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TEXAS TECH UNIVERSITY  
**Division of Outreach  
& Distance Education**

Box 42191 | Lubbock, TX 79409-2191



TEXAS TECH UNIVERSITY  
**Division of Outreach  
& Distance Education**

**A Short Course:**

# **INTRODUCTION TO WIND POWER SYSTEMS: TECHNOLOGY AND ECONOMICS**

**October 1-3, 2008**

**West Texas Wind Energy Consortium  
Sweetwater, Texas**



**Sponsored By:**  
**The Wind Science and Engineering Research Center,  
Outreach & Distance Education at Texas Tech University,  
and the West Texas Wind Energy Consortium**

## **2008 Short Course Schedule**

The course will be held at the  
West Texas Wind Energy Consortium, 119 East  
3rd Street, Sweetwater, Texas.

### **Wednesday, October 1**

7:45 a.m. Registration/Check-In  
Continental Breakfast  
8:30 a.m. Welcome and Introductions  
8:45 a.m. Wind Turbine Overview  
Connection to the Grid  
Wind Characteristics, Measurement,  
and Resource Assessment  
Noon – 1:00 p.m. Lunch  
1:15 p.m. Wind Turbine Configuration,  
Aerodynamics, and Architecture  
Wind Turbine Design  
4:45 p.m. Adjourn  
6:00 p.m. Reception and Dinner

### **Thursday, October 2**

8:30 a.m. Wind Farm Planning, Operation,  
& Logistics: Economic, Financial,  
Environmental, and Legal Issues  
Noon – 1:00 p.m. Lunch  
1:15 p.m. Additional Applications for Wind  
Energy: Wind/Water Desalination,  
Offshore Applications, and Small  
Wind  
4:00 p.m. Summary and References  
4:30 p.m. Course Evaluations and Adjourn  
6:00 p.m. Dinner

### **Friday, October 3**

8:00 a.m. Wind Tours\*  
Noon Adjourn

\*The fee for this tour is \$25. You will need to  
sign up for this tour in advance (see registration  
form).

## **Course Overview**

Over the past decade, wind power has been the fastest  
growing source of electric power in the world. Texas  
recently became the number one producer of wind  
power in the country. Recent state legislation is laying  
the groundwork for large transmission lines, which  
will accelerate the use of wind power in the state and  
the region. This short course is designed to provide  
an overview of current wind power technology, from  
its technical aspects to operational, geographic, and  
economic issues. Course attendees will learn about  
the architecture, design, configuration, operation, site  
placement, and economics of wind turbines, wind farms,  
and wind-driven power plants. The course will also  
provide an understanding of wind energy as it relates  
to the electric utility industry.

Specific course topics include:

- Wind characteristics and measurement
- Conversion of wind energy to electricity
- Wind turbine architecture and technology
- Economics of wind energy
- Other wind energy applications

## **Audience**

This course is intended for those interested in obtaining  
a general overview of wind energy technology and its  
associated issues.

- City/county officials
- Local, state, and federal agencies
- Legal and financial professionals
- Land owners
- Legislators
- Environmental organizations
- Permitting and regulatory agencies
- People wishing to enter the industry

## Texas Tech University Wind Science And Engineering Research Center

The Wind Science and Engineering (WISE) Research Center at Texas Tech University was established in 1970, following a tornado in Lubbock that caused 26 fatalities and over \$100 million in damage. The WISE Center is focused on wind-related research, education and information outreach. The comprehensive, multi-disciplinary research program aspires to exploit the useful qualities of wind and to mitigate its detrimental effects. The Center offers a multi-disciplinary education in wind science and engineering to develop professionals who are knowledgeable in wind power systems, design for windstorm mitigation and other wind-induced effects. The Center develops information on wind energy, windstorm disasters, wind hazard mitigation, and other wind-related subjects that are made available to professionals and the public. The WISE Center currently has approximately 20 faculty associates from 7 academic departments, 3 research associates, 6 professional staff, and 30 graduate students.



