AMERICAN GLOBAL INSTITUTE FOR PRIVATE TRAINING

External Training Course

Corrosion Management and Process Troubleshooting in Production Operations

---

From 27 Oct. To 31 Oct. 2025
From 24 Nov. To 28 Nov. 2025
From 08 Dec. To 12 Dec. 2025

The H Dubai Hotel, Dubai, UAE

Mr. Ghanem F. Al-Otaibi
GM & Institute Owner
Tel.: 00965 22248901 **Fax: 00965 22204999**
Mob.: 00965 65548855 **Mob.: 00965 97273712**
Email: admin@agi-kw.com **Email: agi-kw@hotmail.com**
W/SITE: WWW.AGI-KW.COM

American Global
Institute For Private Training

Tel. 00965 - 22248901
Mob. 00965 - 65548855
Email admin@agi-kw.com
W/Site www.agi-kw.com

External Training Course:

Corrosion Management and Process Troubleshooting in Production Operations

From 27 Oct. To 31 Oct. 2025 **Fees: 1750 KD**
From 24 Nov. To 28 Nov. 2025 **Fees: 1750 KD**
From 08 Dec. To 12 Dec. 2025 **Fees: 1750 KD**

Course Overview

This intensive 5-day course provides a comprehensive and practical approach to corrosion management and process troubleshooting within oil and gas production and processing environments. Participants will gain deep knowledge of corrosion mechanisms, prevention, and control strategies, along with advanced methods to identify, analyze, and solve operational problems. The course also emphasizes integrating corrosion control into reliability, maintenance, and production optimization programs, aiming to reduce downtime, enhance safety, and extend asset life.

Course Objectives

By the end of this course, participants will be able to:

- Understand corrosion fundamentals and mechanisms in oil & gas production systems.
- Recognize the major corrosion types and their causes in various production environments.
- Evaluate corrosion risk and develop cost-effective management strategies.
- Apply advanced corrosion prevention techniques including cathodic protection, inhibitors, and coatings.
- Conduct corrosion monitoring and inspection using modern tools and NDT methods.
- Implement corrosion management systems (CMS) and risk-based inspection (RBI).
- Identify and troubleshoot process deviations and equipment performance problems.
- Perform root cause analysis (RCA) for operational upsets and system failures.
- Utilize predictive maintenance and digital monitoring to prevent corrosion-related failures.
- Improve process reliability, efficiency, and overall asset integrity.

Training Methodology

The training combines:

- Expert-led presentations with visual aids and animations.
- Group problem-solving and team-based workshops.
- Case studies from real industrial facilities.
- Practical exercises and technical discussions.
- Interactive Q&A and simulation of corrosion and troubleshooting scenarios.
- Development of action plans tailored to participants' operational environments.

Tel. 00965 - 22248901
Mob. 00965 - 65548855
Email admin@agi-kw.com
W/Site www.agi-kw.com

Organizational Impact

Organizations will gain:

- Enhanced operational reliability and integrity of production assets.
- Significant reduction in corrosion-related maintenance and shutdown costs.
- Improved process safety and regulatory compliance.
- A structured approach for risk-based corrosion management.
- Stronger internal technical capability for troubleshooting and failure prevention.
- A long-term improvement in asset life-cycle management and performance optimization.

Personal Impact

Participants will benefit by:

- Strengthening their understanding of corrosion behavior and control methods.
- Gaining confidence in diagnosing and solving process problems.
- Learning to apply modern tools and methods for inspection and maintenance.
- Enhancing technical judgment and analytical skills.
- Expanding their professional capabilities and advancing career prospects in asset integrity and reliability management.

