



Where the Power of
Wind is Harnessed...

We're Northeast.

Wind Energy at
Northeast

community college
Norfolk, Nebraska
northeast.edu



First wind energy
training efforts 2005

10 kW American
Energy
Wind Tower

Completing installation of controls, rectifier, inverter, and battery bank



Control system designed to power facility lighting and charge a four hour battery reserve



Wind powered lighting with T-5 fluorescent lighting fixtures



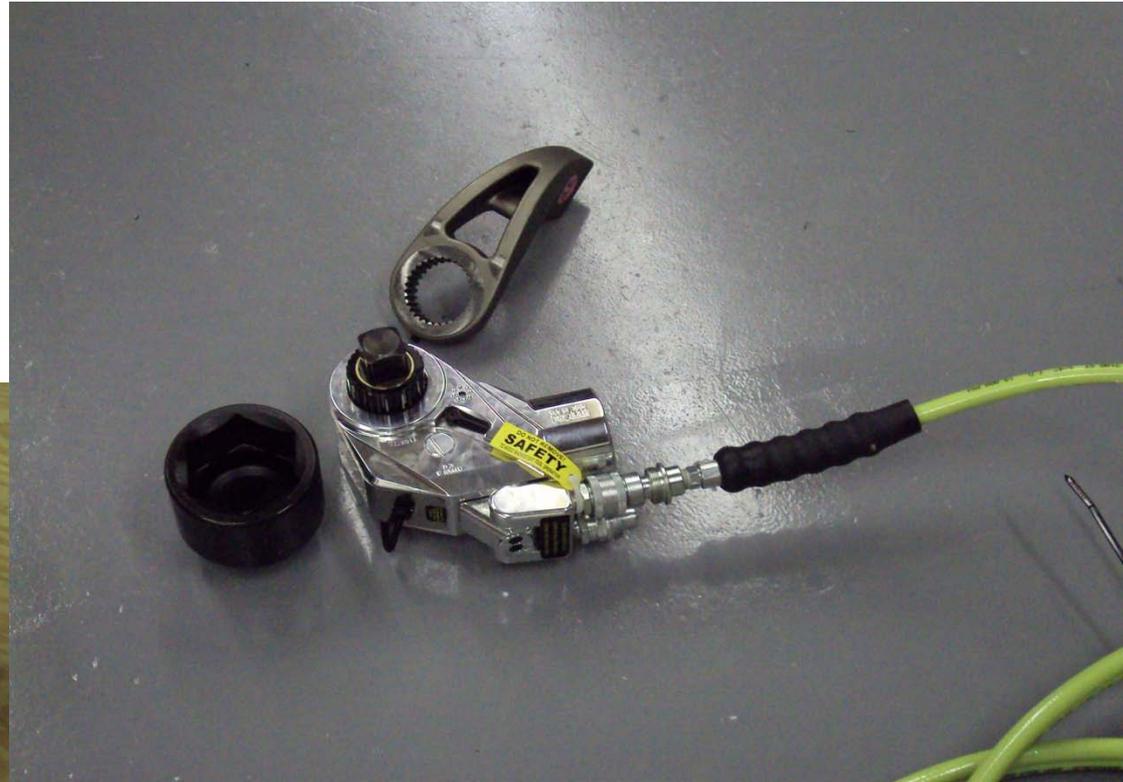
3 kW Southwest Power 500 Donation
Updated system, refurbished and
redesigned tower for easy training access



New SW 3.0 kW Turbine erected 2009-2010
Resembles a full scale turbine – bolt torques,
yaw motor operation and control systems.
The construction and erection completed
by wind energy students.



