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<th>Sunday 05/08</th>
<th>Monday 06/08</th>
<th>Tuesday 07/08</th>
<th>Wednesday 08/08</th>
<th>Thursday 09/08</th>
<th>Friday 10/08</th>
<th>Saturday 11/08</th>
<th>Sunday 12/08</th>
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<tbody>
<tr>
<td>Accommodation at Hotel Postgarden</td>
<td>DTU (101, room 509)</td>
<td>Mature Fields</td>
<td>Corrosion and scale</td>
<td>Chemistry in mature fields</td>
<td>Characterization of petroleum mixtures and EOR</td>
<td>DTU (101, room 509)</td>
<td>Departure for Esbjerg</td>
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<tr>
<td>08.00</td>
<td>Welcome</td>
<td>Chemical thermodynamics and salt solutions - background</td>
<td>Chemistry in Mature Fields: Wettability, interfacial tension and surface tension at the molecular level</td>
<td>Petroleum mixtures: - Where are the fluids of interest stored? - Sampling the fluids - How does the reservoir fluid behave under pressure, temperature - Categories of the fluids</td>
<td>Introduction to Geophysics and Geostatistics</td>
<td>Klaus Mosegaard Thomas Hansen</td>
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<td>08.45</td>
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<td>09.00-11.00</td>
<td>Introduction to the Danish mature fields</td>
<td>Corrosion mechanisms - Occurrence and types of corrosion in the mature fields in DUC area, monitoring of corrosion - Mitigation methods</td>
<td>Instrumentation and methods for studies of surface chemistry</td>
<td>Field trip to Stevns Klint</td>
<td>Geophysics</td>
<td>Geophysical modeling. Theory and exercises.</td>
<td>Klaus Mosegaard Thomas Hansen</td>
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<td>The improvement in oil and gas recovery from the Danish chalk fields is a story about technological evolution</td>
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<td>Today more than 50 years after start of production, DUC is chasing every bbl of oil in the most cost effective way possible</td>
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<td>Advanced seismic analysis helps to locate bypassed oil and gas</td>
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<td>11.00-12.30</td>
<td>Lunch (Cantina in 101)</td>
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<td>12.30-13.30</td>
<td>Lunch (Cantina in 101)</td>
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<td>13.30-15.00</td>
<td>Total DK technology strategy supports mature fields excellence</td>
<td>Scale types and occurrence in north sea wells, monitoring</td>
<td>Chemical traces and tracer tests. General mechanisms of production chemicals in mature fields</td>
<td>Enhanced Oil Recovery: - Why do we need EOR - What methods for EOR exists - EOR problems - Discussion: - What do we need to know?</td>
<td>Geostatistics. Theory and exercises.</td>
<td>Klaus Mosegaard Thomas Hansen</td>
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<td>Improved oil and gas recovery through research based innovation at DHRTC</td>
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<td>15.00-16.30</td>
<td>Morten Williang Jeppesen</td>
<td>- Chemistry of barium and strontium scales - Calcium carbonate and iron carbonate scales - Modelling and mitigation, chemistry of scale prevention</td>
<td>Digital rock physics: Applications of CT scanning</td>
<td>Enhanced Oil Recovery: Exercises/discussion Exercises with the thermodynamic software</td>
<td>Putting it all together: Creating a reservoir model from geophysics and geostatistics.</td>
<td>Klaus Mosegaard Thomas Hansen</td>
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# DHRTC Summer School, Week 33 – Aalborg University - Esbjerg

