

## Electronics Assembly for Engineers

Acquire a practical understanding of PCB assembly processes and electronics manufacturing in just 25-30 hours!

A new, self-paced online course available 24/7 from any device with an internet connection.



### COURSE OBJECTIVE AND OVERVIEW

After completing the course modules, you will be able to identify and explain the key tools, materials and processes employed to assemble printed circuit boards within an electronics manufacturing facility.

#### 1: Intro. to the Electronics Industry

- Classes of Electronic Products
- The Role of IPC Standards
- The Role of IPC Training & Certification

#### 2: Intro. to Printed Circuit Board Fabrication

- PCB Fabrication Process
- Basic parts of a PCB

#### 3: Intro. to Printed Circuit Board Assembly

- Common PCA Components
- Attachment Methods

#### 4: Component Identification

- TH & SMT Components
- Component Reference Designators
- Active & Passive Components
- Polarity and Orientation
- Cables, Wire Harnesses & Terminals

#### 5: Drawings, Specifications & Measurements

- Electronics Assembly Documentation
- Engineering Drawings as a build reference
- How Drawings and Work Instructions Relate
- Using a Bill of Material (BOM)
- Common Measurement Tools

#### 6: Surface Mount Technology

- SMT Assembly Process
- Tools & Materials
- Reflow Soldering
- SMT Inspection & Defects

#### 7: Through-Hole Technology

- TH Assembly Process
- TH Assembly Methods, Tools, & Machines
- TH Component Inspection & Defects

#### 8: Wire, Cable & Harness Technology

- Introduction to Wires and Cables
- Wire Preparation & Inspection
- Introduction to Terminations
- Soldered & Crimped Terminations
- Connectorization
- Splicing
- Harness Assembly

#### 9: Introduction to Hand Soldering

- Component Acceptability
- Common Hand Soldering Tools and Materials
- Best Practices & Methods for Hand Soldering
- Hand Soldering Defects

#### 10: Conformal Coating

- What is Conformal Coating?
- Equipment, Tools & Materials
- Conformal Coating Process
- Inspection & Defects

#### 11: Hardware

- Introduction & Assembly Tools
- Materials & Consumables
- Correct Hardware Installation

#### 12: Quality Assurance

- What Quality Means for Electronics Manufacturing
- Tools for PCB & PCA Inspection
- Inspection based on IPC-A-600 & IPC-A-610
- Identify PCB & PCA Defects

## Electronics Training Courses

Researched-based learning strategies and 24/7 online access allow users to learn more in less time.



### + COURSE STRUCTURE

IPC electronics training courses include video presentations, clear explanations, detailed illustrations, interactive activities, and practice quizzes, all formulated to make complex topics easy-to-understand and master.

#### Course introduction

A brief video describes the content, navigation, and learning strategies employed in this course.

#### Each learning module contains:

##### 1. Pre-quiz

These short ungraded quizzes help learners identify gaps in knowledge and primes them to focus on the key topics discussed in each module.

##### 2. Instructional Content

- Bite-sized segments of content allow learners to fully process one step or concept before moving on to the next.
- A carefully curated combination of text, graphics, and videos motivates learners to actively engage with the content and retain information over time.
- Interactive practice activities provide learners with meaningful opportunities to apply new knowledge and skills.

##### 3. Post-quiz

Five to ten-question quiz designed to help you confirm what you know, identify areas that still need work and quickly link back to the original content for review.

### + KEY FEATURES

- Modules are divided into easily digestible micro-learning lessons
- Structured for self-directed learning
- Pre- and post-module assessments
- In module knowledge checks and assessments
- Engaging content, including photos, illustrations, animations and videos
- Interactive exercises
- Detailed syllabus
- Comprehensive course glossary

