**SCANDINAVIAN ACADEMY**
**For Training and Development**

# Course: Flooding: A to Z of Best Practices

| Code | City | Hotel | Start | End | Price | Language - Hours |
|------|------|-------|-------|-----|-------|------------------|
| 132 | Brussels (Belgium) | Hotel Meeting Room | 2025-09-29 | 2025-10-03 | 5950 € | En - 25 |

## Why Choose this Course?

This course is designed to provide design aspects required for successful water flooding plus main reasons for failures. It presents a comprehensive coverage of analytical and applied aspects of water flooding including rock and fluid properties, theory, prediction methods of Stiles, Craig-Geffen-Morse, and Dykstra-Parsons, surface production facilities, and water flood problems and optimization. Water affects every stage of oilfield life from exploration through development, production, and finally to abandonment. The course covers process description, pattern selection, injectivity issues, and design's procedure. Furthermore, the course provides all components of produced water analysis and its required chemical treatment unit. It describes important measurements of water flooding to identify main problems, examine treatments and provide solutions. Actual field cases for optimum application will be explained with in-class exercises.

## This course will feature:

- Basics rock and fluid properties controlling water flooding
- Selection a candidate reservoir for water flood and design criteria
- Components of water flood plant and stages of actual field case application
- Calculation of water flooding injectivity and conductance ratio
- Diagnostics, indicators, and surveillance
- Surface facilities and water flood plant
- Analytical and prediction methods: Stiles, CGM, and Dykstra-Parsons

# What are the Goals?

- Describe and apply surface and subsurface water flooding
- Understand and apply analytical and prediction methods
- Choose a candidate reservoir for water flooding
- Identify various components and function of a water flooding plant
- Identify water flood problems and how to solve them

# Who is this Course for?

- Petroleum Production & Reservoir Engineers
- Processing engineers & other discipline engineers
- Geologists & Petro physicists
- Engineers who are new to the profession
- Other individuals who need to know about water flooding

# How will this be Presented?

This course will utilise a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. The course is designed as a blended environment of presentation, class exercises, field application/ analysis and several industry videos showing all processes.

# The Course Content

### Day One : Reservoir Properties and Design Factors of Water Flooding

- Definition and history of water flooding
- Water flood performance measurements
- Water sources of  sweep water, good water and bad water
- Important factors to consider in water flooding design

- Types of water flood patterns and selection of a flood pattern
- Important rock/fluid properties for reservoir engineering calculation

## Day Two : Frontal Displacement Theory and Water Flooding Injectivity

- Analytical models: Buckley-Leverett and Welge methods
- Calculation of time to breakthrough and cumulative water injected
- Calculation of water flood injectivity and stages of water flooding
- Prediction methods:  Stiles, Craig-Geffen-Morse, and Dykstra-Parsons
- Calculation of areal and vertical sweep efficiencies
- Main reservoir problems of water flooding project

## Day Three : Problems/Solutions of Water Flooding

- Phenomena of water fingering and tonguing
- Casing, tubing or packer leaks and channel flow behind casing
- Moving oil-water contact  and watered-out layer without crossflow
- Fractures or faults between injector and producer
- Calculation of critical rate for water coning
- Using reservoir simulation for water flood optimization

## Day Four : Diagnostics, Monitoring, and Surveillance of Water Flooding

- Monitoring water flood techniques and used tools
- Diagnostics, indicators, and surveillance  of water flooding
- Well Diagnostics for water control using different ways
- Recovery plot, production history plot, and decline-curve analysis
- WOR diagnostic plot plus shut-in and choke-back analysis
- Special diagnostics for Vertical Communication

## Day Five : Water Control Solutions

- Mechanical solutions  for water-control problems

- Chemical solutions and squeeze cement  treatments
- Rigid gels for near wellbore shutoff of excess water
- Injector problems and risk assessments
- Field-wide considerations for water flooding
- An integrated approach for cost saving operations

**The Scandinavian Academy for Training and Development employs modern methods in training and skills development, enhancing the efficiency of human resource development. We follow these practices:**

- **Theoretical Lectures:**
  - We deliver knowledge through advanced presentations such as PowerPoint and visual materials, including videos and short films.
- **Scientific Assessment:**
  - We evaluate trainees skills before and after the course to ensure their progress.
- **Brainstorming and Interaction:**
  - We encourage active participation through brainstorming sessions and applying concepts through role play.
- **Practical Cases:**
  - We provide practical cases that align with the scientific content and the participants specific needs.
- **Examinations:**
  - Tests are conducted at the end of the program to assess knowledge retention.
- **Educational Materials:**
  - We provide both printed and digital scientific and practical materials to participants.
- **Attendance and Final Result Reports:**
  - We prepare detailed attendance reports for participants and offer a comprehensive program evaluation.
- **Professionals and Experts:**
  - The programs scientific content is prepared by the best professors and trainers in various fields.
- **Professional Completion Certificate:**
  - Participants receive a professional completion certificate issued by the Scandinavian Academy for Training and Development in the Kingdom of Sweden, with the option for international authentication.
- **Program Timings:**
  - Training programs are held from 10:00 AM to 2:00 PM and include coffee break sessions during lectures.