“TTU-Educational Programs in Wind Energy”

“NAWEA Education and Curriculum Session”
CU-Boulder- August 8, 2013

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“The Texas Tech Wind Energy Workforce Initiative, a partnership between Texas Tech University and Texas State Technical College, with a focus on wind energy workforce development and education, was initiated with a grant from the Texas Workforce Commission.”

http://www.depts.ttu.edu/uc/windenergy/
Ph.D. in Wind Science and Engineering (2007)

NSF-IGERT Initiated

Graduate Certificate in Wind Energy (2009)
- Both Technical and Managerial tracks

Bachelor of Science in Wind Energy (2011)
- approved Fall 2011 as a Science and Technology degree
- Offer a Minor in Wind Energy
- Offer an Undergraduate Certificate in Wind Energy

Under Consideration (2014)
- Master of Science in Wind Energy

Seven Years (2005 to 2012) & significant investment to grow wind energy programs to current level.
Bachelor of Science in Wind Energy (BSWE)

- Bachelors of Science in Wind Energy
- A Multi-disciplinary Program
- Administered within a multidisciplinary Wind Institute
- Program Includes Wind Energy Undergraduate Minor & Certificate
  - Both are available on-line
- 110 BSWE majors, Fall 2013
- “The Bachelors of Science in Wind Energy will not only give students an in-depth understanding of renewable energy, particularly wind energy, but also equip them to fill any number of positions within the energy industry,”
• 10% are Graduate Certificate Students
• 35% are enrolled as Distance Education, on-line Students
• Additionally, 20 PhD Students Enrolled in Wind Science and Engineering
Engineering Jobs in the Wind Industry

Tower and foundation design (CE)
Road design (CE)
Structural and blade design, testing (CE/ME)
Surveyors (CE)
Geotechnical engineer (CE)
    Geotechnical testing (GEOL/CE)
Environmental management (CE / Env. Eng.)
Construction-project mgmt. (CE)
Product Development
Safety and environmental health

Wind turbine design (rotor aero., structural, acoustic, drive train) (ME)
Site Suitability Engineer (ME)
Power system integration and substation design (EE/ME)
Utility interconnection design (EE)
Lean manufacturing for components and assembly (IE/ME)
Site operations managers (ME/EE)
Predictive maintenance (ME/IE)
SCADA Engineers (EE/CS)
Safety Engineer (IE)
Controls/Software (ECE)
Non-Engineering Jobs in the Wind Industry Related to University Education

- Resource assessment specialist
- Wind / power production data analyst
- Wind / wind power forecasting
- Technical sales and marketing
- Project development
- Utility liaison / interconnection experts
- Community liaison

- Regulatory / government liaison
- O & M management and supervision
- Risk management and assessment
- Supply chain management
- Manufacturing oversight/ mgmt.
- Energy analysis / energy auditing
- GIS specialists / Cartographers
Non-Engineering Jobs in the Wind Industry Related to University Education

- Wind project finance and analysis
- Marketing wind power and projects
- Financial analysis / tax specialists
- Energy commerce; Land Use
- Property or ad valorem tax manager
- Legal and regulatory specialist
- Wind business tax specialist
- Permitting
- Contracting experts (turbine supply, construction, PPA’s)
- Environmental / habitat specialists
- Visual impact assessment
- Ag. specialist / landowner liaison
- Architecture / visual impact simulation