

# Wind Turbine Technology A.A.S

## Program Description

The purpose of the wind turbine program is to prepare individuals to work in the increasingly important field of wind energy. This program is designed to train technicians in electrical power transmission, industrial safety climbing, scheduled maintenance and general service. The program will focus on training technicians to work on utility-scale wind turbines which are designed to produce electricity to be sold to consumers. Graduates with this degree will be prepared to move into entry-level supervisory positions.

## Employment Information

With the decreasing cost of wind energy production and increase in demand for environmentally-friendly power sources, wind farms have popped up all over the nation. This evolving industry will create a great demand for wind turbine technicians. The wind turbine technology degree program will prepare individuals to work in the increasingly important field of wind energy.

## Cooperative Agreement

This program is part of a cooperative agreement between OSU-Oklahoma City and Metro Technology Center.

## Degree Awarded

Associate in Applied Science

## For More Information Contact:

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### 1st Fall Semester

				13 Credit hours	Date	Institution
<input type="checkbox"/>	WTT	1004	Introduction to Wind Energy	4		
<input type="checkbox"/>	FPST	1313	Introduction to Occupational Safety	3		
<input type="checkbox"/>	ENGL	1113	English Comp I	3		
<input type="checkbox"/>	MATH	1513	College Algebra	3		

### 1st Spring Semester

				13 Credit hours	Date	Institution
<input type="checkbox"/>	WTT	1103	Print Reading	3		
<input type="checkbox"/>	WTT	1134	AC/DC Theory	4		
<input type="checkbox"/>	ENGL	1213	English Comp II			
<input type="checkbox"/>	<b>OR</b>			3		
<input type="checkbox"/>	ENGL	2353	Technical Report Writing			
<input type="checkbox"/>	CIS	1113	Computer Concepts with Applications			
<input type="checkbox"/>	<b>OR</b>			3		
<input type="checkbox"/>	CIS	1103	Fundamental of Computers with Applications			

### 2nd Fall Semester

				12 Credit hours	Date	Institution
<input type="checkbox"/>	WTT	1213	Wind Turbine & Electro-Mechanical Equipment	3		
<input type="checkbox"/>	WTT	2113	Wind Turbine Operations & Maintenance	3		
<input type="checkbox"/>	WTT	2213	Wind Turbine Motors & Generators	3		
<input type="checkbox"/>	WTT	2313	Wind Turbine Hydraulic & Mechanical Systems	3		

### 2nd Spring Semester

				12 Credit hours	Date	Institution
<input type="checkbox"/>	WTT	2413	Wind Turbine Siting and Construction	3		
<input type="checkbox"/>	WTT	2533	Wind Turbine Diagnosis & Repair	3		
<input type="checkbox"/>	WTT	2543	SCADA and Networking	3		
<input type="checkbox"/>	WTT	2553	Wind Turbine Capstone	3		

### Summer Semester

				1-6 Credit hours	Date	Institution
<input type="checkbox"/>	WTT	2600	Wind Turbine Internship (1-6 credit hours)			

### 3rd Fall Semester

				9 Credit hours	Date	Institution
<input type="checkbox"/>	SPCH	1113	Introduction to Speech Communication	3		
<input type="checkbox"/>	POLS	1113	American Government	3		
<input type="checkbox"/>	HIST	1483	US History to 1865			
<input type="checkbox"/>	<b>OR</b>			3		
<input type="checkbox"/>	HIST	1493	US History Since 1865			

**Total to Graduate**

**60-65 Credit Hours**

<b>Student Name:</b>	_____
<b>CWID:</b>	_____
<b>Counselor:</b>	_____
Catalog 2012-2013	

## WIND TURBINE AAS-COURSE DESCRIPTIONS

### **CIS 1103 FUNDAMENTALS OF COMPUTERS WITH APPLICATIONS**

This course is designed to provide students with an introduction to the fundamentals of computers and their applications in business. Topics include: computer evolution, information processing, computer functions, information systems, program development process, microcomputer systems and applications, data communication, transaction processing and future trends. Theory and hands on computer instruction. This introductory course is intended for students with existing computer skills. Prerequisites: placement test or CIS 1003.

