

# Programs of Study

## WIND ENERGY TECHNOLOGY

### WIND ENERGY TECHNOLOGY (WET)

#### Associate of Applied Science

This educational program will produce a qualified workforce of Wind Energy Technicians to serve the emerging wind industry throughout the United States and potentially worldwide. Graduates of the program will possess the necessary skills to secure a position with a modern commercial wind farm operation or an industry career related to the production of electrical energy.

**Contact:** Bruce Graham  
(785) 243-1435, ext 256  
bgraham@cloud.edu

**Degree Information:** The awarding of an Associate of Applied Science requires a student to complete a minimum of 45 elective credit hours (technical) in addition to the 19 hours of General Education listed above.

#### General Education Required Courses 19 cr

<i>Communication Requirement</i>	6
CM101 English Composition I (3 cr)	
CM115 Public Speaking (3 cr) or	
CM240 Interpersonal Communication (3 cr)	
<i>Humanities Requirement (1 of 8 areas required)</i>	3
Art Humanities	
Music Literature	
Theatre Philosophy	
Foreign Language History	
<i>Mathematics Requirement</i>	3
MA110 Intermediate Algebra (3 cr) or	
Mathematics General Education Course	
<i>Natural Science Requirement</i>	4
SC107 Meteorology (4 cr)	
<i>Social/Behavioral Science Requirement</i>	3
SS101 General Psychology (3 cr)	

#### Recommended Course Sequence:

First Semester: WE100, WE110, WE150  
Second Semester: WE120, WE210, WE225, WE230, WE265  
Third Semester: WE255, WE270  
Fourth Semester: WE105, WE250, WE260

#### Requirements:

-Formal application to the Wind Energy program  
-Doctor's physical examination documentation

**Gainful Employment:** The two-year degree, coupled with an optional internship with one of our industry partners, results in a high success rate of wind industry hire for our graduates. The annual pay for a Wind Tech ranges from \$45,000 to \$60,000. Graduates are usually hired as a Wind Tech I, then easily advance to Wind Tech II and increased salary the 1st year. A traveling Wind Tech can expect an annual pay range from \$60,000 to \$72,000.

**Industry Recognition:** Cloud County Community College (CCCC) is the only college in Kansas approved to offer an Associate of Applied Science degree in Wind Energy Technology (WET). The WET program received the American Wind Energy Association (AWEA) Seal of Approval award for Wind Turbine Service Technicians in 2011.

**Transfer Institution Guide:** A student who is interested in pursuing a baccalaureate degree should consult a CCCC advisor and the transfer guide and catalog of the four-year institution.

#### Required Courses\* 45 cr

CS155 Networking & Computer Technology	3
SC109 Applied Physics	3
WE100 Introduction to Wind Energy	3
WE105 Employability Skills, Safety, & Blueprint Reading	3
WE110 Electrical Theory	3
WE120 Hydraulics	3
WE150 Mechanical Systems	3
WE210 Electronics	3
WE225 Motors, Generators, PLC's	3
WE230 Substation & Voltage Regulations	3
WE250 Data Acquisition & Communication	3
WE255 Airfoils and Composite Repair	3
WE260 Wind Turbine Siting or	
WE240 GIS/GPS	3
WE265 Field Training & Project Operations	3
WE270 Transformer Theory	3

#### Credits Required 64

\*All electives should be selected with assistance from an advisor. These options are general areas that will transfer to focused majors. Substitutions must be approved by the department chair.

WET internships are available. Visit with department chair for information.

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# Programs of Study

## WIND ENERGY TECHNOLOGY

### WIND ENERGY TECHNOLOGY (WET)

Associate of Applied Science  
Suggested Semester Guideline

#### Semester 1

CM 101	English Composition I	3 credit hours
MA110	Intermediate Algebra	3 credit hours
CS 155	Networking and Computer Technology	3 credit hours
WE 100	Introduction to Wind Energy	3 credit hours
WE110	Electrical Theory	3 credit hours
WE150	Mechanical Systems	<u>3 credit hours</u>
	Total:	18 credit hours

#### Semester 2

WE120	Hydraulics	3 credit hours
WE210	Electronics	3 credit hours
WE225	Motors, Generators, & PLCs	3 credit hours
WE 230	Substation & Voltage Regulation	3 credit hours
WE265	Field Training & Project Operations	<u>3 credit hours</u>
	Total:	15 credit hours

#### Semester 3

CM115	Public Speaking or CM240 Interpersonal Communications	3 credit hours
SC107	Meteorology	4 credit hours
SC109	Applied Physics	3 credit hours
WE255	Airfoils and Composite Repair	3 credit hours
WE270	Transformer Theory	<u>3 credit hours</u>
	Total:	16 credit hours

#### Semester 4

SS101	General Psychology	3 credit hours
	Humanities General Education	3 credit hours
WE105	Employability Skills, Safety, & Blueprint Reading	3 credit hours
WE250	Data Acquisition and Communications	3 credit hours
WE260	Wind Turbine Siting or WE240 GIS/GPS	<u>3 credit hours</u>
	Total:	15 credit hours
		64 credit hours

# Programs of Study

## WIND ENERGY TECHNOLOGY

### WIND ENERGY TECHNOLOGY (WET)

#### 33-Hour Certificate

This educational program will produce a qualified workforce of Wind Energy Technicians to serve the emerging wind industry throughout the United States and potentially worldwide. Graduates of the program will possess the necessary skills to secure a position with a modern commercial wind farm operation or an industry career related to the production of electrical energy. A certificate is part of a stackable degree plan where a student who takes the first year of the associate program can get gainful employment based upon receiving a certification in the discipline.