## Preliminary Programme

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Time</th>
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<tbody>
<tr>
<td>Sunday 12/08</td>
<td>Arrival and accommodation at Danhostel Esbjerg</td>
<td>08.30</td>
<td>Aalborg University (Esbjerg) C1 – room 117</td>
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<tr>
<td>Monday 13/08</td>
<td>Aalborg University (Esbjerg) C1 – room 117</td>
<td>08.45 – 10.00</td>
<td>8.30-10.00: FINMUS (Fiskeri &amp; Søfartsmuseet I Esbjerg). Maersk sponsored Oil &amp; Gas exhibition: “50 years O&amp;G sector”</td>
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</table>
| Tuesday 14/08 | Monitoring and Automation in offshore Oil & Gas exploitation and production | 09.00 – 11.00 | Zhen Yu Reflection seismics: Theory, usability and pitfalls Reflectionseismics: How to do?
| Wednesday 15/08 | Seismic acquisition, processing and interpretation. Petrophysical welllogs | 11.00 – 13.00 | Ole Rønø Clausen NN Group work on assignment Group work on assignment |
| Thursday 16/08 | Aalborg University (Esbjerg) C1 – room 117  | 12.00 – 14.00 | Ole Rønø Clausen NN Lunch at SemcoMaritime Group work on assignment Presentations and discussions of results |
| Friday 17/08 | Assignment in groups  | 14.00 – 16.00 | Ole Rønø Clausen NN Group work on assignment Presentations and discussions of results |
| Saturday 18/08 | Assignment – Results and discussions  | 08.30 – 10.00 | Ole Rønø Clausen NN Group work on assignment Presentations and discussions of results |
| Sunday 19/08 | Departure and transport to CPH from Esbjerg | 10.30 – 12.00 | Ole Rønø Clausen NN Group work on assignment Presentations and discussions of results |

### Monday 13/08
- **Arrival and accommodation at Danhostel Esbjerg**
- **Aalborg University (Esbjerg) C1 – room 117**

### Tuesday 14/08
- **Monitoring and Automation in offshore Oil & Gas exploitation and production**
- Zhen Yu:
  - Topside process systems (facilities and operations)
  - Process monitoring and control (topside separation, slugging flows in pipelines and risers, gas lift production wells, injection water treatment, produced water treatment)
- Ole Rønø Clausen NN:
  - Reflection seismics: Theory, usability and pitfalls
  - Reflection seismics: How to do?

### Wednesday 15/08
- **Seismic acquisition, processing and interpretation. Petrophysical welllogs**
- Ole Rønø Clausen NN:
  - Group work on assignment
- **Aalborg University (Esbjerg) C1 – room 117**

### Thursday 16/08
- **Assignment in groups**
- **Aalborg University (Esbjerg) C1 – room 117**

### Friday 17/08
- **Assignment – Results and discussions**
- **Aalborg University (Esbjerg) C1 – room 117**

### Saturday 18/08
- **Departure and transport to CPH from Esbjerg**

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**8.30-10.00: FINMUS (Fiskeri & Søfartsmuseet I Esbjerg). Maersk sponsored Oil & Gas exhibition: “50 years O&G sector”**

**10.30-12.00: SemcoMaritime – Large contractor in the O&G sector**

**12.00-12.30: Lunch at SemcoMaritime**

**12.30-14.00: Port of Esbjerg – from oil regs to large scale offshore wind projects**

**14.30-16.00: Total Engineering office in Esbjerg. Reconstrucion of the Tyre Gas field and more.**

**08.45 – 10.00**: Welcome

**09.00 – 10.45**:
1. General info of Oil and Gas EDU and R&D activities at AAU
2. Introduction on topside operations
   - Jens Bo Holm-Nielsen
   - Jens Muff

**11.00 – 12.30**:
- Overview of Topside Gas/Oil/Water Separation Units
  - Process Design of Separation Train
  - Issues on Oil/Water Separation
  - Marco Maschietti

**12.30 – 13.30**: Lunch (Cantina, building A, room 150)

**13.30 – 15.00**:
- Potential Applications of Membrane Technologies within Oil & Gas Production Units
  - Jens Muff
- Robotics for offshore DG applications (inline robot, ROVs and drones)
  - Petar Lohndorf

**15.00 – 16.30**:
- Production Chemistry – an overview of applications and challenges
  - Rudi Nielsen
- Lab testing pilot plants, advanced instruments and equipment
  - Simon Pedersen
  - Stefan Jespersen
- Reconstruction of the Tyre Gas field and more.
  - Ole Rønø Clausen NN

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