

CASPER COLLEGE COURSE SYLLABUS
RETK 1505 Small Wind Turbines

Semester/Year: Fall 2015

Lecture Hours: 2

Lab Hours: 0

Credit Hours: 2

Class Time: 6:00-8:00 P.M.

Days: TH

Room: EI 114

Instructor's Name: Mike Malone

Instructor's Contact Information:

Office Phone: 268-3124

Cell phone: 251-4536

Office: EI 118

Office Hours: 11-12, 1-3 Tue. 10-12

Wed. 11-12, 1-3 Thur.

or by appointment

Email: mmalone@caspercollege.edu

Course Description: This course is designed to examine small wind generation. Students will learn how small wind generators function, their connection to loads and distribution systems and design and application considerations. Students will also explore small wind turbine siting including potential wind energy calculations and turbine performance

Statement of Prerequisites: none

Program Goals:

The **Renewable Energy Technology** program is a versatile, interdisciplinary program that offers students the opportunity to become trained in variety of technologies. The core of the program is centered on electrical power generation from wind and solar. The program assembled produces graduates trained as instrumentation and control technicians that have a high level of mechanical skills as well as specific skills in wind and solar installations. The program allows for electives in related disciplines such as construction, business, Geographical Information Systems (GIS) and information technology. All included, small wind turbines and residential solar installations for students seeking small scale renewable energy skills.

Goal: To introduce students to small wind generation concepts, applications, siting procedures and analysis of small wind turbine performance.

Outcomes:

Upon completion of this course, students will be able to:

1. Demonstrate effective oral and written communication
3. Solve problems using critical thinking and creativity
4. Demonstrate knowledge of diverse cultures and historical perspectives

6. Use appropriate technology and information to conduct research
7. Describe the value of personal, civic, and social responsibilities
8. Use quantitative analytical skills to evaluate and process numerical data
9. Distinguish between different small wind generation systems
10. Understand constraints in siting small wind systems including technical and zoning considerations
11. Design and integration of systems for residential and small commercial applications.
12. Understand and evaluate wind resources for small wind generation projects
13. Analyze and understand data collected from small wind test installations

Methodology: Lectures will present the basic theory. Field trips to existing small wind systems installations will be included. Students will also learn to analyze data from small wind test sites. Sessions are a combination of lecture, experiential activities and team exercises, and are based on a design philosophy that emphasizes the utilization of:

- Detailed lesson plans
- Interactive classroom activities
- Real-world examples
- Team activities
- Repetition of concepts to ensure retention
- Regular homework assignments
- High student performance expectations

Evaluation Criteria:

Attendance/Participation	10%
Assignments	20%
Lab/ Project	20%
<u>Exams</u>	<u>50%</u>
	100%

Grading Policy:

A	=	90-100%
B	=	80-89%
C	=	70-79%
D	=	60-69%
F	=	Less than 60%

Casper College may collect samples of student work demonstrating achievement of the above outcomes. Any personally identifying information will be removed from student work.

Required Text, Readings, and Materials: *Wind Power: Renewable energy for home, farm and business.* Paul Gipe

Class Policies: Last Date to Change to Audit Status or to Withdraw with a W Grade:

Nov 12th 2015

Student Rights and Responsibilities: Please refer to the Casper College Student Conduct and Judicial Code for information concerning your rights and responsibilities as a Casper College Student.

Chain of Command: If you have any problems with this class, you should first contact the instructor to attempt to solve the problem. If you are not satisfied with the solution offered by the instructor, you should then take the matter through the appropriate chain of command starting with the Department Head/Program Director, the Dean, and lastly the Vice President for Academic Affairs.

Academic Dishonesty: (Cheating & Plagiarism) Casper College demands intellectual honesty. Proven plagiarism or any form of dishonesty associated with the academic process can result in the offender failing the course in which the offense was committed or expulsion from school. See the Casper College Student Code of Conduct for more information on this topic.

Official Means of Communication: Casper College faculty and staff will employ the student's assigned Casper College email account as a primary method of communication. Students are responsible to check their account regularly. This is also, where you will find course evaluation links during course evaluation periods.

ADA Accommodations Policy: If you need academic accommodations because of a disability, please inform me as soon as possible. See me privately after class, or during my office hours. To request academic accommodations, students must first consult with the college's Disability Services Counselor located in the Gateway Building, Room 344, (307) 268-2557, bheuer@caspercollege.edu. The Disability Services Counselor is responsible for reviewing documentation provided by students requesting accommodations, determining eligibility for accommodations, and helping students request and use appropriate accommodations.

Calendar or schedule indicating course content: subject to change at the instructors discretion

Week	Topic
1	Introduction and applications
2	Measuring the wind
3	Estimating output and Economics
4	Test 1
5	Evaluating Technology
6	Towers
7	Cutting Costs and Buying a wind system
8	Test 2
9	Off Grid Power Systems, Grid tied systems
10	Siting
11	Installation
12	Test 3
13	Operation, performance, and Maintenance
14	Safety
15	Looking to the Future
16	Labs
17	Final