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**Degree Information:** The awarding of an Associate of Applied Science requires a student to complete a minimum of 45 elective credit hours (technical) in addition to the 19 hours of General Education listed above. Certificates are usually the first two semesters of a sequence listed.

#### General Education Required Courses 6 cr

<i>Communication Requirement</i>	3
CM101 English Composition I (3 cr)	
<i>Mathematics Requirement</i>	3
MA110 Intermediate Algebra (3 cr) or Mathematics General Education Course	

#### Recommended Course Sequence:

First Semester: WE100, WE110, WE150  
Second Semester: WE120, WE210, WE225, WE230, WE265

#### Requirements:

- Formal application to the Wind Energy program
- Doctor's physical examination documentation

#### Required Courses 27 cr

CS155 Networking & Computer Technology	3
WE100 Introduction to Wind Energy	3
WE110 Electrical Theory	3
WE120 Hydraulics	3
WE150 Mechanical Systems	3
WE210 Electronics	3
WE225 Motors, Generators, PLC's	3
WE230 Substation & Voltage Regulations	3
WE265 Field Training & Project Operations	3

**After Cloud:** Students can gain immediate, entry-level employment in the Wind Energy Technology field, or if already employed, obtain career advancement opportunities. Students can transfer to a university or college to pursue a bachelor's degree. A logical choice in Kansas would be Kansas State Polytechnic which has a 2 plus 2 agreement with CCCC to obtain a BS in Engineering Technology or Technology Management.

**Gainful Employment:** The two-year degree, coupled with an optional internship with one of our industry partners, results in a high success rate of wind industry hire for our graduates. The annual pay for a Wind Tech ranges from \$45,000 to \$60,000. Graduates are usually hired as a Wind Tech I, then easily advance to Wind Tech II and increased salary the 1st year. A traveling Wind Tech can expect an annual pay range from \$60,000 to \$72,000.

#### Credits Required 33

\*All electives should be selected with assistance from an advisor. These options are general areas that will transfer to focused majors. Substitutions must be approved by the department chair.

WET internships are available. Visit with department chair for information.

**Industry Recognition:** Cloud County Community College (CCCC) is the only college in Kansas approved to offer an Associate of Applied Science degree in Wind Energy Technology (WET). The WET program received the American Wind Energy Association (AWEA) Seal of Approval award for Wind Turbine Service Technicians in 2011.

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# Programs of Study

## WIND ENERGY TECHNOLOGY

### WIND ENERGY TECHNOLOGY (WET)

33-Hour Certificate

#### Suggested Semester Guideline

##### Semester 1

CM 101	English Composition I	3 credit hours
MA 110	Intermediate Algebra	3 credit hours
CS 155	Networking and Computer Technology	3 credit hours
WE 100	Introduction to Wind Energy	3 credit hours
WE 110	Electrical Theory	3 credit hours
WE 150	Mechanical Systems	<u>3 credit hours</u>
	Total:	18 credit hours

##### Semester 2

WE 120	Hydraulics	3 credit hours
WE 210	Electronics	3 credit hours
WE 225	Motors, Generators, & PLCs	3 credit hours
WE 230	Substation & Voltage Regulation	3 credit hours
WE 265	Field Training & Project Operations	<u>3 credit hours</u>
	Total:	15 credit hours
		33 credit hours

# Programs of Study

## WIND ENERGY TECHNOLOGY

### SUBSTATION TECHNICIAN

#### 33-Hour Certificate

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**Degree Information:** The awarding of an Associate of Applied Science requires a student to complete a minimum of 45 elective credit hours (technical) in addition to the 19 hours of General Education listed above. Certificates are usually the first two semesters of a sequence listed.

**Recommended Course Sequence:**

First Semester: WE110, WE202, WE227, WE250, WE270

Second Semester: WE105, WE210, WE215, WE225, WE230, WE265

**Requirements:**

-Formal application to the Wind Energy program

-Doctor's physical examination documentation

**After Cloud:** Students can gain immediate, entry-level employment in the Wind Energy Technology field, or if already employed, obtain career advancement opportunities. Students can transfer to a university or college to pursue a bachelor's degree. A logical choice in Kansas would be Kansas State Polytechnic which has a 2 plus 2 agreement with CCCC to obtain a BS in Engineering Technology or Technology Management.