Proper torque procedures



Control system includes SCADA/Ethernet communication



Turbine Footing



Hydraulic System



Unique design to raise and lower system for service and instruction



2010/2011 School Year

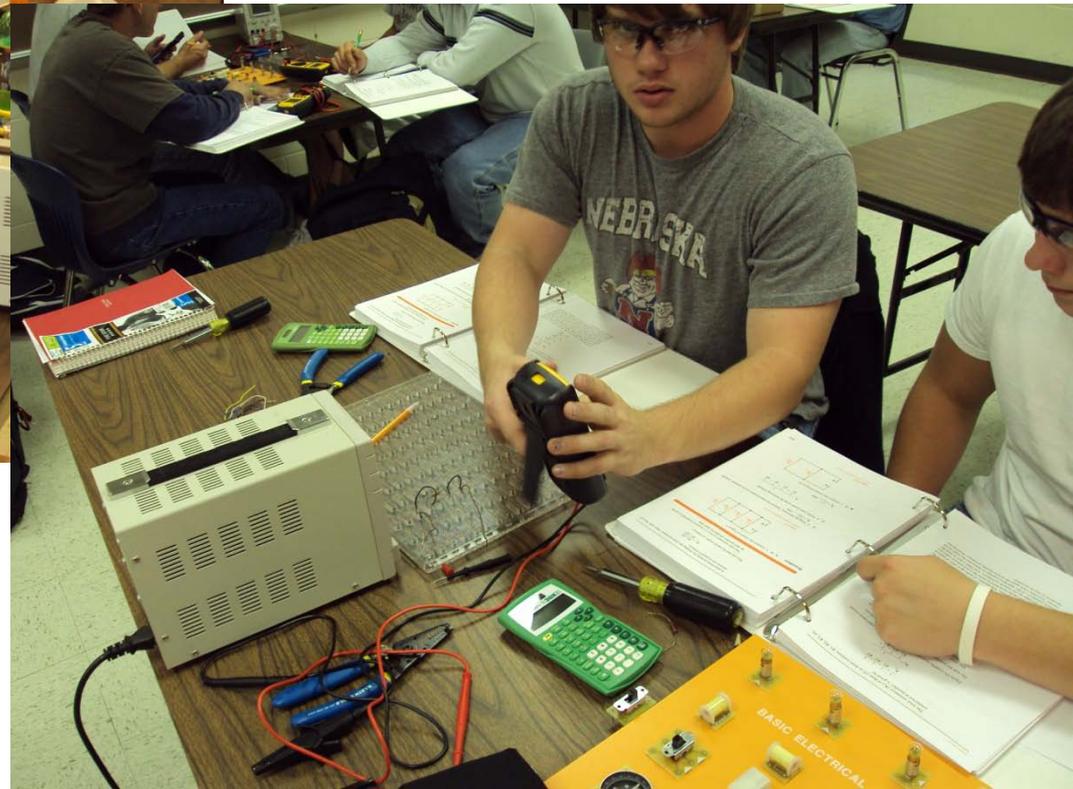
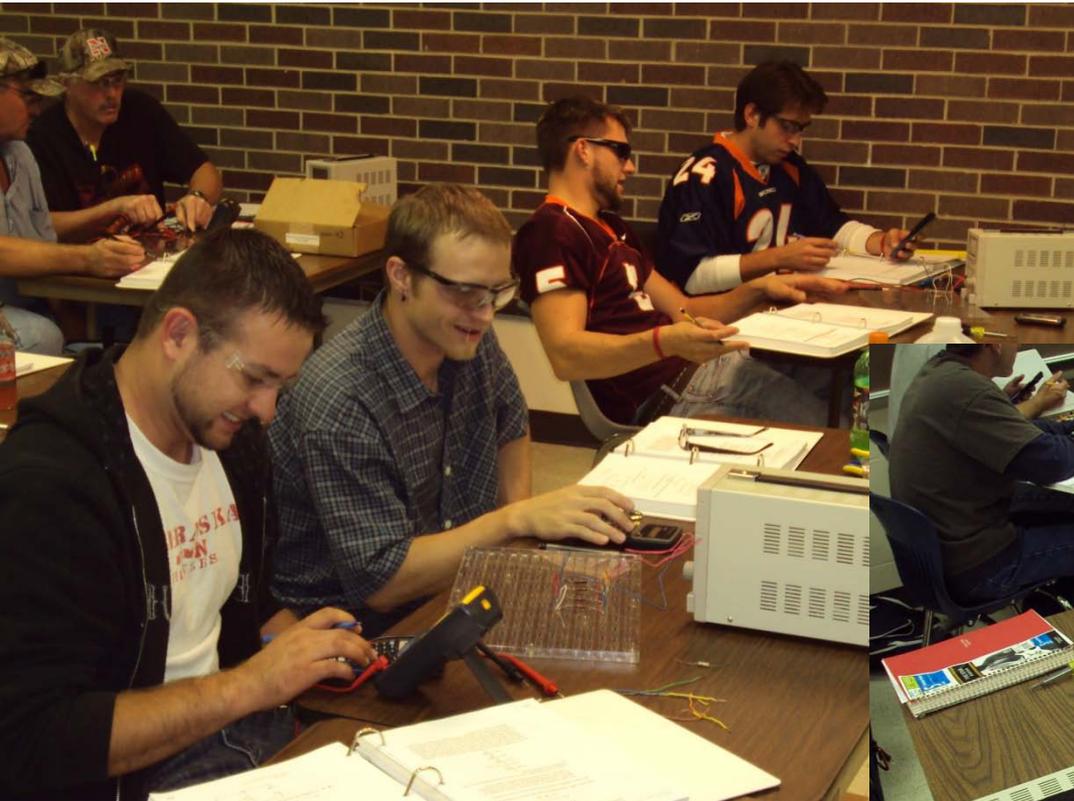
- The objectives are:
 - Obtain funding for a full sized wind turbine
 - Train and produce wind technology technicians by the spring 2011
 - Expand curriculum to secondary schools – online
 - Develop two year Associate of Applied Science degree in wind energy
 - Develop opportunities for students in engineering careers

