Energy Systems Wind Engineering Technology

4 Semesters
Coordinator and Instructor: Beaty
Instructors: Larson, McClure, Shepherd, Womack
One Associate of Applied Science Degree and one Bachelor of Applied Technology degree are available.

Objective:
Provide students with information regarding basic safety principles in the Wind Energy industry. A brief overview of the Occupational Safety and Health Administration (OSHA) will be discussed. The primary focus will be on OSHA regulations and standards that pertain to the construction and maintenance of wind turbines and the energy industry. Acceptance is based upon available openings and other factors such as grade point average and attendance.

For a Program Information Packet, visit **http://www.isu.edu/ctech/programs.shtml**, which leads to descriptions of each program in general, course descriptions, lists of course sequences, and a cost of books, tools, uniforms, fees, and other expenses.

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This program requires students to achieve certain grades in order to advance each semester. Specific information is available in the program's student handbook.

Associate of Applied Science Degree: Energy Systems Wind Engineering Technology

(4 semesters)
Students must register concurrently for the lab course associated with each theory course.

Required Courses:

ESET 121, 121L	Basic Electricity and Electronics, and Lab	8 cr
ESET 150, 150L	Introduction to Wind Energy Systems, and Lab	3 cr
ESET 122, 122L	Electrical System and Motor Control Theory, and Lab	2 cr
ESET 123, 123L	Mechanical Power Transmission, and Lab	7 cr
ELTR 141	Applied Mathematics I	4 cr
ELTR 142	Applied Mathematics II	4 cr
ESET 212	Electrical Systems Documentation and Standards	2 cr
ESET 231, 231L	Microcontrollers, and Lab	3 cr
ESET 232, 232L	Electrical Machines, and Lab	6 cr
ESET 233, 233L	Electrical Power System	6 cr
ESET 240, 240L	Pumps, and Pump Applications Lab	7 cr
ESET 243, 243L	Fluid and Pneumatic Power and Lab	5 cr
ESET 247, 247L	Wind Energy Control Systems, and Lab	3 cr
ESET 298	Independent Study	1-8 cr
TGE 158	Employment Strategies	2 cr
MATH 253*	Introduction to Statistics	3 cr

General Education Requirements **

ENGL 101	English Composition	3 cr
COMM 101	Principles of Speech	3 cr
PHYS 101, 101L	Elements of Physics, and Lab	4 cr
Goal 6, 7, 9, 10A, 11, or 12		3 cr
	Total	80-88 cr

*MATH 170 may be substituted for MATH 253.

**Of the 16 credits of General Education coursework required for the degree, 13 credits are part of the required curriculum.

Official articulation agreements have been established with other post-secondary and secondary schools. Where these agreements exist, the specific block of training (i.e. session/semester/year) will be accepted as equivalent to that taught at ISU and will count equally toward graduation.

The courses listed above will be taught in sequential blocks of instruction. Successful completion of a course is required before the student can progress in the program. If the student fails any math, theory, or lab course, then that course must be repeated and a passing grade obtained before the student can advance in the program. The student must exit the program and make up the deficiency through Technical General Education or other appropriate methods. The student will then be allowed to repeat the course at the next available program opening.

Once a student successfully completes ELTR 141 and 142, Applied Mathematics I and II, s/he may enroll directly into an academic math course which requires MATH 147 as a prerequisite.

Courses

ESET 150 Introduction to Wind Energy Systems 2 credits. Investigate how wind power works, and its reliability, economics, and environmental implications. Discussion includes turbine types, their development, and their current status. The operating experiences and economic status of the industry will be evaluated. Students will be expected to carry out research and present reports on selected turbines. COREQ: ESET 150L. F

ESET 150L Introduction to Wind Energy Systems Laboratory 1 credit. Wind energy applications and basic operating principles. Laboratory exercises in maintenance and function of selected wind power systems and process. COREQ: ESET 150. F

ESET 212 Electrical System Documentation and Standards 2 credits. Introduction to print reading, technical specifications, print annotation, report writing, and electrical codes. S

ESET 247 Wind Energy Control Systems 2 credits. Measurement and control of mechanical and electrical systems, techniques of computerized data acquisition and reduction, electrical interconnection issues, technical challenges, safety issues, and metering associated with renewable resource generation. Discussion of operation, dispatch, and control of wind systems their management and planning. PREREQ: ESET 231 and ESET 231L or permission of Instructor. COREQ: ESET 247L. S

ESET 247L Wind Energy Control Systems Laboratory 1 credit. Applications measurement and control of mechanical and electrical systems used in wind energy. PREREQ: ESET 231 and ESET 231L or permission of Instructor. COREQ: ESET 247. S