Fiber Optics for Traffic Systems

Course Description

UPDATED

This four-day class offers 16 hours of classroom training and 16 hours of hands-on skills labs that provide the practical understanding and skills required to properly design, install, and maintain modern fiber-optic intelligent transportation systems (ITS). Students will cover essential learning objectives for the International Municipal Signal Association (IMSA) Level I and Level II certification requirements.

Course Level

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

Course Options

Fiber Optics for ITS Level I

Two days of classroom training covering fiber optic theory, installation, splicing, system design, testing, and maintenance disciplines. In addition, the course includes four chapters on video transmission, real-time video, traffic control systems, and next generation systems that are key to the evolution from analog to digital ITS applications. The class also includes optical multiplexing (WDM, CWDM), bidirectional transmission, and bandwidth considerations.

Level I Classroom (16 Hours)

Introduction to Fiber Optics
- Fiber Theory and Optical Fibers
- Cables • Connectors • Splicing
- Panels, Trays, and Closures
- Installation Methods and Tools
- Testing and Test Equipment
- Maintenance and Restoration
- Fiber and Laser Safety
- Light Sources and Detectors
- Repeaters and Regenerators
- Digital and Analog Transmission
- Passive Devices

System Standards

System Design

Video Transmission
- Transmission Formats
- Data Transport Systems

Real-time Video
- Multi-channel • High-density
- Digital and FM Transmission

Traffic Control Systems
- Traffic Controllers
- Data Modem Protocols

Next Generation Systems
- All-IP • Hybrid • Legacy

Fiber Optics for ITS Level II

Two days of in-depth hands-on training on fiber optic splicing, cable preparation, OTDR operation, optical loss testing, and system design.

Level II Hands-on (16 Hours)

Station #1 – Splicing
- Fusion and Mechanical
- Restoration Scenarios
- Fiber Handling and Cleaving
- Terminating No-polish Connectors

Station #2 – Cable Preparation
- Loose Tube Cables
- Indoor/Outdoor Cables
- Patch Panel Preparation
- Splice Closure Preparation
- Mid-entry Practices

Station #3 – OTDR Operation
- Acceptance Testing
- Span Acceptance • Splice Loss
- Reflection Testing
- Emergency Restoration
- Troubleshooting

Station #4 – Optical Loss Testing
- Cleaning and Inspection
- Link Loss Measurement
- Identifiers and Tracers
- Documentation

Station #5 – Systems
- CCTV Video Systems
- Multi-drop Data Networks
- Measure Tx and Rx Power
- Variable and Fixed Attenuators

COURSE FEES

- Fiber Optics for ITS Level I $735
- Fiber Optics for ITS Level II $830
- Optional IMSA Level I or Level II Certification $125 each

Attention IMSA Members

The Light Brigade and the International Municipal Signal Association (IMSA) are working closely to offer the Fiber Optics for ITS course at locations around the country. IMSA members have two options for attending this course:

1. Attend a public offering of the course at one of our previously-scheduled locations. Contact The Light Brigade directly to register.

2. Host a private offering of the course at the location of your choice and on the dates of your choice. Contact your local IMSA chapter if you are interested in sponsoring a course near you.

IMSA members are eligible for a 15% discount on all Light Brigade training courses.

Certification

IMSA Fiber Optics for ITS Levels I and II

For Level I certification, complete the Fiber Optics for ITS Level I course and pass the Level I certification exam.

For Level II certification, complete the Fiber Optics for ITS Level II course and pass the Level II certification exam. Level I certification is required to be eligible for Level II.

"This class was completely unbelievable. I was totally blown away by the knowledge of [the instructor]. How he remembers all the numbers and data is truly amazing. It's not often that you meet someone so smart, but yet manages to teach a class on a level that we could all understand." – **Gail Hannaford, MISSOURI DOT**

(206) 575-0404 • (800) 451-7128 • Fax (206) 575-0405 • www.lightbrigade.com

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