JCC OFFICIAL COURSE OUTLINE

Course number, title and credits; total time allocation

<table>
<thead>
<tr>
<th>Course Number</th>
<th>ALT 250/ELT 163</th>
<th>Credits</th>
<th>3</th>
<th>Title</th>
<th>Wind Energy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture/Discussion</td>
<td>3 hrs/semester</td>
<td>Lab</td>
<td>1 hrs/semester</td>
<td>Clinical 0 hrs/semester</td>
<td></td>
</tr>
</tbody>
</table>

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)


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

<table>
<thead>
<tr>
<th>Able to read</th>
<th>a limited amount of material</th>
<th>an average amount of material</th>
<th>an above average amount of material</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>basic, pre-algebraic problems</td>
<td>simple algebraic problems</td>
<td>higher order mathematical problems</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Able to read</th>
<th>relatively easy material</th>
<th>moderately difficult material</th>
<th>technical or sophisticated material</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>short compositions</td>
<td>medium length compositions</td>
<td>lengthy compositions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Able to use technology</th>
<th>keyboard skills/familiar with computer</th>
<th>computer application</th>
<th>Other necessary abilities</th>
</tr>
</thead>
</table>

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

ELT 163 - Course Outline  Revised: 01/08