER 1 STUDENT)	
QUANTITY	ITEM
1	<i>FOA Reference Guide to Fiber Optics, July 10, 2024 - 2nd edition</i>
1	<i>Jim Hayes (ISBN-9798329400007</i>
1	CFOT Student Packet
1	Current FOA AFOT Exam (From FOA Internet site with equal number of 22A, 22B, and 22C)

TEXT (PER INSTRUCTOR)	
QUANTITY	ITEM
1	Answer Guides for tests 22A, 22B, 22C

MATERIALS NEEDED (PER CLASSROOM)	
QUANTITY	ITEM
*1	PROJECTOR OR TV WITH PROJECTION CAPABILITIES
*1	DRY ERASE BOARD WITH MARKERS AND ERASERS
*10	STUDENT TABLES
*10	STUDENT CHAIRS

Equipment From RentelCo (Per Class)	
QUANTITY	ITEM
2	Fusion Splicer with Cleaver (Current Models)
1	Multimode OTDR (Current Model W/FC)
1	Singlemode OTDR (Current Model W/FC)
1	Light Source (Single Mode and Multi Mode)
1	Power Meter (Single Mode and Multi Mode)
1/LOT	MM Jumpers & Adaptor Kit (As specified in TRS RentelCo Order)
1/LOT	SM Jumpers & Adaptor Kit (As specified in TRS RentelCo Order)

Additional Tools and Equipment Included In 3 Black ABS Cases Designated For CFOT Classes (Per Student)

QUANTITY	ITEM
1	Standard Safety Glasses (Remain with Student)
3	Type ST 62.5/125mm Connector
1 Per 2 Students	Fiber Optic Tool Kit
3	SC Anaerobic Connector - MM - Zirconia
1 Per 2 Students	FIS Heat Cure Epoxy (Blue Cure 2.0 Grams)
4 Meters/Student	62.5/125mm Multimode Simplex Cable (3mm O.D)

Additional Tools and Equipment Included In 3 Black ABS Cases Designated For CFOT Classes (Per Class)

QUANTITY	ITEM
3	1-Km Spool of Singlemode Fiber
3	1-Km Spool of Multimode Fiber
2	ST-ST Multimode Jumper
2	ST-ST Connector Barrel
2	SC/FC Connector Barrel
2	ST/FC Connector Barrel
1	Anaerobic Adhesive Kit
3	Multimode Mechanical Splice (2 Different Ones)
3	Single Mode Mechanical Splice (2 Different Ones)
2	Electric Heat Gun
1	Multimode Launch Cable
1	Single Mode Launch Cable
1	Fiber Optic Cable Props

Special Instructions for Materials/Consumables:

Currently Purchased Through "Fiber Instrument Sales" www.fiberinstrumentsales.com

- 1) Simplex Cable (Patchcord) - 3.0 mm Simplex Cable Part # M62-SX01-C3NRO
- 2) SC Connector - Type SC Connector FIS part # 13066AR
- 3) ST Connector - Type ST Connector FIS part # F10066100 (100 count)
- 4) Replacement Consumables - Replacement Consumables FIS part # F1-0053D
- 5) Replacement Tools As Needed
- 6) Replacement Fiber Optic Cables As Needed
- 7) Use current FIS Product Catalog for additional purchases that occur from time to time based on use.

NOTE: It is the instructors responsibility to provide an itemized list of materials and consumables that require replacing prior to the next CFOT course. This list will be compiled at the completion of the course and forwarded to the resource manager for purchase.

FOR VIRTUAL CLASSES:

CONTENT MATERIAL WILL BE PROVIDED IN DIGITAL FORMAT

NOTE: All items indicated with an asterisk (*) must be supplied by the client on On-Site courses