

## Summer Schools / Master Classes

### 2005 NL Summer School / Intensive exchange meeting

The aim of this meeting, organised in Den Helder (NL) 31-08 ~ 02-09-2005 was to explore the knowledge available with the POWER partners. In 8 sessions different pedagogic methods were used, such as interactive workshops, brainstorming, metaplan and deduction techniques, to find bottlenecks and targets. See reference [WP3\_3a] for the programme meeting.

The further course development was based on the experiences of the intensive information exchange meeting.

### 2006 German Offshore Summer School

The German Offshore Summer School was organised 4 ~ 9 September 2006 in Bremen and Bremerhaven by the POWER partner's Hochschule Bremen, Hochschule Bremerhaven and the University of Oldenburg in close cooperation with the other POWER partners. The Offshore Summer School offered specific offshore wind energy related courses and practical training to a total of seventeen participants: students, technicians and professionals from academic institutions and industry in Germany. Items covered include technical issues of offshore wind farms, interaction between engineers and technicians and to work in international and interdisciplinary teams, technical English and offshore wind farm risk assessment and offshore safety and rescue procedures. A detailed programme is given in [WP3\_4a] and summarised below:

- team training: input of the group, motivating group discussions, get familiar to each other, cooperative initiative task with all trainees, motivating discussions in the plenum, teamwork – change the teams
- mechanics of wind turbine: function of mechanical components of wind turbines: main shaft, gearbox, brake system, yaw mechanism, hydraulic system, practical training in workshops
- introduction to risk assessment: threats, vulnerabilities, controls

ANEMOS: offshore wind energy game

marine safety and rescue training: introduction to: life saving appliances and emergency signals, training: knots, introduction to: hypothermia, team training: life saving appliances, exercises: knots, introduction to: small boats, raining manoeuvring with small boats, life saving appliances, team trainings: rescue of people floating in the water, abseiling from a platform, rescue of people floating in the water

offshore wind farms: offshore environment and loads, mechanical loads, wind and waves, power generation, electrical systems, grid integration introduction to installation, operation and maintenance, support structures and installation technique, operation and maintenance, logistics, environmental impacts, integrated offshore wind farm design, Failure Mode and Effect Analysis

technical English

excursion to Mega Watt-wind turbines

The safety training under offshore conditions (wind, pouring rain and also sunshine) in the harbour of Bremen was an extraordinary experience and covered by local media.

An extensive evaluation of the course has been carried out and reported in [WP3\_4b]. The course materials are documented in ref WP3\_4c.

Other references:

Promotion: flyer: see reference [WP3\_4a-2]; website: [www.fk-wind.de/summerschool](http://www.fk-wind.de/summerschool) (external link)

Media coverage and some pictures: [www.fk-wind.de/summerschool/retro.html](http://www.fk-wind.de/summerschool/retro.html) (external link)

### 2007 UK Offshore Summer School

For marketing reasons, the name “POWER UK Offshore Wind Master Class” has been used instead of Summer School. It was conceived as a follow up to the POWER 2006 German Offshore Summer School. Lowestoft College organised and hosted the 3 day master class on 30th May to 1st June 2007. The

organisation and promotion of the event was supported by among others EEEGR (East of England Energy Group), NaREC (New and Renewable Energy Centre), Renewables East and Waveney District Council and also through POWER and POWER partner websites (such as [www.fk-wind.de/summerschool\\_2007/](http://www.fk-wind.de/summerschool_2007/) - external link)

The objective was to provide delegates with an introductory knowledge of the current and future UK and European offshore wind markets alongside the technological, environmental and safety aspects associated with the offshore wind energy sector. The audience consisted of 15 participants; engineers, and undergraduate / post graduate students in engineering and related topics.

To attract a private sector audience the master class was run over 3 days. This was shorter than the 2006 Summer School which was conducted over 6 days. Through the use of European funding via the POWER project, the event was offered to delegates at below cost price (Employed £150 per person, Student rate £75). Although relatively low amounts for a course of this nature, the fee helped to ensure a high attendance.

A detailed programme of the 3 day course is given in [WP3\_5c] and covered the following items:

- Offshore wind energy in the UK and North Sea region
- Wind as a resource / effects of wake
- Construction, operations and maintenance
- Support structures and foundations
- Electrical generation, configuration and protection
- Offshore environments and loads
- Marine safety training

Due to technical problems with the environmental training pool at Lowestoft College the proposed marine safety training comprising of marine transfer and personal survival techniques was postponed. This has since been rescheduled to take place on Friday 27th July 2007 at no additional cost to delegates wishing to attend.

As an alternative to the marine safety training a boat trip was organised to view the 60 MW Scroby Sands Offshore Wind Farm off Great Yarmouth, Norfolk