Course Content

Day 1 – Fundamentals of Corrosion in Production Operations

- Nature and mechanisms of corrosion in oil & gas environments.
- Classification of corrosion: uniform, galvanic, pitting, crevice, Erosion-Corrosion, MIC, SCC.
- Key corrosion environments: sweet corrosion (CO_2), sour corrosion (H_2S), and oxygen-related corrosion.
- Metallurgical and chemical aspects of corrosion initiation and propagation.
- Corrosion impact on production efficiency, safety, and operating costs.
- Materials selection for corrosion resistance – metallurgy and coatings.
- Role of process design in minimizing corrosion risk.
- Case Study: Failure analysis of corroded pipeline in a production facility.
- Workshop: Identifying corrosion types and selecting suitable control methods.

Tel. 00965 - 22248901
Mob. 00965 - 65548855
Email admin@agi-kw.com
W/Site www.agi-kw.com

Day 2 – Corrosion Management Systems and Mitigation Strategies

- Overview of corrosion management framework (policy, procedures, performance indicators).
- Components of a Corrosion Management System (CMS).
- Cathodic protection – design, monitoring, and troubleshooting of CP systems.
- Chemical inhibitors – selection, dosage, and effectiveness monitoring.
- Protective coatings and linings – application standards and failure prevention.
- Corrosion monitoring tools: coupons, probes, ER, LPR, and ultrasonic inspection.
- Non-Destructive Testing (NDT) techniques for corrosion assessment.
- Data interpretation and corrosion trending using inspection reports.
- Developing and implementing Risk-Based Inspection (RBI) programs.
- Case Study: Integrating CMS with integrity management program in a gas plant.
- Workshop: Building a corrosion mitigation plan for a production field.

Day 3 – Process Troubleshooting and Root Cause Analysis

- Understanding process disturbances and their link to corrosion and reliability.
- Common operational issues: flow restrictions, equipment fouling, pump cavitation, temperature and pressure deviations.
- Troubleshooting methodology: observation, data gathering, analysis, and corrective action.
- Root Cause Analysis (RCA): steps, tools (5 Whys, Fishbone Diagram, FMEA).
- Troubleshooting rotating equipment (pumps, compressors, turbines).
- Troubleshooting static equipment (heat exchangers, separators, vessels).
- Diagnosing gas dehydration, water treatment, and oil-water separation issues.
- Vibration and performance analysis for equipment diagnosis.
- Case Study: Resolving recurring process instability in a separation unit.
- Workshop: Conducting RCA on an operational failure case.

Day 4 – Reliability Improvement and Process Optimization

- Integrating corrosion control with reliability engineering principles.
- Reliability-Centered Maintenance (RCM) for corrosion-prone equipment.
- Predictive maintenance tools: vibration analysis, thermography, oil & water chemistry analysis.
- Condition-based monitoring and early fault detection.
- Use of SCADA and digital twins for process monitoring and control.
- Process optimization techniques to reduce inefficiencies and downtime.
- Strategies to improve production system reliability and throughput.
- Case Study: Optimization of corrosion inhibitor injection system.
- Workshop: Developing an operational improvement plan for a production train.

Day 5 – Best Practices, Integration, and Implementation Planning

- Industry case studies on corrosion control success and lessons learned.
- Integrating corrosion management into company reliability frameworks.
- Development of KPIs for corrosion and integrity performance monitoring.
- Designing inspection intervals and proactive mitigation plans.
- Aligning corrosion management with HSE and sustainability goals.
- Developing and presenting a site-specific corrosion action plan.
- Group Workshop: Building a practical troubleshooting and reliability roadmap.
- Final Assessment & Interactive Discussion: Key takeaways and action commitments.
- Closing Session: Certificate distribution and feedback review.

