



### Minneapolis, Minnesota

Please contact us for additional locations and on-site training opportunities in your area.

#### 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 & IPC-7721 Instructor & Operator Certification

##### Hand Soldering Skills

- Soldering Basics, Wires & Terminals, Through-Hole and Surface Mount Training

##### PCB Fundamentals

- Component Identification
- Electrostatic Discharge

##### PCB Design

- IPC Designer & IPC Advanced Designer Certification

#### COUNTERFEIT COMPONENTS

##### IDEA-STD-1010

- Seminars & Workshops
- IDEA-STD-1010 Essentials
- SAE AS5553 Counterfeit Electronics

#### CABLE & WIRE

#### HARNESST TECHNOLOGY

##### Quality & Inspection

- IPC-A-620 Instructor & Operator Certification

##### Hands-On Labs

- Crimping & Harness Assembly Training

#### TECHNICAL SUPPORT

- Manufacturing Start-Up
- Process Evaluation
- Subcontractor Qualification
- Equipment Evaluation
- Lead-Free, ESD, Process and Quality Audits

#### IPC-A-610 Certified IPC Trainer

Become certified to train your workforce to identify accept/reject criteria for all three classes of assembly production.

Feb 9 - 12  
Jun 1 - 4  
Aug 24 - 27  
Oct 5 - 8

##### Recertifications (Req. 24 mos.)

Feb 16 - 17  
Jun 22 - 23  
Oct 13 - 14

#### IPC-A-610 Certified IPC Specialist

Learn the accept/reject criteria for all three classes of assembly production as published in the most widely used inspection specification, IPC-A-610.

The following dates apply to Certification or Recertifications (Req. 24 mos.)

Jan 20 - 22  
Feb 9 - 11  
Mar 9 - 11  
May 27 - 29  
Jun 1 - 3  
Jul 21 - 23  
Aug 24 - 26  
Aug 31 - Sep 2  
Oct 5 - 7  
Nov 3 - 5

#### Interactive PCB Inspection Lab (optional)

Hands-on inspection of real PCB assemblies and application of accept/reject criteria.

Jan 23  
Feb 13  
Jun 5  
Jul 24  
Aug 28  
Sep 3  
Oct 9  
Nov 6

#### J-STD-001 Certified IPC Trainer

Acquire the skills, instructional materials and industry certification to deliver IPC's J-STD-001 Operator Training program.

Jan 26 - 30  
Mar 16 - 20  
May 18 - 22  
Jul 6 - 10  
Sep 14 - 18  
Nov 9 - 13

##### Recertifications (Req. 24 mos.)

Feb 18 - 19  
Jun 24 - 25  
Oct 15 - 16

#### J-STD-001 Space Addendum Certified IPC Trainer (optional)

Jan 30  
Feb 19  
May 22  
Jun 25  
Sep 18  
Oct 16

##### Recertifications (Req. 24 mos.)

Feb 19  
Jun 25  
Oct 16

#### J-STD-001 Certified IPC Specialist

Interpret the J-STD-001 specification in 5 one-day modules: Theory, Wires & Terminals, Through-Hole, Surface Mount and Inspection

Jan 26 - 30  
Mar 16 - 20  
May 18 - 22  
Jul 6 - 10  
Sep 14 - 18  
Nov 9 - 13

#### J-STD-001 Space Addendum Certified IPC Specialist (optional)

Module 6 covering the 001 Space Addendum.

Jan 30  
Mar 20  
May 22  
Jul 10  
Sep 18  
Nov 13

#### IPC-A-600 Certified IPC Trainer

Become an expert in the quality standards of printed circuit boards and be certified for inspection and instruction.

Mar 4 - 6  
Jul 29 - 31  
Dec 2 - 4

#### IPC-A-600 Certified IPC Specialist

Learn quality standards of PCBs and be certified for inspection of bare boards.

Mar 4 - 6  
Jul 29 - 31  
Dec 2 - 4

##### Recertifications (Req. 24 mos.)

Mar 4 - 6  
Jul 29 - 31  
Dec 2 - 4

Dates and locations are subject to change. Please call to check current dates and availability. Minimum enrollments are required for a class to be held.

#### IPC-A-620 Certified IPC Trainer

Become an expert in quality standards of Wire, Cable and Harness, and be certified for inspection and instruction.

Feb 23 - 26  
Apr 20 - 23  
Jun 15 - 18  
Aug 3 - 6  
Oct 26 - 29  
Dec 7 - 10

##### Recertifications (Req. 24 mos.)

Apr 27 - 28  
Sep 28 - 29

#### IPC-A-620 Certified IPC Specialist

Learn assembly requirements and accept/reject criteria for all three classes of cable and wire harness assembly.

Feb 23 - 26  
Apr 20 - 23  
Jun 15 - 18  
Aug 3 - 6  
Oct 26 - 29  
Dec 7 - 10

##### Recertifications (Req. 24 mos.)

Feb 23 - 26  
Apr 20 - 23  
Jun 15 - 18  
Aug 3 - 6  
Oct 26 - 29  
Dec 7 - 10

#### IPC-A-620 Hands On Labs (optional)

Additional day of hands-on labs in which students perform necessary procedures for building an entire wire harness assembly

Apr 24  
Jun 19  
Oct 30

#### IDEA Counterfeit Component Workshop

A basic introduction to Counterfeit Mitigation and to IDEA-STD-1010, including methods for the visual detection of counterfeit and standard characteristics through a hands-on workshop. A unique opportunity to examine real components with live, on-site microscopic magnification to obtain experience in the visual inspection techniques of IDEA-STD-1010 and learn how to detect counterfeit components firsthand.

Apr 29

#### IDEA-STD-1010 Essentials

Develop an in-depth knowledge of the IDEA-STD-1010 "Acceptability of Electronic Components Distributed in the Open Market" standard and a thorough understanding of its contents, application and use in the component inspection counterfeit detection process.

Sep 30 - Oct 1

#### IPC-7711/7721 Certified IPC Trainer

Become qualified to instruct operators in the required knowledge and skills for component rework and bare board repair.

Feb 2 - 6  
May 11 - 15  
Aug 10 - 14  
Nov 16 - 20

##### Recertifications (Req. 24 mos.)

Jul 27 - 28

#### IPC-7711/7721 Certified IPC Specialist

Learn general requirements and practice damage-free removal and replacement techniques for wires and terminals, through-hole components and surface mount components. Develop advanced skills for repairing PWBs, including conductor/land repair, lifted conductor/land/pad repair and base material.

Feb 2 - 6  
May 11 - 15  
Aug 10 - 14  
Nov 16 - 20

##### Recertifications (Req. 24 mos.)

Jul 27 - 28

#### Hand Soldering Certification

Introduces the basics of soldering, terms & definitions and equipment familiarization. Wires and Terminals, and Through-Hole Soldering and Rework is taught through hands-on construction and inspection of two Through-Hole boards with 100 inspection points. Students learn the accept/reject criteria for Surface Mount Assembly and Rework first hand through the construction, inspection and rework of a surface mount board with over sixty components. **Lead and Lead-free included.**

Jan 12 - 16  
Apr 13 - 17  
Jul 13 - 17  
Oct 19 - 23

#### IPC-6012 Certified IPC Trainer

Become an expert in the design, specifications, fabrication and inspection of printed circuit boards.

May 5 - 8  
Sep 22 - 25

#### IPC-6012 Certified IPC Specialist

Learn about the design, specifications, fabrication and inspection of printed circuit boards.

May 5 - 8  
Sep 22 - 25