

Fiber Optics for Oil/Gas

Course Description

This three-day class has been developed with 12 hours of classroom training and 12 hours of hands-on skills labs that provide the practical understanding and skills required to properly design, install, and maintain fiber optics systems in petrochemical environments such as offshore drilling, pipeline, refineries, and process plants. Students will use the latest fiber optic technology and equipment to learn how to splice, connectorize, test, and troubleshoot petrochemical-based optical fiber networks in order to increase efficiency, reliability and on-the-job safety as well as reduce overall production costs and facilities downtime.

Course Level

Introductory to intermediate. Beginners to experienced oil and gas technicians find the class and extensive hands on skills training beneficial.

Course Options

Three days – Classroom lecture and hands-on exercises.



COURSE FEES

- Three-day course \$1500
- Optional ETA Fiber Optic Installer (FOI) Exam \$150

Certification

ETA Fiber Optic Installer



Complete the three-day Fiber Optics for Oil/Gas course and pass the ETA Fiber Optic Installer (FOI) certification exam. The FOI is designed for those working with both multimode and single-mode fibers.

Custom Classes for Oil and Gas

Ask about custom fiber optic training for offshore and topside refineries.

Classroom (12 Hours)

Introduction to Fiber Optics

Fiber Optic Applications
Drivers Behind Oil/Gas Applications
Pipeline
Offshore & Subsea
Refineries & Storage
Bandwidth Demand

Optical Fiber Theory

Properties of Fiber
Attenuation & Insertion Loss
Reflection & Optical Return Loss
Dispersion & Bandwidth
Optical Fiber Types

Fiber System Design

Physical Architecture
Fiber System Standards
Safety & Design Concerns
Fiber Optic Sensors
Passive Device Technologies
Loss Budget Calculations

Fiber Optic Cable

Cable Design & Types
Aerial Self-supporting
Underground Conduit
Petrochemical Resistances
Undersea Requirement

Fiber Optic Cable Installation

Route Planning & Layout
Cable Handling & Bend Radii
Pulling or Payout
Cable Preparation

Fiber Optic Termination

Connector Types
Termination Methods
Breakout & Pigtails
Inspection & Cleaning

Fiber Optic Splicing

Fiber Cleaning
Fiber Cleaving
Fusion & Mechanical Splicing
Splice Protection & Fiber Routing

System Testing & Troubleshooting

Optical Loss Testing
Optical Time Domain Reflectometers (OTDRs)
Fault Location
Visual Inspection
Testing Terminal Equipment
Typical Causes of Failures
Restoration Planning

Hands-on (12 Hours)

Cable & Fiber Preparation

Fiber Preparation & Handling
Cable Preparation
Mid-entry Techniques
Closure & Panel Preparation

Mechanical & Fusion Splicing

Fiber Cleaning & Preparation
Splicing 250- μ m & 900- μ m fibers
Fiber Handling & Cleaving
Fusion Splicing

Connectorization & Termination

SC • ST • LC • Breakout
Field Installable • Factory Pigtails
Connector Cleaning & Inspection
Troubleshooting Connectors

Optical Loss Testing

Test Tx & Rx Power Levels
Troubleshooting Using OLTS, VFIs
Event Loss Analysis
Documentation & Records

Optical Time Domain Reflectometers

OTDR Setup & Operation
Reflectance Testing
System Acceptance Testing
Splice & Span Loss Testing
Maintenance & Restoration