



DIGITAL SOLUTIONS

STRUCTURAL ANALYSIS OF FIXED OFFSHORE WIND TURBINE SUPPORT STRUCTURES

Course code: SE-27

Duration:

Option 1: 2 days (standard)

Option 2: 3 days (incl. SE-09)

Option 3: 5 days

(incl. SE-01 and SE-09)

Option 4: combined with Bladed (upon request)

Prerequisite:

It is required that the participants are familiar with modelling in GeniE, hydrodynamic analysis and pile/soil analysis.

Previous experience of Sesam is required equivalent to SE-01 Concept based FE modelling and analysis using Sesam - Introductory, and SE-09 Jacket analysis.

DESCRIPTION

The course focuses on structural analysis of offshore wind turbine support structures, with main focus on jacket based support structures. You will use GeniE and Splice to linearize a non-linear pile-soil foundation, perform an Eigenvalue analysis and use Framework for carrying out fatigue analysis due to waves as well as due to (cyclic) damage equivalent loads. GeniE is used to perform a code check based on extreme loads.

You will also use Sesam Wind Manager, to carry out fatigue and ultimate strength analyses in the time domain, using time series of wave and wind turbine loads, using a sequential/superelement analysis approach and using an integrated design approach.

LEARNING OBJECTIVES

The following topics will be covered:

- Linearizing a non-linear pile-soil foundation
- Eigenvalue analysis of jacket structures
- Fatigue analysis using deterministic wave loads
- Fatigue analysis using (cyclic) damage equivalent loads
- Ultimate strength analysis using extreme loads
- Fatigue analysis using time series of wave and wind turbine loads using rainflow counting
- Ultimate strength analysis in the time domain
- Time domain analysis using a sequential, superelement and integrated analysis approach
- Conversion of a superelement and wave loads or an integrated model from Sesam to wind turbine tools, conversion of interface and/or member loads from wind turbine tools into Sesam

TARGET GROUP

Structural engineers involved in design, analysis or verification of fixed offshore wind turbine support structures.