

MAINTENANCE AND ENGINEERING | COURSE BROCHURE

Root Cause Failure Analysis for Engineers

5 days | Classroom training | English

SMART HORIZON

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Course content

Why attend

Repeated failures show that underlying causes have not been addressed. This course teaches root cause failure analysis for engineering assets: preserving evidence, failure mechanisms, physical, human and latent causes, analysis tools, metallurgical and fractography basics, corrective actions and verifying effectiveness.

Replacing failed parts without understanding why they failed leads to repeat breakdowns. You will learn to eliminate failures at their source.

Professional Problems This Course Is Designed to Solve

• Difficulty translating subject knowledge into practical workplace decisions.
• Inconsistent approaches to the activities covered in the course outline.
• Lack of a structured plan for applying and reviewing new skills.

Course methodology

Failure case studies, analysis tool practice, evidence handling exercises and team investigations.

Course objectives

By the end of this course, participants will be able to:
• Explain the principles of root cause failure analysis
• Preserve failure evidence correctly
• Identify failure mechanisms in components
• Apply structured analysis tools
• Distinguish physical, human and latent causes
• Implement and verify corrective actions

Target audience

This course is suitable for:
• Reliability and maintenance engineers
• Mechanical and process engineers
• Maintenance supervisors
• Plant engineers
• Quality engineers



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Target competencies

Participants will develop competencies in:

- Failure investigation
- Evidence handling
- Failure mechanisms
- Causal analysis
- Corrective action

Course outline

Day 1: RCFA Principles

09:00–10:08	Why failures repeat
10:08–11:00	Investigation triggers
11:00–11:30	**Coffee break**
11:30–11:45	Investigation triggers (continued)
11:45–12:53	Team roles
12:53–14:00	Exercise

Day 2: Evidence

09:00–10:08	Preserving parts and data
10:08–11:00	Interviews
11:00–11:30	**Coffee break**
11:30–11:45	Interviews (continued)
11:45–12:53	Timelines
12:53–14:00	Workshop

Day 3: Failure Mechanisms

09:00–10:08	Fatigue, wear and corrosion
10:08–11:00	Overload
11:00–11:30	**Coffee break**



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11:30–11:45	Overload (continued)
11:45–12:53	Fractography basics
12:53–14:00	Case study

Day 4: Analysis Tools

09:00–10:08	Logic trees
10:08–11:00	Fishbone and 5 Whys
11:00–11:30	**Coffee break**
11:30–11:45	Fishbone and 5 Whys (continued)
11:45–12:53	Human and latent causes
12:53–14:00	Exercise

Day 5: Corrective Actions

09:00–10:08	Action selection
10:08–11:00	Verification
11:00–11:30	**Coffee break**
11:30–11:45	Verification (continued)
11:45–12:53	Sharing lessons
12:53–14:00	Action plan

The timings provided are estimates and may vary depending on the number of participants and the discussions taking place during the sessions. They are indicative only and do not constitute a binding commitment.



Course content

Dates, venues and fees

Current published course plans. Fees are per participant in EUR, excluding unconfirmed taxes.

Venue	Start date	End date	Fee (EUR)
Dubai Confirmed dates	9 Nov 2026	13 Nov 2026	**€6,300.-**
Online Confirmed dates	9 Nov 2026	13 Nov 2026	**€1,250.-**
Kuala Lumpur Confirmed dates	30 Nov 2026	4 Dec 2026	**€2,900.-**
Online Confirmed dates	30 Nov 2026	4 Dec 2026	**€1,250.-**
Dubai Confirmed dates	4 Jan 2027	8 Jan 2027	**€6,300.-**
Online Confirmed dates	4 Jan 2027	8 Jan 2027	**€1,250.-**
Rome Confirmed dates	18 Jan 2027	22 Jan 2027	**€4,900.-**
Online Confirmed dates	18 Jan 2027	22 Jan 2027	**€1,250.-**
Cape Town Confirmed dates	8 Feb 2027	12 Feb 2027	**€3,780.-**



Course content

Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Online Confirmed dates	8 Feb 2027	12 Feb 2027	**€1,250.–**
Vienna Confirmed dates	1 Mar 2027	5 Mar 2027	**€5,880.–**
Online Confirmed dates	1 Mar 2027	5 Mar 2027	**€1,250.–**
London Confirmed dates	22 Mar 2027	26 Mar 2027	**€4,900.–**
Online Confirmed dates	22 Mar 2027	26 Mar 2027	**€1,250.–**
Istanbul Confirmed dates	12 Apr 2027	16 Apr 2027	**€5,300.–**
Online Confirmed dates	12 Apr 2027	16 Apr 2027	**€1,250.–**
Frankfurt Confirmed dates	26 Apr 2027	30 Apr 2027	**€5,300.–**
Online Confirmed dates	26 Apr 2027	30 Apr 2027	**€1,250.–**



Course content

Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Rome Confirmed dates	17 May 2027	21 May 2027	**€4,900.-**
Online Confirmed dates	17 May 2027	21 May 2027	**€1,250.-**
Cape Town Confirmed dates	7 Jun 2027	11 Jun 2027	**€3,780.-**
Online Confirmed dates	7 Jun 2027	11 Jun 2027	**€1,250.-**
Barcelona Confirmed dates	28 Jun 2027	2 Jul 2027	**€5,680.-**
Online Confirmed dates	28 Jun 2027	2 Jul 2027	**€1,250.-**
Vienna Confirmed dates	19 Jul 2027	23 Jul 2027	**€5,880.-**
Online Confirmed dates	19 Jul 2027	23 Jul 2027	**€1,250.-**
Cape Town Confirmed dates	2 Aug 2027	6 Aug 2027	**€3,780.-**



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Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Online Confirmed dates	2 Aug 2027	6 Aug 2027	**€1,250.-**
Paris Confirmed dates	23 Aug 2027	27 Aug 2027	**€5,720.-**
Online Confirmed dates	23 Aug 2027	27 Aug 2027	**€1,250.-**
Amsterdam Confirmed dates	13 Sept 2027	17 Sept 2027	**€5,080.-**
Online Confirmed dates	13 Sept 2027	17 Sept 2027	**€1,250.-**
London Confirmed dates	4 Oct 2027	8 Oct 2027	**€4,900.-**
Online Confirmed dates	4 Oct 2027	8 Oct 2027	**€1,250.-**
Rome Confirmed dates	25 Oct 2027	29 Oct 2027	**€4,900.-**
Online Confirmed dates	25 Oct 2027	29 Oct 2027	**€1,250.-**



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Dates, venues and fees (continued)

Venue	Start date	End date	Fee (EUR)
Barcelona Confirmed dates	8 Nov 2027	12 Nov 2027	**€5,680.-**
Online Confirmed dates	8 Nov 2027	12 Nov 2027	**€1,250.-**
Dubai Confirmed dates	29 Nov 2027	3 Dec 2027	**€6,300.-**
Online Confirmed dates	29 Nov 2027	3 Dec 2027	**€1,250.-**

Plan your next step

Dates, availability, exact venue, taxes, inclusions and payment terms require written confirmation. This brochure is not a quotation, registration, booking confirmation or visa invitation. Participants receive a Smart Horizon certificate of attendance; programmes are not externally accredited and do not award a professional qualification or designation. Confirm arrangements before booking travel.

For group or in-house training, contact our learning team to discuss your objectives and delivery arrangements.

Contact Smart Horizon

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