Technology Arts Sciences
TH Köln

Course Manual WIND

Wind Energy

− General information

Long name	Wind Energy
Approving CModule	WIND_BaET
Responsible	Prof. Dr. Ingo Stadler Professor Fakultät IME
Valid from	winter semester 2022/23
Level	Bachelor
Semester in the year	winter semester
Duration	Semester
Hours in self-study	78
ECTS	5
Professors	Prof. Dr. Ingo Stadler Professor Fakultät IME
Requirements	Basics in Mathmatics Basics in Physics Power Electronics Electrical Machines
Language	English
Separate final exam	Yes

Literature

E. Hau: Windkraftanlagen, Springer Verlag

S. Heier: Windkraftanlagen, Teubner

Final exam

Details	The exam examines the students' understanding of the operation of wind turbines and their operation under different wind conditions (in contrast to the project, which analyzes the behavior of whole wind parks).
Minimum standard	As a rule, at least 50% of the achievable points are required to pass the exam.
Exam Type	EN Klausur

Lecture / Exercises

Learning goals

Goal type	Description
Knowledge	Students understand the physics of the wind, and can derive statistical wind distributions from wind data and calculate the energy yields of wind turbines.
Knowledge	Students understand and describe the tasks of all components of a wind turbine and can assess the influence of the individual parts on each other and can estimate the consequences of the interaction of the components on the energy yield and the ecoomic performance of wind turbines.

Expenditure classroom teaching

Type	Attendance (h/Wk.)
Lecture	2
Exercises (whole course)	1
Exercises (shared course)	0
Tutorial (voluntary)	0

Special requirements

Accompanying material	Transparencies , Exercises, electronic tools for wind park planning
Separate exam	No

Lecture / Exercises

Learning goals

Goal type	Description
Skills	Students can plan wind farms using planning software and comment on the placement of the wind turbines of a park and justify this. In addition to the aspects of energy yield, these include the environmental impact of wind farms.

Expenditure classroom teaching

Type	Attendance (h/Wk.)
Project	1
Tutorial (voluntary)	0

Special requirements

Accompanying material	Documentation of the planning software
Separate exam	Yes

Separate exam

Exam Type	EN Projektaufgabe im Team bearbeiten (z.B. im Praktikum)
Details	Students perform a wind park planning within a team, divide the necessary tasks among each other and document the planning in reports.
Minimum standard	The wind park planning report contains the documentation of all relevant aspects.