Wind Challenge
Student competition team
University of appled science
Emden-Leer

Project description Academic year 2021-2022

Design optimization and simulation of small wind turbine blade and rotor

In this project you will work beside other members of the student competition team for small wind turbine, and learn basics of wind turbine design, wind energy and work together to conduct wind turbine simulations using the Blade Element Momentum (BEM) with the open source "Qblade" code. The main goal is to improve the current model by performing 2D polar analyses of airfoils in different Reynolds numbers, optimise the blade shape, and find the optimum performance with an iterative approach. This will lead to determination of optimum tip speed ratio, blade pitch angle for different function points of the turbine.

Main tasks/requirements:

- Airfoil, blade, and rotor simulations using Qblade
- Preparation of the report of your work explaining the approach and discussion on the results
- Teamwork and communication with other team members
- Contribution to the final report of the team for the competition
- Contribution in preparation of blade and rotor of the wind turbine
- Participation in weekly team meetings (online for remote students)
- Intermediate English knowledge or above

For more information on our team, visit the page:
https://www.hs-emden-leer.de/studierende/fachbereiche/technik/projekte/wind-challenge

Contact person for application or more information:
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