

Training Courses in Soldering and Surface Mount Assembly

From autumn 2021 SMTplus CZ s.r.o. has re-opened practical training courses in soldering and surface mount assembly.

The aim of the training is to acquire basic theoretical knowledge and improve practical soldering skills in electronics. The training takes place at SMTplus CZ's offices, Udolní 53, 602 00 Brno. If required the training can take place at the client's address. The training usually starts with the theoretical part in the morning and practical part in the afternoon. If required, it is possible to adjust the length of the theoretical and/or practical part.

a) Theoretical part (lectures).

2 day training course 2 x 3 hours, 1 day training course 1 x 3 hours

It is possible to choose a combination of the following topics:

- Basics, functions and construction of electronic components.
- Construction and solution of classical THT cases.
- Construction and solution of SMD cases.
- Handling of the components including antistatic protection.
- Antistatic work environment and rules for working with components sensitive to static electricity and humidity.
- New designs in electronics and microelectronics.
- General fundamentals of topology of printed board design, including differences when wave soldering and reflow soldering.
- Introduction to the production of printed boards, including the current technologies and materials.
- Surface treatment of PCB and selecting the right surface treatment depending on solderability and reliability.
- Introduction to the technological processes of mounting, soldering and control, including the use of solder, cleaning products etc.
- The reliability of soldered circuits.

b) Practical part

2 day training course 2 x 4 hours, 1 day training course 1 x 4 hours

- Introduction to handheld soldering and repairs for classical "THT" components, soldering of cables and cable connectors, work with electronic suction, use of bottom preheating and use of mini-wave.
- Introduction to SMT soldering and repairs for surface mount assembly, chip cases (up to size 0402), cylinder cases, Flat-Pack cases etc.
- Familiarisation with contact technology and soldering with hot air (cesky text moc nedava smysl "Praktické seznámení s kontaktní a technologií pájení horkým vzduchem.")
- Soldering of LGA Land Grid Array (QFN a BGA) cases.
- Finding a solution of a specific problem in the client's production within the training course.
- Repairs of surfaces and conductive routes on surface mounted boards.
- Repairs of BGA cases - reballing.
- A possibility of running the training course on client provided mounted boards.
- A possibility of an excursion to SMTplus CZ's production,
- Each participant in the two-day training course will produce a simple mounted board, which will be the proof of their acquired ability (for two day courses only).
- Each participant will be reviewed and will obtain a certificate of completing the training course.

c) Workplace equipment

The following is available to share between two students at a workstation equipped with an antistatic mat:

- Soldering unit with temperature regulator (PACE unit), soldering pen with two soldering tips (small and large mini-wave) (PACE), electronic solder suction, soldering thermos tweez for soldering chip components (PACE).
- Set of tips for dismantling and assembly of components by contact or contactless method.
- Other necessary work equipment and clockmaker's magnifying glass, suction wick.
- Set of various case types,
- Soldering tube wire (standard solder SAC305 a SN100C), paste flux in special applicator (No Clean),
- A test soldering board to practice case soldering,
- Cleaning products.
- Each participant will have at their disposal: electronic and handheld suction cup with suction tips, equipment for soldering and unsoldering by hot air, equipment for visual inspection and control of the solder joint.

d) The training is in accordance with the following technical Norms:

- All theoretical and practical training courses follow the applicable European and Czech norms ČSN EN and American norms IPC.

We are also able to offer requalification training courses, training courses for upper secondary school students or to train employees who are new to surface mount assembly. We can provide the training in English, or partially in Russian. The theoretical training is by university lecturers. The minimum number of participants in four. If required we can provide a training course manual.

We have been running the training courses since 1996 and our clients have been, amongst others: Flextronics, Barco, SPŠ Písek, Panasonic, Andrew Telecommunications, Elcom, Kampos, AŽD, Symbol Technologies, TAM Europe, JJS Electronics, Honeywell, YSOFT, Tyco Electronics, EPCOS Šumperk, STROM Telecom, SIEMENS VDO and Thermo Fischer Scientific.

Our training courses come in three levels: BASIC, MEDIUM, HIGH.

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e) *Photos from the training course:*



Information: Josef Šandera 13.12.2021