

The Repair and Modification of PCBs and Solder Joints to ESA Specification ECSS-Q-ST-70-28

Fact Sheet E04

European Space Agency Training Centre (UK)

This ESA-approved course will review the latest revision of the ECSS-Q-ST-70-28 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-70-28 *Repair and Modification of Printed Circuits Board Assemblies for Space Use* 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 repairing and modifying their existing PCB's 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 they wish.

Course aims

- To review and understand the requirements of ESA specification ECSS-Q-ST-70-28
- To be able to assess faults and select and perform approved repair methods
- To be able to implement approved modification methods
- To have a high level of awareness of repair constraints

Course content

Soldering technology * Selection of repair station * Repair constraints * Through-hole & surface mount rework & repair techniques * Board construction and design * Assessment of repair * Contractual limitations * Conforming coating removal * Terminal and track replacement * Static control * Modification techniques.

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

Delegates shall be certified to ESA specification ECSS-Q-ST-70-61 prior to attending this course. In order to gain these certificates, successful attendance of E10 course will be required.

Relevant practical experience in repair and modification of through-hole and surface mount would be an advantage.

Duration, schedule and fees 5 days for initial certification - Please see the current Course Calendar for dates and fees.

Recertification

To renew certification for a further 2 years, a 2 - day recertification course E94 is available. To re-certify in this standard and '-08 and '-38 standards at the same time a 4 – day recertification course E192 is available. Other combinations are also possible, please see the current Course Calendar or contact us.

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