

## **Combo-Technology Rework Course Overview**

### **General:**

This is a comprehensive hands-on course designed for the beginner. It will instruct the student on protection of electronic circuitry from the hazards of ESD (Electrostatic Discharge), basic component identification, and workmanship standards. This is a hands-on course that will teach the candidates basic skills in PTH (pin-through-hole) and SMT (surface mount technology) installation and removal using state of the art workstations. The course is structured to be in accordance with IPC-A-610 and IPC 7711.

### **Day One**

The student will become familiar with basic ESD concepts, minimizing ESD in the workplace, and some general ESD rules. The class will also view the IPC ESD video. The students will be introduced to some general IPC terms and definitions (product classifications, acceptance criteria, etc.) and will become familiar with selected common electronic terms. The class will familiarize themselves with the PACE MBT 250 rework stations and become comfortable with soldering tip care and safety.

### **Day Two**

The class will study the basics of soldering including the nature of fluxes, proper cleaning methodology, formation of intermetallics, solder melting points, etc. The student will become familiar with the IPC component identification desk reference manuals and workmanship standards as they pertain to PTH and SMT technology. Through a series of demonstrations and hands-on experience the student will construct a specially designed PTH board that includes all the common PTH components in use in today's manufacturing environment.

### **Day Three**

The student will continue to build the PTH board while his/her workmanship is constantly evaluated and suggestions made to improve their technique. The student will finally build a functional circuit that can be removed from the board and used as a workmanship sample for his employer. The student will then remove all the components on their board using vacuum extraction techniques.

#### **Day Four**

The class will be introduced to surface mount technology and be asked, after appropriate demonstrations, to construct a SMT board. Types of components are varied and include components ranging from 1206 chip components to fine pitch gull wing devices.

#### **Day Five**

The student will continue to build their SMT board. Upon completion of all component types the students will remove the components using a variety of conductive and convective methodology. The goal is to remove all components without inducing damage to the board.

Upon successful completion of the course students will receive a Circuit Technology Certification good for a period of two years.