

## CONSULTANTS TO THE ELECTRONICS INDUSTRY

- MANUFACTURING START-UP
- PROCESS EVALUATION
- SUBCONTRACTOR QUALIFICATION
- EQUIPMENT EVALUATION
- LEAD-FREE, ESD, PROCESS AND QUALITY AUDITS

## THE LEADER IN HI-TECH TRAINING

- EXPERT TRAINING IN THE LATEST TECHNOLOGIES
- INDUSTRY-DEMANDED CERTIFICATIONS



## PCB TECHNOLOGY

- **QUALITY & INSPECTION**  
IPC-A-610 INSTRUCTOR & OPERATOR CERTIFICATION
- **SOLDERING & ASSEMBLY**  
IPC J-STD-001 INSTRUCTOR & OPERATOR CERTIFICATION
- **BARE BOARD INSPECTION**  
IPC-A-600 INSTRUCTOR & OPERATOR CERTIFICATION
- **REWORK & REPAIR**  
IPC-7711 INSTRUCTOR & OPERATOR CERTIFICATION  
IPC-7721 INSTRUCTOR & OPERATOR CERTIFICATION
- **HAND SOLDERING SKILLS**  
SOLDERING BASICS, THROUGH-HOLE & SURFACE MOUNT TRAINING



## CABLE & WIRE HARNESS TECHNOLOGY

- **QUALITY & INSPECTION**  
IPC-A-620 INSTRUCTOR & OPERATOR CERTIFICATION
  - **HANDS-ON LABS**  
SOLDERING, CRIMPING & HARNESS ASSEMBLY TRAINING
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- ## FIBER OPTICS TECHNOLOGY
- **INSTALLER & TECHNICIAN CERTIFICATION**
  - **FUNDAMENTALS**
  - **TERMINATIONS & CLEANING**

## FIBER OPTICS TECHNICIAN CERTIFICATION

5-Day Course for Commercial Applications with Extensive "Hands-On"

### COURSE DESCRIPTION

Our mission is to provide our students with the hands-on knowledge and ability to successfully terminate a variety of ST, SC, FC, and Small Form Factor (SFF) connectors; perform fusion splicing, mechanical splicing, and assemble a splice enclosure. Students will perform cable preparation for fusion splicing and mechanical splicing. Additionally, students will be trained to fully test and troubleshoot fiber optic cables and fiber optic systems using an Optical Time Domain Reflectometer (OTDR). Students will test and troubleshoot a Local Area Network (LAN) system with various faults. Students will test all completed fusion and mechanical splices, within the splice enclosure, and ensure that the cables meet the minimum bend radius using an (OTDR).

### WHO SHOULD BECOME CERTIFIED

Anyone who would be involved with designing, configuring, installing, testing, troubleshooting, or maintaining fiber optic systems; technicians, system analysts, design engineers, managers, telecommunications professionals, fusion splicers, mechanical splicers, end users, etc.

### CERTIFICATIONS

Our five day Certification course will qualify you for:

- BICSI - RCDD & Installation Program Continuing Education Credits
- 3M - Our instructors are 3M Factory Certified Trainers and upon successful completion, you will be a 3M Certified Fiber Optics Technician
- LightTech - A Certificate of Completion will be awarded to all successful participants
- GN NETTEST - A Certificate of Completion will be awarded to all successful participants
- Alcoa Fujikura - A Certificate of Completion will be awarded to all successful participants
- ETA - (Electronics Technicians Association)  
For an additional cost of \$150, we will administer the ETA Technician examination. Upon successful completion, you will be certified as an ETA Certified Fiber Optics Technician
- ETA - (Electronics Technicians Association)  
For an additional cost of \$150, we will administer the ETA Installer examination. Upon successful completion, you will be certified as an ETA Certified Fiber Optics Installer

**MATERIALS** For each class, all the necessary tools and materials will be supplied. Students are welcome to bring their own documents if they wish.

**LOCATION** Classes are held at EPTAC's Corporate Training Center located just 35 miles from Boston and at locations throughout the US and Canada.

**ON-SITE TRAINING** Please call a training consultant and ask about customized course content, on-site training and training around your production schedules.

**REGISTRATION** For up to date pricing and more information on any of the EPTAC programs, or to enroll, please call us toll free or visit [eptac.com](http://eptac.com).

TOLL FREE: **1-800-64-EPTAC**  
FAX: **603-296-2377**  
E-MAIL: **REGISTER@EPTAC.COM**  
WEB: **EPTAC.COM**

### COURSE OUTLINE

#### DAY 1 - FIBER OPTICS, THE PHYSICAL LAYER

- Introduction to fiber optics
- Advantages of fiber optics over copper
- Fiber optic theory & the properties of light
- Applications and principles
- Fiber optic safety precautions
- Reflection and refraction
- Propagation of a fiber optic light wave
- Attenuation of a fiber signal
- Fiber optic cable construction and selecting the right fiber
- Fiber optic distribution hardware
- Stripping and scoring of fiber optic cable

#### DAY 2 - CONNECTORIZATION AND TESTING LAB

- Identification of fiber optic connectors
- 3M connectorization; Hot Melt, AMP MT-RJ, epoxy (ST & SC), VF-45 (Volition)
- Siemon connectorization; ST with Anaerobic Adhesive
- Loss Budgets calculations
- Testing demonstration and discussion using a light source and power meter

#### DAY 3 - ADVANCED TOPICS AND EVALUATION

- AMP Connectorization; ST to SC Lightcrimp Plus (pre-polished)
- Small Form Factor; MT-RJ to MT-RJ
- Evaluation of students termination skills
- Optical power testing of student cable assemblies
- Evaluation of hands-on performance
- Certifications: 3M - Certificate of Completion, BICSI - Continuing Education Credits (CEC)
- Final course review
- Optional Electronics Technicians Association (ETA) Fiber Optic Installer Certification (FOIC) examination

#### DAY 4: OPTICAL TIME DOMAIN REFLECTOMETER (OTDR)

- Lecture**
- OTDR Theory
  - OTDR Usage
  - Scattering, Reflections and Absorption
  - OTDR Measurements
  - OTDR Events (Reflective & Non-Reflective)
  - Deadzones (Event & Attenuation)
  - Gainers and Losers
  - Resolution
  - Trace Basics
  - Troubleshooting

#### Hands On

- Demonstration of OTDR Operation
- Students Operate OTDR
- Using the OTDR to Map a LAN System
- Troubleshooting Techniques
- Students use OTDR to Locate Faults

#### DAY 5 - INTRODUCTION TO SPLICING

- Lecture**
- Types of Fusion Splicer
  - Profile Alignment System (PAS) Splicer
  - Fixed V-Groove Splicer
  - Mass Fusion Splicer (Ribbon)
  - New Generation Mini Splicer (Fully Automated)
  - Types of Splice Enclosures
  - Wall Mount Enclosure
  - Rack Mount Enclosure
  - Splice Tray
  - Splice Shelf
  - Aerial Enclosure
  - Pedestals
  - Underground

#### Hands On

- Demonstrate Operation of Fusion Splicer
- Students Perform Fusion Splicing
- Prepare Cables for Splicing inside a Splice Enclosure
- Demonstrate Assemble Procedures for Splice Enclosure
- Students Assemble Splice Enclosure
- Test Splices using an OTDR
- Optional ETA Certified Technician Exam (Prerequisite: Certified Installer)