



## MaRINET2 | Short Course 3: Hydrodynamics of Fixed and Floating Offshore Wind Turbine Foundations

Schedule	Title	Key topics	Speakers
<b>Day 1</b>	<b>November 20</b>	<b>Bottom fixed foundation</b>	
8h00-8h30	Registration and welcome with coffee and tea	Introduction of all speakers and all participants	MARIN
8h30-9h15	Presentation of the program	Day 1, IH Cantabria Day 2, MARIN	IH Cantabria MARIN
9h15-10h15	Introduction to offshore wind fixed platform	Stability assessment, run up evaluation and boat landing systems, Scour Protections	IH Cantabria
10h15-10h30	Break		
10h30-12h00	Stability assessment	Empirical Formulations ( i.e. Morison equation) Numerical Model Approaches (Potential Flow, CFD, ...) Practice: wave loads on a monopile	IH Cantabria
12h00-13h00	Lunch break		
13h00-13h30	Determination of run-up		IH Cantabria
13h30-14h45	Loads due to steep and breaking waves	Non-linear waves numerical and physical modelling Dynamic response of a flexible monopile	MARIN
14h45-15h00	Break		
15h00-17h30	Scour assessment	Scour processes, protection, failure mechanism Empirical formulations Practice: shields on monopile Numerical approaches to evaluate the scour response (PF, CFD, sediment transport) Experimental methods	IH Cantabria





Schedule	Title	Key topics	Speakers
<b>Day 2</b>	<b>November 21</b>	<b>Floating foundations</b>	<b>Hydrodynamics of Floating Offshore wind Turbines (FOWT)</b>
8h00-8h30	Registration and welcome with coffee and tea	Introduction of all speakers and all participants	MARIN
9h00-9h15	Presentation of the program of the day	Day 2	MARIN
9h15-10h15	Introduction to offshore wind floating platforms	Typology, introduction to stability, linear hydrostatics Practice: stability of a semisubmersible FOWT	MARIN
10h15-10h30	Break		
10h30-12h00	Numerical modelling of FOWT (I)	Assessment of motions thanks to a Potential Flow solver Practice: study of RAOs of a spar, semi, a TLP	MARIN
12h00-13h00	Lunch break		
13h00-14h30	Numerical modelling of FOWT (II)	First and second order wave loads Practice: study of the response of the OC4 semisubmersible in waves	MARIN
14h30-14h45	Break		
14h45-15h45	Numerical modelling of FOWT (III)	Viscous loads (Morison, RANS)	MARIN
15h45-16h00	Break		
16h00-16h30	Numerical modelling of FOWT (IV)	Coupling with aerodynamics	MARIN
16h30-17h30	Model tests of FOWT	Physical modelling of the wind turbine in wind, wind load emulation techniques	MARIN IH Cantabria





Schedule	Title	Key topics	Speakers
<b>Day 3</b>	<b>November 22</b>	<b>Hydrodynamic aspects in O&amp;M</b>	<b>Installation of bottom fixed wind turbines (BFWT) and maintenance of offshore wind farms</b>
8h00-8h15	Presentation of the program of the day	Day 3, MARIN	MARIN
8h15-10h30	Installation issues of different BFWT types		MARIN
10h30-10h45	Break		
10h45-12h00	Workability analysis for wind park O&M	Seakeeping performance of different O&M vessel types Practice: operability viewer	MARIN
12h00-13h00	Lunch break		
13h00-13h30	Closure	Training certificates and feedback	MARIN
13h30-15h00	Optional tour	Tour of MARIN facilities in Wageningen	MARIN

## When?

November 20 - November 22, 2018.

## Where?

MARIN main office in Wageningen, The Netherlands.

<http://www.marin.nl/web/Contact/Route-description.htm>

