Fi105 – Electrostatic Discharge Protection (ESD)

Course Type

Classroom course

Course Duration

The course duration is 0.5 days (4 hours).

Course Goal

The goal of this course is to give students good basic knowledge about electrostatics and packaging technology.

Student Profile

This course is intended for persons who

- Are responsible for maintenance of industrial production plants
- Physically handle ESD sensitive devices (ESDS) including storage handling of incoming and outgoing goods
- Work in electronics industry and logistic delivery chains
- Handle ESD sensitive products or need basic knowledge about ESD events and control

Prerequisites

No special requirements are needed, but knowledge of electronic components is an advantage.

Course Objectives

Upon completion of this course, students will be able to handle ESD sensitive devices and printed circuit boards minimizing risk of electrostatic charges.

Main Topics

- Introduction:
  - Static electricity fire hazards
  - Static Losses
  - Standards
  - Definitions
- Electrostatic Phenomena:
  - Electrostatic basic expression
  - Triboelectric charges and triboelectric series
  - Material contact and field induced charging
  - Creating Charge / Relative humidity
  - Device Sensitivity
- How Devices Fail:
  - Characteristics of ESD events
  - ESD damages
  - Electrostatic discharge simulation
  - Catastrophic failure / Latent defect
  - Failure mechanisms
- Principles of ESD Control:
  - ESD protected area (EPA)
  - Wrist straps
  - Flooring and footwear
  - Work surfaces
  - Clothing
  - Signs for EPA
  - EPA working practices
- Fieldwork:
  - Field work implementations
  - Field work kit
- ESD protective packaging:
  - Packaging characteristics
  - Packaging materials
  - Warning labels
- ESD protection