OrcaFlex Floating Offshore Wind Turbine (FOWT) Standard Training Course Syllabus

The course assumes some prior experience of using OrcaFlex for other applications, but no experience of the turbine object is required. It is organised as a series of lectures and practical sessions typically held over three days (or 6x half-days if presented remotely). The course is intended to be 'hands on' and we encourage attendees to follow the trainer's actions throughout.

Introduction

- General introduction / background to OrcaFlex and its use for FOWT modelling.

Session 1– Turbines session 1 (half-day)

- Introduction to wind turbines
- Turbine object overview
- Model building exercises

Session 2 – Turbines session 2 (half-day)

- Introduction to external functions
- Introduction to wind turbine controllers
- Wind turbine controller modelling using external functions

Session 3 – Turbines session 3 (half-day)

- Wind turbine control using a DLL
- Blade element momentum (BEM) and unsteady aerodynamics (UA)
- Nacelle and tower modelling

Session 4 – Floating platform diffraction analysis (half-day)

- Morison object vs diffraction body
- OrcaWave introduction
- Diffraction analysis exercises

Session 5 – Vessel objects (half-day)

- Calculated vessels and vessels with superimposed motion
- Using the OrcaFlex vessel
- Explicit modelling of superstructures

Session 6 – Modelling the platform (half-day)

- Model assembly exercises
- Multibody analysis
- Hybrid buoy-vessel system