

# Assessment: Assessment Plan

## Degree Program - AS - Wind Energy (BS)

**CIP Code:** 30.1501.00

**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

**Modality:** 100% Online, Face-to-Face

### Student Learning Outcome: RENEWABLE ENERGY APPLICATION - Distance

STUDENTS WILL DEMONSTRATE AN ABILITY TO APPLY STEM KNOWLEDGE TO RENEWABLE ENERGY ISSUES.

**Outcome Status:** Active

**Outcome Type:** Program

#### Assessment Methods

**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.

**Case Studies** - Students referred to four case studies to draft a professional analysis of the viability of a wind farm site. (Active)

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

### Student Learning Outcome: COMMUNICATION LITERACY - Distance

STUDENTS WILL EFFECTIVELY COMMUNICATE RELEVANT INFORMATION IN WRITTEN AND ORAL FORMATS.

**Outcome Status:** Active

**Outcome Type:** Program

**Additional Assessment Component:** Communication Literacy

#### Assessment Methods

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**Oral exam** - Students participated in a mock planning commission meeting for a hypothetical wind energy project. Each student was randomly assigned a unique role in the project development and was required to not only present his or her opinion (based upon research) as if at a public hearing, but also to defend their position at the mock meeting. (Active)

**Criterion:** Students must score 70% of the possible points (Proficient) or better on the BSWE Oral Communication Rubric.

**Essays** - Students prepared a final paper which is evaluated on written communication. The results are then scored using a rubric created by the Wind Energy Academic Assessment Committee for the BSWE Communication Literacy Plan. (Active)

**Criterion:** A class average score of 80 out of 100 possible points per the rubric. Per the rubric, this sets the class average in the "acceptable" range.

**Capstone Assignment/Project** - Students completed a semester –long research paper on a renewable energy topic. Students were required to complete a first draft and a final draft in order to assess written communication skills. (Active)

**Criterion:** The total point value for the paper was 100 points, with 10 points total available in 10 categories – Thesis/Claim, Supporting Ideas/Evidence, Analysis of Supporting Ideas/Evidence, Introduction, Body Paragraphs and Transitions, Conclusion, Style, Tone, Grammar & Usage, and Formatting. An average value of 75 or greater of 100 would be considered "acceptable".

**Student Projects** - Students will complete a wind farm layout project where their ability to communicate through industry relevant drafting software is evaluated. (Active)

**Criterion:** The class average will be at a "competent" level or higher (at least 66 out of 100 points per the rubric for this assessment.)

## Student Learning Outcome: SOCIOECONOMIC ANALYSIS - Distance

STUDENTS WILL IDENTIFY AND ANALYZE SOCIOECONOMIC ISSUES IN THE RENEWABLE ENERGY INDUSTRY.

**Outcome Status:** Active

**Outcome Type:** Program

### Assessment Methods

**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 and socioeconomic impacts 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.

**Essays** - Students will prepare a final paper 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.

**Professional Development Activities** - Students will prepare a legal memo which addresses the relevant socioeconomic issues in the renewable energy industry. 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.

**Case Studies** - Students referred to four case studies to draft a professional analysis of the viability of a wind farm site including the socioeconomic impacts of developing a site at that location. (Active)

**Criterion:** 70% of students will score a "3" on the portion of the assignment that relates to this student learning. The assessment rubric defines a "3" as student learning that exhibits Proficient performance on this outcome.

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## Student Learning Outcome: ETHICAL ANALYSIS - Distance

STUDENTS WILL DEMONSTRATE CONTINUAL LEARNING THROUGH ETHICAL ANALYSIS.

**Outcome Status:** Active

**Outcome Type:** Program

### *Assessment Methods*

**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 the ethical impact and considerations of 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.

**Case Studies** - Students will use real world case studies and employ the ethical analysis model of the issues to complete a class report. (Active)

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

**Essays** - Students will prepare a capstone essay 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.

**Professional Development Activities** - Students will prepare a legal memo which addresses a relevant ethical issue in the renewable energy industry. 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.