Degree Program Assessment Plan

Degree Program - NWI - Wind Energy (BS)

Disciplinary Accrediting Body: SACSCOC
Next Program Review: 17-18
Degree Program Coordinator: Andy Swift
Degree Program Coordinator Email: andy.swift@ttu.edu
Degree Program Coordinator Phone: +18068341990
Degree Program Coordinator Mail Stop: 3155

Program Purpose Statement: The wind energy education program provides students with a multidisciplinary education in wind energy. Graduates will have a broad understanding of the renewable energy - electric power sector as well as a fundamental knowledge of atmospheric science, electric grid integration, environmental and social impacts, wind energy technology, regulatory policies, economics, business, finance, management, and project development. The skills and knowledge acquired through this program will prepare students for a successful career in this rapidly growing industry as well as a foundation to pursue post graduate studies.

Assessment Coordinator: Kacey Marshall

Student Learning Outcome: Turbine Architecture_2016-17

STUDENTS WILL BE ABLE TO SUMMARIZE AND EXPLAIN THE ARCHITECTURE OF WIND TURBINES AND DESCRIBE THE SYSTEM’S OPERATION FROM WIND INFLOW TO GRID INTEGRATION.

Outcome Status: Active
Outcome Type: Student Learning
Start Date: 08/24/2015

Assessment Methods

- Internal juried review of project/presentation: Students will prepare a presentation which address the SLO. The results are then scored using a rubric created by the Wind Energy Academic Assessment Committee. (Active)

  Criterion: Rubric works on a 0-4 scale. 70% of students must score a 3 (Proficient) or better.

  Related Documents:
  Wind Energy Rubric

- Capstone Assignment/Project: Students will complete a capstone project, utilizing their entire program knowledge to design a wind farm. Embedded into the capstone project is a summary of turbine architecture specific to their given wind farm development and an explanation of the system’s operation from wind inflow to grid integration. The results are then scored using a rubric created by the Wind Energy Academic Assessment Committee. (Active)

  Criterion: Rubric works on a 0-4 scale. 70% of students must score a 3 (Proficient) or better.

  Related Documents:
  Wind Energy Rubric
Student Learning Outcome: Wind Resource Utilization_2016-17

STUDENTS WILL BE ABLE TO CHARACTERIZE WIND RESOURCES, UTILIZE MODELS, AND ANALYZE WIND DATA FOR USE IN WIND ENERGY PROJECT DESIGN.

Outcome Status: Active
Outcome Type: Student Learning
Start Date: 08/21/2015

Assessment Methods

Internal juried review of project/presentation - Students will prepare a presentation which addresses the SLO. The results are then scored using a rubric created by the Wind Energy Academic Assessment Committee. (Active)

Criterion: Rubric works on a 0-4 scale. 70% of students must score a 3 (Proficient) or better

Capstone Assignment/Project - Students will complete a capstone project, utilizing their entire program knowledge to design a wind farm. Embedded into the capstone project is an analytical summary of wind resources specific to their given wind farm development utilizing wind data and industry relevant modeling software. The results are then scored using a rubric created by the Wind Energy Academic Assessment Committee. (Active)

Criterion: Rubric works on a 0-4 scale. 70% of students must score a 3 (Proficient) or better.

Student Learning Outcome: Wind Energy History and Integration_2016-17

STUDENTS WILL BE ABLE TO INTEGRATE THE HISTORY AND DEVELOPMENT OF WIND ENERGY SYSTEMS AND THEIR CONTRIBUTION IN MEETING GLOBAL ENERGY NEEDS.

Outcome Status: Active
Outcome Type: Student Learning
Start Date: 08/24/2015

Assessment Methods

Capstone Assignment/Project - Students will prepare a capstone paper which addresses the SLO. The results are then scored using a rubric approved by the Wind Energy Academic Assessment Committee. (Active)

Criterion: Rubric works on a 0-4 scale. 70% of students must score a 3 (Proficient) or better.

Class Discussions - Students will participate in embedded class discussions which address the SLO. The results are then scored using a rubric approved by the Wind Energy Academic Assessment Committee. (Active)

Criterion: Rubric works on a 0-4 scale. 70% of students must score a 3 (Proficient) or better.

Student Learning Outcome: Reasoning and Articulation_2016-17

STUDENTS WILL SYNTHESIZE ARGUMENTS WHILE DISCUSSING THE ENVIRONMENTAL AND SOCIAL IMPACTS, SUSTAINABILITY ISSUES, AND LEGISLATIVE AND REGULATORY POLICIES.
### Degree Program - NWI - Wind Energy (BS)

**Outcome Status:** Active  
**Outcome Type:** Student Learning  
**Start Date:** 08/24/2015

#### Assessment Methods

**Capstone Assignment/Project** - Students will prepare a capstone paper which addresses the SLO. The results are then scored using a rubric approved by the Wind Energy Academic Assessment Committee. (Active)

**Criterion:** Rubric works on a 0-4 scale. 70% of students must score a 3 (Proficient) or better.

**Class Discussions** - Students will participate in embedded class discussions which address the SLO. The results are then scored using a rubric approved by the Wind Energy Academic Assessment Committee. (Active)

**Criterion:** Rubric works on a 0-4 scale. 70% of students must score a 3 (Proficient) or better.

### Student Learning Outcome: Project Development and Assessment_2016-17

**STUDENTS SHALL BE ABLE TO ASSESS AND DEVELOP WIND ENERGY PROJECTS INCLUDING THE APPLICATIONS OF FINANCIAL AND ECONOMIC ANALYSIS.**

**Outcome Status:** Active  
**Outcome Type:** Student Learning  
**Start Date:** 08/24/2015

#### Assessment Methods

**Internal juried review of project/presentation** - Students will prepare a presentation which address the SLO. The results are then scored using a rubric created by the Wind Energy Academic Assessment Committee. (Active)

**Criterion:** Rubric works on a 0-4 scale. 70% of students must score a 3 (Proficient) or better.

**Capstone Assignment/Project** - Students will complete a capstone project, utilizing their entire program knowledge to design a wind farm. Embedded into the capstone project is an assessment of the financial and economic viability and impacts of their given wind farm development. The results are then scored using a rubric created by the Wind Energy Academic Assessment Committee. (Active)

**Criterion:** Rubric works on a 0-4 scale. 70% of students must score a 3 (Proficient) or better.