THE SECRETS OF PRINTED CIRCUIT BOARDS

Professional Training Course — in cooperation with Auter Elektronikai Kft.

Location: Microsolder Kft. Training Room, 1037 Budapest, Kiscsillag u. 18 and Auter Elektronikai Kft. 1163, Cziráky u. 26-32.
We can also organize this course on-site outside the indicated dates upon request.

Course Objective:
To provide fundamental knowledge and background information for technology, production, and quality assurance professionals working in electronic manufacturing and assembly plants; for staff involved in printed circuit board (PCB) design; and for those who liaise with PCB suppliers. The course covers PCB types, characteristics, structure, materials, surface finishes, coatings, quality requirements, common defects, and how to recognize and avoid them. It also introduces the system of IPC standards that define the requirements to ensure PCB quality and reliability.

Course Method:
Theoretical training in Hungarian, accompanied by a slide presentation and videos showing various PCB manufacturing phases. The second day is held in Auter's manufacturing Participants will have the opportunity to discuss practical issues they encounter and receive consultation.

Who Is It For?
Staff, employees, and managers at all levels who are involved in any activities related to the use of printed wiring boards — from procurement to shipment — including execution, inspection, management, supervision, quality assurance, or PCB design.

Curriculum (Total Duration: 2 Days, 16 Hours)

- **Design Rules for Printed Circuit Boards**
  - Data formats
  - Drilling
  - Layout layers
  - Position and solder mask layers
  - Mechanical layers
  - Current-carrying capacity of conductor traces
  - What checks do manufacturers perform on data?
  - Via vs. SMD pads
  - Solder mask defined or copper defined BGA pads
  - Why is symmetry important?

- **Materials Used in Production**
  - Properties and selection criteria of base materials (FR4, ceramics, high-frequency materials)
  - Coatings (solder masks, carbon ink, temporary solder mask, thermal paste)
  - Surface finishes (immersion silver, immersion tin, ENIG, edge connector gold plate, HASL, OSP)
- **Manufacturing Process**
  - Manufacturing operations
  - Possible defects during each operation
- **Circuit Inspections**
  - In-process inspections, acceptance criteria
  - Final inspection, acceptance criteria
  - IPC standards
  - Microsection analysis, real cross-sections
- **Storage and Use of Printed Circuit Boards**
- **IPC Standard System for Ensuring PCB Quality and Reliability**
- **Discussion of Practical Issues and Consultation**

Knowledge Assessment and Certification:
Written final test, minimum passing score: 70%.
Participants who meet the requirements will receive a written certificate of course completion.

The course will run with a minimum of 3 participants.

Registration: By email or mail, by the Wednesday of the week prior to the course date.

Microsolder Kft. is an IPC member, an authorized IPC distributor, an authorized IPC training center, and an IPC QML (Qualified Manufacturer Listing) auditor.