



Corrosion in Downhole Tubing

Course Introduction:

This course is designed to provide participants with a thorough understanding of the mechanisms, types, and prevention strategies for corrosion in downhole tubulars used in oil and gas production. Corrosion is a significant challenge in the industry, leading to equipment failure, environmental hazards, and costly production downtime. This five-day theoretical course addresses the fundamental causes of corrosion, the various forms it can take, and the best practices for mitigating its effects on downhole tubing.

Participants will explore the factors influencing corrosion, including fluid characteristics, temperature, pressure, and material selection. The course will also cover corrosion monitoring techniques and the latest technologies used to assess and prevent corrosion in downhole environments. By the end of the course, attendees will be equipped with the knowledge and skills necessary to identify corrosion risks and implement effective corrosion management strategies in their operations.

Course Objectives:

By the end of the program, participants will be able to:

- Understand the principles and significance of corrosion in downhole tubing.
- Identify different types and mechanisms of corrosion affecting tubulars.
- Implement corrosion monitoring techniques and assessment methods.
- Develop effective prevention and mitigation strategies for corrosion.
- Stay informed about future trends and technologies in corrosion management.

Who Should Attend?

This course is intended for:-

- Petroleum engineers and production engineers.
- Corrosion specialists and materials engineers.
- Field operators and maintenance personnel in oil and gas operations.
- Safety and compliance officers focusing on corrosion management.

Course Outline:

Day 1: Introduction to Corrosion

- Overview of corrosion and its significance in downhole tubing
- Types of corrosion: uniform, pitting, galvanic, and stress corrosion cracking
- Mechanisms of corrosion: electrochemical processes and environmental factors
- The impact of corrosion on production operations and safety

Day 2: Corrosion Mechanisms and Factors

- Detailed examination of corrosion mechanisms in downhole environments
- Influence of fluids: water, hydrocarbons, and additives on corrosion rates
- The role of temperature, pressure, and flow dynamics in corrosion development
- Material selection considerations for downhole tubing

Day 3: Corrosion Monitoring and Assessment

- Techniques for monitoring corrosion in downhole tubing
- Use of corrosion inhibitors and their effectiveness
- Inspection methods: ultrasonic testing, radiography, and visual inspections
- Case studies on corrosion monitoring and assessment strategies

Day 4: Corrosion Prevention and Mitigation

- Strategies for preventing corrosion: coatings, materials, and inhibitors
- Design considerations to minimize corrosion risks in downhole tubing
- Best practices for maintenance and monitoring of tubing integrity
- Regulatory standards and compliance related to corrosion management

Day 5: Future Trends and Technologies

- Emerging technologies in corrosion detection and prevention
- The impact of new materials and coatings on corrosion resistance
- Case studies on successful corrosion management programs
- Future directions in research and development for corrosion in downhole applications

Course Methodology:

A variety of methodologies will be used during the course that includes:

- (30%) Based on Case Studies
- (30%) Techniques
- (30%) Role Play
- (10%) Concepts
- Pre-test and Post-test
- Variety of Learning Methods
- Lectures
- Case Studies and Self Questionnaires
- Group Work

Course Fees:

To be advice as per course location. This rate includes participant's manual, Hands-Outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Certificate:

International Center for Training & Development (ICTD) will award an internationally recognized certificate(s) for each delegate on completion of training.

Course Timings:

Daily Course Timings:

08:00 - 08:20	Morning Coffee / Tea
08:20 - 10:00	First Session
10:00 - 10:20	Coffee / Tea / Snacks
10:20 - 12:20	Second Session
12:20 - 13:30	Lunch Break & Prayer Break
13:30 - 15:00	Last Session