



COURSE TITLE: Wind Energy

Number of contact hours: 60

Duration: 1 semester (fall / spring)

ECTS credits: 6

Programme description: The course discusses the physical fundamentals of wind power. The class discusses theoretical issues that allow to learn the basics of the issue including calculating the aerodynamic reaction acting on the turbine structure, the power of the wind turbine and its efficiency. The class includes experimental bench experiments and computer lab calculations.

Specific problems discussed during lectures and labs will cover:

- calculation of the aerodynamic reaction acting on the turbine structure,
- stand tests of wind turbines,
- determination of basic characteristics of wind turbines,
- design of small wind power plants.

Course type: lectures (15), computer labs (15), laboratory (15), project (15)

Literature:

1. Potter M. C., Wiggert D. C. — Mechanics of Fluids, Stanford, Cengage Learning, (2010)
2. Zobe H., Zulkifly A., Zainal A. — Basic Fluid Mechanics and Hydraulic Machines, New York, CRC, (2007)

Assessment method: written assessment and reports from computer simulation, laboratory and individual project

Lecturer: Piotr Dzierwa

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