



Mechanical Engineering

## Mechanical Failure Analysis

## Course Introduction

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Solve the machinery failure problems costing you time and money with this classic, comprehensive guide to analysis and troubleshooting through a systematic approach to fault diagnosis and failure prevention in a broad range of machinery. Participants will analyze a system's failure modes and define how to prevent or find those failures early, learn techniques, tools and the procedures of root cause failure analysis and failure mode effective analysis as a proactive strategy for achieving precise operation and improving machinery performance.

### **Machinery troubleshooting and problem solving**

The key methods of preventive maintenance are demonstrated through the study of examples and a progressive approach to machinery troubleshooting and problem solving. Case studies will provide a forum for problem formulation, investigation and resolution.

## Target Audience

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- Automotive Engineer
- Boiler Engineer
- Ceramics Engineer
- Equipment Engineer
- High-Pressure Engineer
- Marine Engineer
- Mechanical Design Engineer
- Mechanical Engineer
- Naval Architect
- Pipeline Engineer
- Power Engineer
- Rotating Equipment Engineer
- Senior Mechanical Engineer
- Turbine Engineer

- Validation Engineer

## Learning Objectives

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- Familiarizing with mechanical failure analysis
- Learning failure modes and designing fail-safe systems
- Understanding the service and maintenance requirements for machine failures

## Course Outline

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- **01 DAY ONE**

### Introduction to failure analyses

- Objectives of failure analyses
- Classified material and selection criteria
- Mechanical properties
- Causes of failure

- **02 DAY TWO**

### Mechanism /modes of failure:

- Overload & single load
- Buckling
- Impact
- Fracture (brittle & ductile)
- Methods of failure analyses:
  - Tensile test
  - Impact test
- Phases of failure analysis & general principle of failure analysis
- Case study

- **03 DAY THREE**

### Dynamic failure modes

- Fatigue
- Creep
- Wear
- Corrosion

• 04 DAY FOUR

### Crack growth

- Failure rate
- Hazard analysis
- Impact testing
- Fatigue testing

• 05 DAY FIVE

### Failure testing

- Improving fatigue life
- Improving creep life
- Structural examples
- Bearing example

## Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
June 23, 2025	June 27, 2025	5 days	4250.00 \$	UAE - Dubai
Sept. 22, 2025	Sept. 26, 2025	5 days	4950.00 \$	Spain - Madrid
Dec. 29, 2025	Jan. 2, 2026	5 days	4250.00 \$	UAE - Dubai