

JCC OFFICIAL COURSE OUTLINE

Course number, title and credits; total time allocation

Course Number	<u>ALT 250/ELT 163</u>	Credits	<u>3</u>	Title	<u>Wind Energy</u>
Lecture/Discussion	<u>3</u> hrs/semester	Lab	<u>1</u> hrs/semester	Clinical	<u>0</u> hrs/semester

Catalog description and Pre- and Co-requisites (Same as taxonomy and catalog)

In this course students gain many of the skills necessary to install a residential wind turbine system. Topics include siting wind turbines, turbine components, estimating turbine electricity output, loading, battery, inverters, and off-grid/grid-connected systems. Labs include hands-on activities with turbines and electrical equipment. Prior electrical skills and knowledge are required to be successful in this course.

Knowledge, skills and abilities Students Acquire from this Course (Educational Objectives)

Applied Wind Turbine Theory – Analysis wind turbine electricity and load base – Knowledge of wind turbine types – System Planning Skills -- Comprehensive Troubleshooting

Associate Degree Outcomes Addressed in this Course (These must appear in course syllabus)

ADO 7

In order to meet ADO 7 the class requires students to think critically and solve problems related to wind energy and work with and troubleshoot wind systems in labs.

Units/topics of Instruction

- Application – How to use the wind
- Measuring the Wind (anemometers)
- Site Planning
- Economics of Wind Energy
- Towers
- Off-Grid and Grid Connected
- Installation and Electricity Production
- Safety

Instructional Techniques and Procedures

The instructor will rely primarily on the LabVolt Solar/Wind Training System and accompanying curriculum. The instructor will use these resources as a basis for lectures and discussions. Experiments, or "Job Sheets", in the LabVolt manuals will be used for labs. Additionally, a course textbook and industry articles will be used to supplement the students learning of the subject.

Instructional Use of Computer or Other Technology

Instructor will use the LabVolt Solar/Wind Training System to teach students

Instructional Materials and Costs to Students

LabVolt Solar/Wind Training System Job Sheets for students and instructors

Textbook (~\$40) Wind Power, Revised Edition: Renewable Energy for Home, Farm, and Business by Paul Gipe

Skills and abilities students should bring to the course

Able to read	<input type="checkbox"/> a limited amount of material <input checked="" type="checkbox"/> an average amount of material <input type="checkbox"/> an above average amount of material	Able to compute	<input type="checkbox"/> basic, pre-algebraic problems <input checked="" type="checkbox"/> simple algebraic problems <input type="checkbox"/> higher order mathematical problems
Able to read	<input type="checkbox"/> relatively easy material <input type="checkbox"/> moderately difficult material <input checked="" type="checkbox"/> technical or sophisticated material	Able to write	<input checked="" type="checkbox"/> short compositions <input type="checkbox"/> medium length compositions <input type="checkbox"/> lengthy compositions
Able to use technology	<input type="checkbox"/> keyboard skills/familiar with computer <input checked="" type="checkbox"/> computer application <input type="checkbox"/> web navigation	Other necessary abilities	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

The course is usually scheduled

Day: ☐ Fall ☐ Winter ☐ Spring

Evening: ☒ Fall ☒ Winter ☐ Spring

Prepared by Mark Rabinsky

Date March 2, 2010

Approved by Dept.

Date

Approved by Dean

Date

Approved by Curriculum Committee

Date