

Introduction to Examining Fractures

Online Course Overview



You can learn a lot
from this fracture

ONLINE, instructor-led course
introducing how to examine failed parts
and understand why they failed.

Why Learn

Different equipment failure modes require different solutions. Diagnosing how a part failed is a critical step towards preventing repeat failures. For mechanical failures, diagnosis can only be completed by examining the fracture itself – a skill which can be learned.

INTRODUCTION TO EXAMINING FRACTURES

Course Overview

This one-day course introduces how to recognize and interpret ductile, brittle and fatigue fracture features on steel parts. It then discusses how such diagnoses direct the ongoing investigation towards the root cause. Once core skills have been established, additional discussion includes failures specific to shafts and bolts.

How Learning Works

The course package including the 'Decoding Mechanical Failures' book and course workbook will be mailed in advance. The instructor-led, online course breaks down how to recognize the different failure modes. Participants evaluate thirty-six fractures in their workbooks plus simulate several failure analysis investigations. Each example builds upon the knowledge and introduces additional concepts.

Course Workbook

Practice and learn upon numerous fractures



Contact understand@steelimage.com or visit www.steelimage.com/training for more details

Topics Covered

1. Introduction – learning from failed parts
2. **Ductile Overload**
 - a. Diagnosing ductile overload features.
 - b. Causes and factors to be investigated.
3. **Brittle Fracture**
 - a. Diagnosing brittle fracture features.
 - b. Material embrittlement vs. transitioning.
 - c. Factors affecting transition to brittle.
4. **Fatigue Failure**
 - a. Diagnosing and interpreting fatigue.
 - b. Using fatigue features to describe loading details and help further investigation.
5. **Failure Analysis Simulations**
6. **Shaft Failures**
7. **Bolt and Fastener Failures**
8. Summary

Who Should Attend

Anyone dealing with equipment failures:

Mechanical engineers, reliability, maintenance, inspectors and junior metallurgists.

\$495 / person

Course Schedule and Registration:

www.steelimage.com/training

Hosted online through Microsoft TEAMS.

About the Instructors



Shane Turcott, P.Eng., M.A.Sc.
Principal Metallurgical Engineer

Shane received his B.Eng. and M.A.Sc. in materials engineering at McMaster University in Canada. He worked for Dofasco, Bodycote and Liburdi Turbine Services before founding Steel Image Inc. in 2009. He is an expert in metallurgical failure analysis and field metallography. Shane speaks regularly at events on failure analysis and metallurgy. Author of “Decoding Mechanical Failures” book and architect of this course.



Casey Julich Trojan, P.Eng.
Metallurgical Engineer

Casey received her B.Eng. in materials engineering at McMaster University in Canada. Since joining Steel Image in 2012, she has been a part of two thousand failure analyses and on-site metallurgical projects. Casey teaches both the online “Introduction to Examining Fractures” and the hands-on, in-person course “Handling Mechanical Failures”.

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Decoding Mechanical Failures

The Definitive
Guide to
Interpreting
Fractures

Shane Turcott

This course is based upon the first book thoroughly introducing how to examine failed parts:

Decoding Mechanical Failures

A copy is included with the course materials.



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Steel Image is a metallurgical engineering company specializing in failure analysis and on-site damage/crack assessments. It provides metallurgical laboratory expertise, field metallography and training to support the petrochemical, automotive, mining and energy industries throughout North America.

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