### **\*CIS 1113 COMPUTER CONCEPTS WITH APPLICATIONS**

Provides students with an introduction to concepts and applications of the personal computer in business. Topics include spreadsheets, databases, word processing, ethics, vocabulary, Internet skills and file system management. Theory and hands-on computer instruction is included. This introductory course is intended for students with existing computer skills. Prerequisite: READ 0033 or [R].

### **FPST 1313 INTRODUCTION TO OCCUPATIONAL SAFETY**

A course in industry safety, giving an overview of state and national regulations in safety. The course will also cover the basic areas of an industrial safety program, as well as reporting, investigating and analyzing the results. Prerequisite: ENGL 1113

### **WTT 1004 INTRODUCTION TO WIND ENERGY**

This course will introduce the student to wind energy. It will cover the various types of wind turbines, manufacturing companies, maintenance and repair, and employment opportunities. Student will also receive instruction and certification from the OSHA 10 hour certificate. The climb safety and tower rescue training will be included as the laboratory component.

### **WTT 1103 PRINT READING**

This course covers the electrical circuits and schematics encountered in the wind industry. This includes circuits of the entire wind turbine as well as schematics of each electronic component.

### **WTT 1134 AC/DC THEORY**

Review of elementary principles of electricity, OHM's law, circuit solutions, magnetism, inductance and capacitance. This course also introduces transient analysis, network theorems, resonant circuits, filters, AC power, and computer aided circuit analysis techniques. Prerequisite: WTT 1004 & MATH 1513

### **WTT 1213 WIND TURBINE AND ELECTRO-MECHANICAL SYSTEMS**

Course will introduce students to the various components of a wind turbine and how each component functions to convert wind energy into electrical energy and transmit it to the grid. Prerequisite: WTT 1004 & MATH 1513

### **WTT 2113 WIND TURBINE OPERATION & MAINTENANCE**

In-depth study of the components, principles and processes involved in the generation of electrical power using wind energy. Prerequisite: WTT 1004 & MATH 1513

### **WTT 2213 WIND TURBINE MOTORS & GENERATORS**

A study of the operation and maintenance of motors and generators, including an in-depth look at the common components and contrasting operating procedures. Prerequisite: WTT 1004 & MATH 1513

### **WTT 2313 WIND TURBINE MECHANICAL SYSTEMS**

An introduction to operation and maintenance of the mechanical systems that control blade pitch, turbine speed and transfer the energy from the wind through a gearbox to the generator. Prerequisite: WTT 1004 & MATH 1513

### **WTT 2413 WIND TURBINE SITING & CONSTRUCTION**

An introduction to the mapping of wind patterns that help assist in determining where wind turbines will be located and they can be best constructed, delivered and set up for operation. Prerequisite: WTT 1004 & MATH 1513

### **WTT 2533 WIND TURBINE DIAGNOSIS & REPAIR**

The course will cover the theory and practice of installation, operation, maintenance, troubleshooting and repair of wind turbine electromechanical systems. Prerequisite: WTT 1004 & MATH 1513.

### **WTT 2543 WIND TURBINE SCADA AND NETWORKING**

This course teaches the student about Supervisory Control and Data Acquisition (SCADA). Student will learn to access the different databases to troubleshoot wind turbines from remote locations. Prerequisites: WTT 1004 & MATH 1513

### **WTT 2553 WIND TURBINE CAPSTONE**

This is the final course in the wind turbine technology program. Various topics in the wind energy industry will be covered as well as job searching and interview techniques. Course content will be tailored to the needs of the students to prepare them for job placement. Prerequisite: WTT 1004 & MATH 1513 and Department Head approval.

### **WTT 2600 WIND TURBINE INTERNSHIP**

The cooperative agreements with other educational institutions and/or wind turbine owner/operators, Students will have the opportunity for "Hands On" work on operational wind turbines. Students will work under the supervision and direction of professionals in the wind energy industry. Variable Credit one-six credit hours. May be repeated up to a maximum of six credit hours. Prerequisite: WTT 1004 & MATH 1513 & Department Head approval