Course Agenda:

(1st Day) Agenda

9.00	11.30	Discuss Course Major Points: • Fundamentals of Corrosion in Production Operations. • Corrosion Management Systems and Mitigation Strategies. • Process Troubleshooting and Root Cause Analysis. • Reliability Improvement and Process Optimization. • Best Practices, Integration, and Implementation Planning.
11.30	12.00	Coffee Break
12.00	14.00	Fundamentals of Corrosion in Production Operations: • Nature and mechanisms of corrosion in oil & gas environments. • Classification of corrosion: uniform, galvanic, pitting, crevice, Erosion-Corrosion, MIC, SCC. • Key corrosion environments: sweet corrosion (CO_2), sour corrosion (H_2S), and oxygen-related corrosion. • Metallurgical and chemical aspects of corrosion initiation and propagation. • Corrosion impact on production efficiency, safety, and operating costs. • Materials selection for corrosion resistance – metallurgy and coatings. • Role of process design in minimizing corrosion risk. • Case Study: Failure analysis of corroded pipeline in a production facility. • Workshop: Identifying corrosion types and selecting suitable control methods.
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

(2nd Day) Agenda

9.00	11.30	Corrosion Management Systems and Mitigation Strategies: • Overview of corrosion management framework (policy, procedures, performance indicators). • Components of a Corrosion Management System (CMS). • Cathodic protection – design, monitoring, and troubleshooting of CP systems. • Chemical inhibitors – selection, dosage, and effectiveness monitoring. • Protective coatings and linings – application standards and failure prevention. • Corrosion monitoring tools: coupons, probes, ER, LPR, and ultrasonic inspection.
11.30	12.00	Coffee Break
12.00	14.00	Corrosion Management Systems and Mitigation Strategies: • Non-Destructive Testing (NDT) techniques for corrosion assessment. • Data interpretation and corrosion trending using inspection reports. • Developing and implementing Risk-Based Inspection (RBI) programs. • Case Study: Integrating CMS with integrity management program in a gas plant. • Workshop: Building a corrosion mitigation plan for a production field.
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

(3rd Day) Agenda

9.00	11.30	Process Troubleshooting and Root Cause Analysis • Understanding process disturbances and their link to corrosion and reliability. • Common operational issues: flow restrictions, equipment fouling, pump cavitation, temperature and pressure deviations. • Troubleshooting methodology: observation, data gathering, analysis, and corrective action. • Root Cause Analysis (RCA): steps, tools (5 Whys, Fishbone Diagram, FMEA).
11.30	12.00	Coffee Break
12.00	14.00	Process Troubleshooting and Root Cause Analysis • Troubleshooting rotating equipment (pumps, compressors, turbines). • Troubleshooting static equipment (heat exchangers, separators, vessels). • Diagnosing gas dehydration, water treatment, and oil-water separation issues. • Vibration and performance analysis for equipment diagnosis. • Case Study: Resolving recurring process instability in a separation unit. • Workshop: Conducting RCA on an operational failure case.
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

(4th Day) Agenda

9.00	11.30	Reliability Improvement and Process Optimization: • Integrating corrosion control with reliability engineering principles. • Reliability-Centered Maintenance (RCM) for corrosion-prone equipment. • Predictive maintenance tools: vibration analysis, thermography, oil & water chemistry analysis. • Condition-based monitoring and early fault detection.
11.30	12.00	Coffee Break
12.00	14.00	Reliability Improvement and Process Optimization: • Use of SCADA and digital twins for process monitoring and control. • Process optimization techniques to reduce inefficiencies and downtime. • Strategies to improve production system reliability and throughput. • Case Study: Optimization of corrosion inhibitor injection system. • Workshop: Developing an operational improvement plan for a production train.
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

(5th Day) Agenda

9.00	11.30	Best Practices, Integration, and Implementation Planning: • Industry case studies on corrosion control success and lessons learned. • Integrating corrosion management into company reliability frameworks. • Development of KPIs for corrosion and integrity performance monitoring. • Designing inspection intervals and proactive mitigation plans.
11.30	12.00	Coffee Break
12.00	14.00	Best Practices, Integration, and Implementation Planning: • Aligning corrosion management with HSE and sustainability goals. • Developing and presenting a site-specific corrosion action plan. • Group Workshop: Building a practical troubleshooting and reliability roadmap. • Final Assessment & Interactive Discussion: Key takeaways and action commitments. • Closing Session: Certificate distribution and feedback review.
14.00	14.30	Questions, Discussion & Conclusion Training Course.
14.30		Buffet Lunch