Introduction to Electronics Failure Analysis

Instructor: Ken Turner, Hi-Rel Laboratories, Inc., ken.turner@hrlabs.com

Note to attendee: Class includes coffee and pastries in the morning starting at 7:00 AM and a full sit-down lunch at noon.

Class Time (8:00 AM - 12:00 PM)

COURSE SUMMARY

Failure analysis (FA) has a critical role in ensuring the reliability of a system or product. With nearly infinite failure modes in the various electronic components utilized in today's world, failure analysis requires an engineering team with understanding, experience and equipment to develop appropriate test plans to determine failure root-cause, with a high level of confidence.
This 4-hour session serves as an introduction to failure analysis of high-reliability components and is intended to inform members of our respective industries why and how failure analysis is a necessary process.

Course Outline

- Understanding the reasoning for, and importance of failure analysis
- Applicable terminology
- Overview of the failure analysis process
- Failure analysis equipment
- Board-level failures
- Component level failures
  - Resistors
  - Capacitors
  - Diodes
  - Magnetics
  - Transistors
  - Integrated Circuits

INSTRUCTOR BIO

Ken Turner is the Failure Analysis Department Manager at Hi-Rel Laboratories, bringing over 20 years of specialized experience in failure analysis of high-reliability electronic components and assemblies. His work spans mission-critical sectors including Aerospace, Defense, Medical, Automotive, Energy, and Commercial applications.
His technical focus includes root cause analysis, materials characterization, and reliability assessment of microelectronic and electromechanical systems. He leads investigations involving design, process, and materials failures, helping clients identify failure mechanisms and implement corrective actions to prevent recurrence.