

# Hand Soldering to ESA Specification ECSS-Q-ST-70-61

## Fact Sheet E10

### ASTA Technology UK Ltd

This ESA-approved course will review the latest revision of the ECSS-Q-ST-70-61 standard and is followed by an open book multiple choice test. The review of the standard will give an understanding of the contents of the specification and why they are important. The test is designed to develop your ability to navigate the standard and find the relevant information in an efficient manner.

The requirements in the standard are designed to ensure process consistency and acceptable workmanship standards resulting in the production of high reliability hand-soldered connections. ESA/ECSS specification ECSS-Q-ST-70-61 *High Reliability Assembly for Surface Mount and Through Hole Connections* forms the basis for this course.

The course also has a practical test. For inspectors the practical will be the QA inspection of others' PCB's and for operators, the practical will be building a PCB in accordance with the standard. Both are inspected by the instructor to ensure an understanding and an acceptable level of practical skills can be demonstrated in accordance with the standard.

All necessary tools and equipment are supplied, although delegates are welcome to bring their own hand tools if desired.

#### Course aims

- Requirements of ECSS specification ECSS-Q-ST-70-61
- Review of printed circuit board design and construction to understand the weaknesses within
- To develop the skills required for successful terminal and gold-plated contact soldering
- To develop the skills required for successful through-hole printed circuit board assembly
- To develop the skills required for successful placement and hand soldering of leaded and leadless surface-mount components
- To become familiar with a range of reflow heat sources and their effect on the solderability of surface mount devices

#### Course content

- To review and understand the requirements of ESA/ECSS specifications ECSS-Q-ST-70-61
- To identify the factors which influence the quality, reliability and performance of a solder joint.

- To develop correct hand-assembly methods and reliably produce joints to the standards demanded by ECSS-Q-ST-70-61
- To develop the ability to examine and analyse faults associated with solder joints in accordance with ECSS-Q-ST-70-61
- Passive and active SMCs
- Substrates
- Design of circuit layouts
- Component placement and reflow methods
- Inspection
- Cleaning
- Gold removal and pre-tinning
- Practical work.

#### Award

In accordance with ESA STR-258, an ESA approved, Category 3 Certificate, valid for 2 years, will be awarded on successful completion of the course for operators and a Category 2 Certificate, valid for 2 years will be awarded on successful completion for inspectors.

#### Experience and pre-requisites

- Two years of industrial soldering experience required for operators and two years of industrial QA experience required for inspectors, certified by the employer, in both THT and SMT
- Familiarity with electronic components and assembly processes for space electronics
- Good practical skills
- A positive attitude to high quality workmanship

**Duration, schedule and fees** 10 days – Please see the current Course Calendar for dates and fees.

#### Recertification

To renew certification for a further 2 years, a 4 - day recertification course E190 is available.

**Enquiries are welcome – please use the website [contact form](#) for security.**