

Metallurgy, Corrosion & Prevention of Failures Material

Professional training programme



SPARK TRAINING

Professional training courses for leaders, specialists, and organizations seeking practical capability development.

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— Workshop Overview

Metallurgy, material selection, and corrosion management are crucial areas of expertise across various industries, especially in sectors like oil and gas production where materials face extreme operating conditions. Mastery of metallurgy principles, choosing the right materials, and applying effective corrosion prevention techniques are vital for maintaining the integrity and durability of equipment and infrastructure. This Metallurgy, Corrosion & Prevention of Failures Material training course will equip participants with the knowledge and skills to identify suitable materials for use in oil and gas production and processing systems.

Why Attend

This training course will utilise a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. This includes presentations and interactive practical exercises, supported by videos, activities and case studies.

Who Should Attend

Engineers involved in the design, construction, and maintenance of oil and gas production facilities.

Materials specialists responsible for selecting and specifying materials for various applications. Inspection and quality control personnel involved in assessing material integrity and conducting non-

— Learning Objectives

- Provide participants with a comprehensive understanding of metallurgical principles and their applications in material selection.
- Equip participants with the knowledge and skills to identify suitable materials for use in oil and gas production and processing systems.
- Familiarize participants with common corrosion phenomena encountered in industrial environments and strategies for corrosion prevention.
- Enhance participants' understanding of welding metallurgy and its implications for material integrity.
- Introduce participants to non-destructive examination techniques for assessing material integrity and quality control.

Course Outline

DAY
1

Day One: Introduction to Metallurgy and Material Selection

- Introduction to Metallurgy
- Classification of Steels and Heat Treatment
- Crystal Structure and Phase Diagrams
- Mechanical Metallurgy
- Destructive Testing

DAY
2

Day Two: Materials and Metallurgy in Oil & Gas Industry

- Mechanical Properties and Characteristics of Metals
- Design Basis for Hydrocarbon Systems
- Selection of Materials for Oil & Gas Production
- Substitute Materials

DAY
3

Day Three: Welding Metallurgy and Corrosion

- Fundamentals of Welding Metallurgy
- Weld Solidification and Microstructure
- Welding Processes and Techniques
- Weld Overlay and Corrosion Prevention

DAY
4

Day Four: Corrosion Phenomena and Prevention

- Connection of Dissimilar Materials
- Sealing Materials
- Forms of Corrosion
- Common Corrosion Phenomena in Oil & Gas Industries
- Case Studies of Corrosion Failures

DAY
5

Day Five: Non-Destructive Examinations and Conclusion

- Glossary and Quality Control in NDT
- Standards for NDT and Welding Inspections
- Non-Destructive Examination Techniques
- Course Conclusion and Feedback

— Upcoming Classroom Dates

DATE	LOCATION	FEE
12 - 16 October 2026	Amsterdam - Netherlands	€2,125
9 - 13 November 2026	London - United Kingdom	€2,100
14 - 18 December 2026	Istanbul - Türkiye	€1,425
18 - 22 January 2027	Kuala Lumpur - Malaysia	€1,400
15 - 19 February 2027	London - United Kingdom	€2,100
15 - 19 March 2027	Rome - Italy	€2,125
19 - 23 April 2027	Munich - Germany	€2,125
17 - 21 May 2027	Dubai - UAE	€1,400

— Certificate and Registration

Participants who attend and complete the full programme receive a SPARK Training Certificate of Completion. For registration, in-house delivery, or availability questions, contact info@sparktraining.eu or +31 85 115 0004.