



DECODING FAILURES

Learn how to examine and interpret fractured parts

COURSE



STEEL
IMAGE



YOU CAN LEARN A LOT FROM THIS FRACTURE

Hands-on, one day course covering how to examine fractures, gleaning information useful to understanding how and why the part failed.

DECODING FAILURES COURSE

OVERVIEW

Understanding why something failed is critical to developing effective solutions. The greatest source of information is the broken part itself. This course teaches how to examine and interpret the fracture surfaces of mechanical failures. It highlights how to glean the details of how and why a part failed.

Participants will learn practical skills. Upon completion of the course, participants will be able to

- recognize each of the mechanical failure modes,
- interpret the fracture features to explain how the part failed and
- use this information as part of a root cause failure investigation.

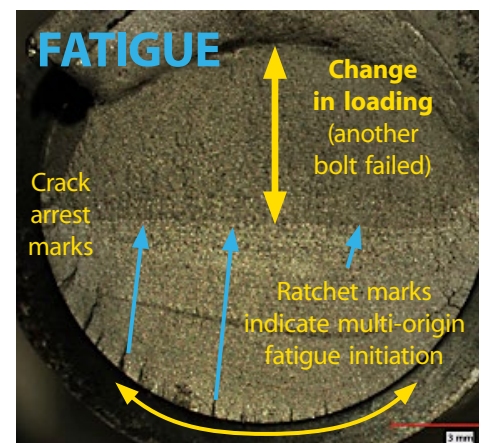
Hold the course at your facility for 10-16 people or register individually for an upcoming class.

HOW PARTICIPANTS LEARN



Participants will learn on actual failed parts, examining fifty failed parts using stereo microscopes. The details of how to recognize and interpret each of the mechanical failure modes will be introduced. Then participants will get to examine numerous fractured parts themselves under stereo microscopes to gain familiarity. Once the base skills are established, participants will then be given a series of failed parts to challenge and further expand their understanding.

Samples include shafts, bolts, springs, chain links, vehicle suspensions, lifting devices, drive train components and more. All examples are steel-based which also provides a foundation for the examination of most other metal types.





TOPICS COVERED INCLUDE:

1. **Introduction to Fractography and Failure Analysis.**
 - a. Use of the stereo microscope.
 - b. Role of fractography in failure investigations.
2. **Ductile Overload**
 - a. General overview of ductile failures.
 - b. Recognizing and interpreting ductile overload features.
 - c. Further investigation once diagnosed as ductile overload.
3. **Brittle Overload**
 - a. General overview of brittle failures.
 - b. Recognizing and interpreting brittle overload features.
 - c. Factors affecting transition to brittle fracture.
 - d. Further investigation once diagnosed as brittle overload.
4. **Fatigue Failures**
 - a. General overview of fatigue failures.
 - b. Recognizing and interpreting fatigue features.
 - c. Further investigation once diagnosed as fatigue.
5. **Advanced Fatigue**
 - a. Bolt/Fastener Failures
 - b. Rotating Shaft Failures
6. **Summary**



WHO SHOULD ATTEND

Engineers, inspectors, designers and reliability/maintenance personnel.

**HOLD A COURSE AT
YOUR FACILITY**

10-16 PARTICIPANTS

**\$7500
+ TRAVEL**

**INDIVIDUAL
REGISTRATION**

AT AN UPCOMING COURSE

**\$995
/PERSON**

Course schedule and registration at
www.steelimage.com/training

For more details, or to find
an upcoming training session
near you: contact us:

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