**Gainful Employment:** The two-year degree, coupled with an optional internship with one of our industry partners, results in a high success rate of wind industry hire for our graduates. The annual pay for a Wind Tech ranges from \$45,000 to \$60,000. Graduates are usually hired as a Wind Tech I, then easily advance to Wind Tech II and increased salary the 1st year. A traveling Wind Tech can expect an annual pay range from \$60,000 to \$72,000.

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#### General Education Required Courses 3 cr

<i>Mathematics Requirement</i>	3
MA110 Intermediate Algebra (3 cr) or Mathematics General Education Course	

#### Required Courses 30 cr

WE105 Employability Skills, Safety, & Blueprint Reading	3
WE110 Electrical Theory	3
WE202 Electrical Power Delivery	3
WE210 Electronics	3
WE215 Electrical System Protection & Coordination	3
WE225 Motors, Generators, PLC's	3
WE227 PLC's	3
WE230 Substation & Voltage Regulations	3
WE250 Data Acquisition & Communication	3
WE270 Transformer Theory	3

#### Credits Required 33

\*All electives should be selected with assistance from an advisor. These options are general areas that will transfer to focused majors. Substitutions must be approved by the department chair.

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# Programs of Study

## WIND ENERGY TECHNOLOGY

### SUBSTATION TECHNICIAN

33-Hour Certificate

#### Suggested Semester Guideline

##### Semester 1

MA 110	Intermediate Algebra	3 credit hours
WE 110	Electrical Theory	3 credit hours
WE 202	Electrical Power Delivery	3 credit hours
WE 227	PLCs	3 credit hours
WE 250	Data Acquisition and Communications	3 credit hours
WE 270	Transformer Theory	<u>3 credit hours</u>
	Total:	18 credit hours

##### Semester 2

WE 105	Employability Skills, Safety, & Blueprint Reading	3 credit hours
WE 210	Electronics	3 credit hours
WE 215	Electrical System Protection & Coordination	3 credit hours
WE 225	Motors, Generators, & PLCs	3 credit hours
WE 230	Substation & Voltage Regulation	<u>3 credit hours</u>
	Total:	15 credit hours
		33 credit hours

# Programs of Study

## WIND ENERGY TECHNOLOGY

### BLADE REPAIR 16-Hour Certificate

This educational program will produce a qualified workforce of Wind Energy Technicians to serve the emerging wind industry throughout the United States and potentially worldwide. Graduates of the program will possess the necessary skills to secure a position with a modern commercial wind farm operation or an industry career related to the production of electrical energy. A certificate is part of a stackable degree plan where a student who takes the first year of the associate program can get gainful employment based upon receiving a certification in the discipline. The Blade Repair Certification is typically “additional training” in the area of composites and repairs.

#### General Education Required Courses 3 cr

<i>Communication Requirement</i>	3
CM101 English Composition I (3 cr)	

#### Required Courses 13 cr

WE100 Introduction to Wind Energy	3
WE255 Airfoils and Composite Repair	3
WE257 Applied Airfoils	3
WE262 Blade Repair Operations	4

#### Credits Required 16

\*All electives should be selected with assistance from an advisor. These options are general areas that will transfer to focused majors. Substitutions must be approved by the department chair.

**Contact:** Bruce Graham  
(785) 243-1435, ext 256  
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**Degree Information:** Certificate options are general areas that will provide employment opportunities in various areas of Wind Energy Technology.

#### Recommended Course Sequence:

First Semester: WE100, WE255, WE257, WE262

#### Requirements:

- Formal application to the Wind Energy program
- Doctor's physical examination documentation

**After Cloud:** Students can gain immediate, entry-level employment in the Wind Energy Technology field, or if already employed, obtain career advancement opportunities. Students can transfer to a university or college to pursue a bachelor's degree. A logical choice in Kansas would be Kansas State Polytechnic which has a 2 plus 2 agreement with CCCC to obtain a BS in Engineering Technology or Technology Management.

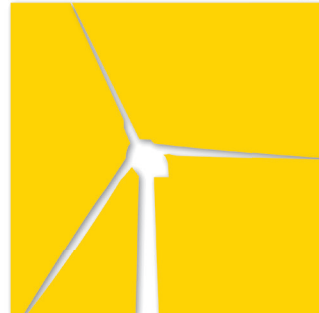
**Gainful Employment:** The two-year degree, coupled with an optional internship with one of our industry partners, results in a high success rate of wind industry hire for our graduates. The annual pay for a Wind Tech ranges from \$45,000 to \$60,000. Graduates are usually hired as a Wind Tech I, then easily advance to Wind Tech II and increased salary the 1st year. A traveling Wind Tech can expect an annual pay range from \$60,000 to \$72,000.

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# Programs of Study

## WIND ENERGY TECHNOLOGY

### BLADE REPAIR

16-Hour Certificate

Suggested Semester Guideline

#### Semester 1

CM 101	English Composition I	3 credit hours
WE 100	Introduction to Wind Energy	3 credit hours
WE 255	Airfoils and Composite Repair	3 credit hours
WE 257	Applied Airfoils	3 credit hours
WE 262	Blade Repair Operations	<u>4 credit hours</u>
Total:		16 credit hours

