SYLLABUS

Wind Power Technology 7.5 credits F0050T

Vindkraftsteknik

Course syllabus admitted: Autumn 2014 Sp 1 - Spring 2015 Sp 4

DECISION DATE
2014-02-14

Luleå University of Technology 971 87 Luleå, Sweden
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LULEÅ TEKNISKA UNIVERSITET

Wind Power Technology 7.5 credits F0050T

Vindkraftsteknik

First cycle, F0050T

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	G U 3 4 5	Maskinteknik	Mechanical Engineering

Entry requirements

In order to meet the general entry requirements for first cycle studies you must have successfully completed upper secondary education and documented skills in English language and MM0013M Mathematics, F0031T Hydromechanics or equivalent.

Selection

The selection is based on 1-165 credits.

Examiner

Michel Cervantes

Course Aim

After the course the student should be able to:
- discuss different type of wind turbines (drag and lift) and limitations
- design a wind turbine rotor

Contents

- Potential, opportunity, consequences, history of wind energy

- Different wind turbine concepts
- Wind characteristics and resources (origin, characterisation, potential), atmospheric boundary layer, turbulence, terrain effects
- Wind measurements, instrumentation and analysis
- Aerodynamics of wind turbines(Betz limit,blade design, blade element theory, wake rotation, tip loss)

- Electrical aspect of wind turbines
- Wind turbine design and testing

- Project: wind turbine design
- Laboratory experiment: measurement on a wing (pressure distribution, force)

Realization

Each course occasion´s language and form is stated and appear on the course page on Luleå University of Technology's website.
Teaching consists of lectures, laboratory work, projects and possible visits.

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided. Written exam with lab and project is graded. Alternative examination forms can accur.

Literature. Valid from Spring 2012 Sp 3

Wind Energy Explained, J.F. Manwell, Wiley

Course offered by

Department of Engineering Sciences and Mathematics

Items/credits

Number	Type	Credits	Grade
0001	Written exam	5	G U 3 4 5
0002	Laboratory work	0.5	U G#
0003	Project	2	U G#

Last revised

by Mats Näsström 2014-02-14

Syllabus established

by Department of Engineering Sciences and Mathematics 2011-02-07