

## JCC OFFICIAL COURSE OUTLINE

### Course number, title and credits; total time allocation

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

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| <ul style="list-style-type: none"> <li>• Application – How to use the wind</li> <li>• Measuring the Wind (anemometers)</li> <li>• Site Planning</li> <li>• Economics of Wind Energy</li> </ul> | <ul style="list-style-type: none"> <li>• Towers</li> <li>• Off-Grid and Grid Connected</li> <li>• Installation and Electricity Production</li> <li>• Safety</li> </ul> |
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### 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