First Semester:

- Fundamentals of electricity
- Wind energy fundamentals
- Wind turbine systems
- Blue print reading
- Math
- 50' climb



Fundamentals of Electricity



Rappelling, harness safety, and rigging are all part of the climbing exercises



100' lattice tower climb to simulate a full tower climb while safely tied off 100% of the time



GE turbine blade for training in working safely in a confined space, rescue procedures, blade defect inspection and fiberglass repair



Second Semester:



- Mechanical and fluid fundamentals
- Electrical and operations safety/CPR
- Motor controls
- Continued 100' lattice tower climb/repair lab
- Commercial tower climb

Mechanical and Fluid Fundamentals



Motor Control systems



10kW Cut away model



Required Cooperative Internship

- Allow employer to preview candidates
- Train potential employees at a formative level
- On-the-job experience
- Exposure to practitioners in the field
- Direct contact with potential employers

First Wind Energy Degree Program in Nebraska

- One year diploma with potential for AAS degree
- Provide hands-on training to prepare students for “green jobs”
- Efforts to establish a full sized turbine to provide complete array of experiences from residential to commercial applications



Northeast

community college

801 East Benjamin Ave. P.O. Box 469

Norfolk, NE 68702-0469

(402) 371-2020 (800) 348-9033

northeast.edu

Wind Energy



WIND ENERGY

The wind energy program will provide individuals with the necessary skills and knowledge needed to work in positions in the wind energy field. Students will acquire knowledge and skills through concentrated classroom and hands-on learning. Upon completion of the program, graduates are placed into positions as wind energy technicians.

Required Program of Study for Diploma (1 year)

First Semester		Second Semester	
Course	Credits	Course	Credits
ELTR 1010 Basic Electricity	3	ELMC 1155 Mechanical Systems for Wind Energy	3
ELTR 1020 Basic Electricity Lab	2	ELMC 2050 Fluid Fundamentals Theory	2
ELTR 1080 Wind Energy Fundamentals	3	ELMC 2060 Fluid Fundamentals Lab	2
ELTR 1090 Wind Turbine Systems	3	ELTR 1058 Electrical and Operations Safety for Wind Energy	3
ELTR 1255 Blue Print Reading	2	ELTR 1230 Motor Controls Theory	2
MATH 1020 Applied Math I	3	ELTR 1240 Motor Controls Lab	2
	16	BSAD 2050 Business Communication	3
			17

Summer

Course	Credits
ELTR 1300 Cooperative Internship	8

Total Credit Hours 41

We'll maximize your time & money.

Prepare to enter the growing wind energy industry. You can earn a diploma in just one year and you'll be ready to go to work when you're finished.

Real world experience.

You'll learn the skills needed to work in the wind energy industry. You'll also learn about safety, electricity, wind energy fundamentals, and wind turbines. Internships will also provide you with hands-on learning experiences.

Opportunities await.

Educated workers will find numerous opportunities in the wind energy industry right here in rural Nebraska, but demand is high throughout the state and nation.

Salaries range from \$18 to \$26 per hour depending on experience.

