

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 – OrcaFlex refresher (half-day)

Content adjusted to suit the attendees, but covers general OrcaFlex knowledge necessary for building a FOWT model:

- Model building – using a simple catenary riser
- Line theory
- Line types and contents
- Seabed friction

Session 2 – Turbines session 1 (half-day)

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

Session 3 – Turbines session 2 (half-day)

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

Session 4 – Turbines session 3 (half-day)

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

Session 5 – Wind turbine platforms (half-day)

- Spar systems vs platforms
- Generating platform data using OrcaWave

Session 6 – Modelling the platform (half-day)

- Importing platform data to OrcaFlex
- Explicit modelling of superstructures
- Using the OrcaFlex vessel