

Course: Wind and Marine Energy

credits: 5

Course code ZVWH17WHE
Name Wind and Marine Energy
Study year 2022-2023
ECTS credits 5
Language English
Coordinator W.F.J. Swart Ranshuysen

Modes of delivery Practical / Training
 Tutorial
Assessments Assignment WHE - Other assessment
 Lab WHE - Other assessment
 Theory - Written, organised by STAD
 examinations

Learning outcomes

After successful completion of this module, the student is able to:

- Perform a resource assessment on basis of wind speed measurements
- Interpret and analyze wind turbine performance measurements
- Make motivated wind turbine design choices
- Develop a mathematical/physical model to optimize a wind turbine design in terms of energy production, loads and costs
- Determine acoustic noise levels on a wind turbine
- Keep an orderly lab notebook according to the lab notebook guidelines
- Make a quantitative assessment of measurement and calculation errors and uncertainties
- Understand the-state-of-the-art and the potential of marine energy
- Report (in written form) the results of the experiments and analyses in a scientifically correct and clear form

Content

In terms of scientific and technical contents this module will treat the following aspects of wind energy:

- Introduction into wind energy
 - The wind energy sector in a bird view: history, markets, scenario's and roadmaps,
 - Technological challenges and concepts
 - Off-shore wind energy versus on-shore wind energy
- Wind climate and resource assessment (measurements and modelling)
 Rotor design (aerodynamics, aero-elasticity, acoustics, costs)
 Introduction into Marine energy

Included in programme(s)

European Master in Renewable Energy

School(s)

Institute of Engineering