# The "DEADLY SINS" OF SMT ASSEMBLY

**Workshop Title:** **The "Deadly Sins" of SMT and Lead-Free Assembly**

**Instructor(s):** **Phil Zarrow, ITM Consulting**

**Duration:** **1/2 Day**

**Objectives of the Workshop:**

Everyone has heard of the "7 Deadly Sins" that will, supposedly, lead one to Hell. There are also the "Deadly Sins" of SMT - there are more than just 7 – and they can make your assembly process a "hell on earth".

During the course of our assembly process audits and troubleshooting work, we tend to see trends in the types of errors and problems. In other words, a lot of people are making the same mistakes. The resulting process problems wreak havoc with an impact on assembly yields ranging from 5 to 20%. In addition to this direct cost, there is also additional financial impact with regard to time spent reworking and repairing, the on corrective action by QC, Engineering and Management, and, of course, "do-over".

This workshop identifies the "deadly sins" of SMT assembly. Besides the symptoms and consequences of each type of error, root-cause, rectification and prevention techniques will be presented. The workshop will, thus, provide the participant with an understanding of how to identify and correct the most common SMT assembly problems. It will include identification of vendor and source problems including components and materials as well as design related problems.

**Topics Covered:**

**Areas of General Process "Sins"**

- Utilization of Process Feedback Data
- Design for Manufacturability and Assembly
- In-Process Inspection and AOI
- Solder Paste Selection
- MSD
- Procedures and Documentation

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- Stencil Printing
    - Stencil Design
    - Stencil Cleaning

- Component Placement and Feeders

- Reflow Soldering
    - Parameters and Nitrogen

- Wave Soldering

- Inefficiency
    - Unbalanced lines
    - Excessive Downtime

**Q & A and Discussion**

**Who Should Attend:**

This course is intended for Manufacturing, Process, Design, Test and Quality Engineering personnel as well as Management who are involved in the production of surface mount or mixed technology assemblies