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OIL AND GAS | OG-019

Applied Water Technology in Oil and Gas Production

UK
+44 33 000 111 90
info@informatech.co.uk
https://informatech.uk
63-66 Hatton Garden Hatton Garden
EC1N 8LE , London

NL
+31 85 74 444 46
info@infomatech.nl
https://infomatech.nl
Waarderweg 50 - 2031PB
Haarlem - Netherlands

Course content

Why Attend

Why Attend Water management is a critical component of oil and gas production, directly influencing asset integrity, production efficiency, environmental compliance, and operating costs. This course provides participants with practical knowledge of oilfield water chemistry, produced water treatment, scaling and corrosion control, separation technologies, and water disposal practices to support safe, efficient, and environmentally responsible operations.

Course Methodology The course combines technical presentations, engineering calculations, software demonstrations, case studies, practical exercises, group discussions, and real-world oilfield applications to enhance both theoretical understanding and practical skills.

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

- Understand the chemistry and characteristics of oilfield water systems
- Identify causes of scaling, corrosion, and microbiological contamination
- Apply water treatment and separation technologies effectively
- Evaluate produced water management and disposal methods
- Utilize engineering tools to predict scaling and corrosion risks
- Improve operational performance while maintaining environmental compliance
- Apply best practices for water reuse and sustainability in oil and gas operations

Target Audience

- Production engineers
- Process engineers
- Petroleum engineers
- Water treatment specialists
- Operations and facility engineers
- Corrosion and integrity engineers

Course content

Target Audience

• Environmental professionals working in the oil and gas industry

Target Competencies

• Oilfield water chemistry

• Produced water management

• Corrosion and scale control

• Water treatment technologies

• Process optimization

• Environmental compliance

• Water quality analysis

• Production facility operations

Course outline

Day 1: Fundamentals of Oilfield Water Chemistry

• Understanding the chemical characteristics of oilfield water systems

• Reviewing the principles of water chemistry relevant to production operations

• Understanding microbiological influences on water treatment processes

• Identifying scaling mechanisms and methods for scale prevention

• Understanding corrosion processes and mitigation techniques

• Reviewing environmental regulations and produced water quality specifications

• Understanding zero liquid discharge concepts and sustainable water management practices

• Applying best practices for water sampling, testing, and laboratory analysis

Day 2: Produced Water Generation and Separation Principles

Course content

Course outline

- Understanding the sources and characteristics of produced water in oil and gas operations
- Reviewing produced water management strategies throughout the production lifecycle
- Assessing environmental impacts associated with produced water discharge and handling
- Understanding emulsion formation, stabilization, and separation mechanisms
- Applying fluid behavior principles affecting oil-water separation processes
- Understanding hydrocarbon composition and its influence on water treatment
- Reviewing equilibrium chemistry, solubility principles, and scale formation mechanisms
- Identifying common oilfield scales and operational challenges

Day 3: Produced Water Treatment Technologies and Scale Control

- Performing solubility and scale prediction calculations for production systems
- Understanding co-precipitation mechanisms and scaling behavior
- Applying engineering principles to evaluate scale formation risks
- Utilizing commercial software tools for scale prediction and corrosion assessment
- Understanding corrosion control strategies for production facilities
- Reviewing gas flotation technologies used in produced water treatment
- Evaluating flotation system performance and key operating parameters
- Practical workshop: Scale prediction and produced water treatment case study

Day 4: Advanced Separation and Water Treatment Technologies

- Understanding desalting processes and associated treatment equipment
- Reviewing electro-deionization and advanced water purification technologies
- Applying gravity separation principles for oil, gas, and water processing
- Understanding skim tanks, separators, and oil removal systems
- Evaluating plate coalescers and enhanced separation technologies

Course content

Course outline

• Reviewing filtration systems, membrane technologies, and ion exchange processes

• Practical case study: Selecting appropriate treatment technologies for different produced water conditions

Day 5: Produced Water Disposal and Sustainable Water Management

• Understanding produced water injection and disposal system design principles

• Managing corrosion, biological activity, and scaling within disposal systems

• Reviewing treatment processes prior to produced water disposal or reuse

• Addressing transportation and handling challenges associated with produced water

• Applying de-oiling, desalination, disinfection, and organic removal technologies

• Exploring wastewater recycling, reuse strategies, and evaporative treatment processes

• Final workshop: Integrated produced water management strategy, course review, and key lessons learned

Seminar dates

Available seminar dates

Live dates and pricing for Applied Water Technology in Oil and Gas Production generated from the course details page.

Date	Location	Format	Fee
Dates on request	Venue on request	Classroom	**Contact us**

Live online option	Online delivery is available at €1,850.-.