### Course Faculty

**Dr. Jamie Chapman** is currently a senior research faculty member in Wind Science and Engineering at Texas Tech University. Over the last two decades and continuing to the present, his work has been focused on the design, manufacture and operation of commercial, large-scale, grid-connected, wind-driven power plants. He has also enjoyed a varied and productive career focused on the definition, management and communication of technology and its application to integrated, multi-disciplinary systems. This work was done by Dr. Chapman while he was employed with federal contractors, principally Los Alamos National Laboratory; EG&G, Inc.; and the AVCO Everett Research Laboratory. His professional activity in wind began in 1982 with Kenetech Corporation, a company that pioneered grid-connected wind technology in the U.S. (including variable-speed operation) and subsequently went public. His wind activities have continued with contributions from his own company, OEM Development Corporation.

**Dr. Andrew Swift** is presently director of the Wind Science and Engineering Research Center at Texas Tech University. His previous employment included more than 20 years as a professor of mechanical engineering at the University of Texas at El Paso, the last seven of which were spent as dean of the College of Engineering. He completed his engineering graduate work obtaining a Doctor of Science degree at Washington University in St. Louis where he began conducting research in wind turbine engineering with a focus on the dynamics and aerodynamics of two-bladed wind turbine rotors. Dr. Swift has worked in wind energy research for over 25 years and has more than one hundred published articles and book chapters in the area of wind turbine engineering and renewable energy. In 1995, he received the American Wind Energy Society Academic Award for continuing contributions to wind energy technology as a teacher, researcher, and author.



### Fees

The fee for this course is \$895 if your registration is received or postmarked by September 17, 2008. After September 17, the fee is \$950\*. The fee includes the short course notes; continental breakfast, two lunches; guided tour, reception, and two dinners; and daily refreshment breaks. (Please note that the short course notes are available to attendees only.) The wind tour is an additional \$25 fee. Advance sign-up for this tour is required (see registration form). Note: The enrollment in the short course is limited to 40 participants. We thus encourage you to register early! \*Note: A limited number of seats are available at a special government/education rate on a first-come-first-serve basis. Call 806.742.7202, ext. 270 for more information.

### Continuing Education Credits

Participants will receive 13 hours/1.3 CEUs for successful completion of the course.

### Registration

There are several convenient ways to register:

- Register online and pay with a credit card at: [www.ode.ttu.edu/outreach](http://www.ode.ttu.edu/outreach)
- Mail your completed registration form with payment to:  
Outreach and Distance Education  
Attn: Outreach/Wind Power Short Course  
Texas Tech University  
Box 42191, Lubbock, TX 79409-2191
- Fax your completed registration form and credit card information to 806.742.7220
- Call 806.742.7202, ext. 270 or 251.

### Hotel

A block of suites has been reserved at the Best Western Sweetwater Inn and Suites, located at 300 North West Georgia Avenue, Sweetwater, Texas. For reservations, call Best Western at 325.236.6512. To receive the special conference rate of \$79.90 for a single or double room (includes a hot breakfast buffet), please make your reservation by September 17, 2008. When making your reservation, identify yourself as a participant of the "Introduction to Wind Power Systems Short Course."

### Wind Tours

The wind tours will include some of the largest wind energy projects in the US and the world. We will have the opportunity to view cutting edge turbines, current construction and operations of various wind energy projects, and a visit to the training program at Texas State Technical College.

### Cancellations/Refunds

A full refund of your registration fee, less a \$50 processing charge, will be granted for refund requests received by September 17, 2008. Thereafter, only a partial refund can be granted.

### Information

For more information, contact TTU Outreach at 806.742.7202, ext. 270 or 251.

## INTRODUCTION TO WIND POWER SYSTEMS: TECHNOLOGY AND ECONOMICS REGISTRATION FORM

Register online at  
[www.ode.ttu.edu/outreach](http://www.ode.ttu.edu/outreach)

Name: \_\_\_\_\_

Title/Position: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

E-mail: \_\_\_\_\_

Work Phone: ( ) \_\_\_\_\_

Home Phone: ( ) \_\_\_\_\_

I would like to attend the wind tours on Friday, October 3. I have included the \$25 additional fee in my payment.

I am enclosing a check for \$\_\_\_\_\_ payable to Texas Tech University.

Please charge my \$\_\_\_\_\_ registration fee to:

VISA  MasterCard  Discover  American Express

Card Number: \_\_\_\_\_

Exp. Date: \_\_\_\_\_

Cardholder's Signature: \_\_\_\_\_

*Persons with disabilities who may need auxiliary aids or service are requested to call 806.742.7202, ext. 270 at least two days in advance of participation so that appropriate arrangements can be made.*



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