

# WIND ENERGY SCIENCE, ENGINEERING AND POLICY (WESEP)

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*Any experimental courses offered by WESEP can be found at:*

registrar.iastate.edu/faculty-staff/courses/explisting/ (<http://www.registrar.iastate.edu/faculty-staff/courses/explisting/>)

**Courses primarily for graduate students, open to qualified undergraduates:**

## **WESEP 501: Wind Energy Resources**

(3-0) Cr. 3.

*Prereq: Graduate standing*

Forecasting, wind measurement and analysis, site placement, aerodynamic principles associated with blade design, power generation technologies, power electronic topologies used in wind energy conversion, collection circuits, and grid operation with high wind penetration.

## **WESEP 502: Wind Energy Systems**

(3-0) Cr. 3.

*Prereq: Graduate standing*

Systems approach to wind turbine design, manufacturing, installation, integrated with wind economics and policy issues. Topics include manufacturing practices used to produce wind turbines, construction practices, sensing and inspection technologies used in monitoring wind farm health, and the impact of policy making on the wind energy industry.

## **WESEP 511: Wind Energy System Design**

(Cross-listed with AER E). (3-0) Cr. 3.

*Prereq: WESEP 501 and WESEP 502*

Advanced design, control, and operation of wind plants. Topics include electromechanical energy conversion systems, aerodynamic and aeroelastic loads, optimal control of wind farms, life cycle management strategies, tall tower design, and prediction of component residual life.

## **WESEP 590: Special Topics**

Cr. 1-3. Repeatable.

Advanced study of a research topic in the field of wind energy, science, engineering, and policy.

## **WESEP 594: Wind Energy Real-Time Research Collaborative Seminar**

(1-0) Cr. 1. Repeatable. F.S.

*Prereq: Graduate standing*

Identifying current wind energy research issues and conducting components of the research cycle in real-time, including proposal development, investigation/analysis/discovery, publication and presentation, ethical behavior, and leadership.