

Focus Areas:
Wind Energy,
Solar Energy,
Blade Repair,
Substation,
Unmanned Aircraft
Systems (Drones)

RENEWABLE ENERGY

Department Chair: Kit Thompson
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Employment:
\$36,000-\$67,000



Recent graduates hired as:

- **Wind Farm Technician**
- **Substation Technician**
- **Blade Repair Technician**
- **Wind Farm Manager**
- **Solar Array Technician**

Renewable Energy is an essential component of a sustainable future. Certificates in wind, solar, substation, or unmanned aircraft vehicles can be completed in a year and form a foundation for two-year “go to work” technician programs. Stacking additional certificates to a two-year program allows students to broaden their training and experience which expands employment opportunities. The college energy park and working substation lab provide hands-on training opportunities for students. Students interested in pursuing a Bachelor’s degree should consider the A.S. program.

Degrees & Certificates

Blade Repair	16-hour certificate	Solar Energy	A.A.S 64 hours
Wind Energy Technology	16-hour certificate	sUAS (Drones)	A.A.S. 62 hours
Solar Energy	33-hour certificate	Wind Energy Technology	A.A.S. 64 hours
Substation Technician	33-hour certificate	Associate of General Studies	62 hours
sUAS (Drones)	30-hour certificate	Associate of Science	62 hours
Wind Energy Technology	33-hour certificate		

Fields of Study

Renewable Energy

Blade Repair 16 Hour Certificate

General Education Required Courses 3 cr

Communication Requirement 3
CM101 English Composition I (3 cr) *or*
CM120 Survey of Technical Writing (3 cr)

Required Blade Repair Courses 13 cr

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

*Must have admittance to Wind Program to enroll in this course or permission from Department Chair.

Fields of Study

Renewable Energy

Wind Energy Technology

16 Hour Certificate

General Education Required Courses		3 cr	Elective Courses		10 cr
CM101 English Composition (3 cr) or	3	CS155	Networking & Computer Technology	3	
CM120 Survey of Technical Writing (3 cr) or		SE100	Introduction to Solar Energy	3	
MA110 Intermediate Algebra (3 cr) or		UA100	Introduction to sUAS	3	
Mathematics General Education Course		WE110	Electrical Theory	3	
		WE120	Hydraulics	3	
		WE150	Mechanical Systems	3	
		*WE210	Electronics	3	
		*WE225	Motors, Generators, PLC's	3	
		*WE250	Data Acquisition & Communication	3	
		WE255	Airfoils and Composite Repair	3	
		*WE265	Field Training & Project Operations	3	
		WE280	Wind Energy Technology Internship	1-4	

Required Wind Energy Courses **3 cr**

WE100 Introduction to Wind Energy 3

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Fields of Study

Renewable Energy

Solar Energy 33 Hour Certificate

General Education Required Courses 6 cr

<i>Communication Requirement</i>	3
CM115 Public Speaking (3 cr) <i>or</i>	
CM240 Interpersonal Communications (3 cr)	
<i>Mathematics Requirement</i>	3
MA110 Intermediate Algebra (3 cr) <i>or</i>	
Mathematics General Education Course	

Required Solar Energy Courses 21 cr

SE100 Introduction to Solar Energy	3
SE101 Solar Energy Fundamentals	3
SE102 Solar Energy Design	3
SE103 Solar Energy Operations & Maintenance	3
WE105 Employability Skills, Safety, & Blueprint Reading	3
WE110 Electrical Theory	3
WE250 Data Acquisition & Communications	3

Elective Courses 6 cr

BE160 Business Accounting	3
BE170 Business Statistics	3
CS108 Computer Applications	3
CS155 Networking and Computer Technology	3
MG102 Introduction to Entrepreneurship	3
SC109 Applied Physics	3
WE100 Introduction to Wind Energy	3
*WE210 Electronics	3
*WE225 Motors, Generators, PLC's	3
*WE230 Substation & Voltage Regulations	3
*WE270 Transformer Theory	3
WE280 Wind Energy Technology Internship	1-4

*Must have admittance to Wind Program to enroll in these courses or permission from Department Chair.

Fields of Study

Renewable Energy

Substation Technician

33 Hour Certificate

General Education Required Courses 6 cr

<i>Communication Requirement</i>	3
CM101 English Composition I (3 cr) <i>or</i>	
CM120 Survey of Technical Writing (3 cr) <i>or</i>	
CM115 Public Speaking (3 cr) <i>or</i>	
CM240 Interpersonal Communications (3 cr)	
<i>Mathematics Requirement</i>	3
MA110 Intermediate Algebra (3 cr) <i>or</i>	
Mathematics General Education Course	

Required Substation Courses 27 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
*WE230	Substation & Voltage Regulations	3
*WE250	Data Acquisition & Communication	3
*WE270	Transformer Theory	3

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Fields of Study

Renewable Energy

sUAS (Drones) 30 Hour Certificate

General Education Required Courses		6 cr	Elective Courses		9 cr
<i>Communication Requirement</i>		3	AG132 Agriculture Management		3
CM101 English Composition I (3 cr) <i>or</i>			AG255 Precision Ag Hardware		3
CM120 Survey of Technical Writing (3 cr)			AG256 Precision Ag Software		3
<i>Mathematics Requirement</i>		3	AG257 Precision Ag Machine Data Management		3
MA110 Intermediate Algebra <i>or</i>			AG210 Agriculture Advertising & Design		3
Mathematics General Education Course			AG217 Farm Computer Applications		3
Required sUAS Courses		15 cr	AG220 Cooperative Ed Internships		1-4
UA100 Introduction to sUAS		3	AR129 Introduction to Digital Photography		3
UA201 sUAS Command, Control, & Comm.		3	AR210 Digital Video Techniques		3
UA210 sUAS Systems & Conceptual Design		3	MG102 Introduction to Entrepreneurship		3
WE110 Electrical Theory		3	WE105 Employability Skills, Safety, & Blueprint Reading		3
WE240 GIS/GPS		3	*WE250 Data Acquisition & Communications		3
			WE280 Wind Energy Technology Internship		4

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Fields of Study

Renewable Energy

Wind Energy Technology

33 Hour Certificate

General Education Required Courses	6 cr	Required Wind Energy Courses	27 cr
<i>Communication Requirement</i>	3	CS155 Networking & Computer Technology	3
CM101 English Composition I (3 cr) <i>or</i>		WE100 Introduction to Wind Energy	3
CM120 Survey of Technical Writing (3 cr)		WE110 Electrical Theory	3
<i>Mathematics Requirement</i>	3	WE120 Hydraulics	3
MA110 Intermediate Algebra (3 cr) <i>or</i>		WE150 Mechanical Systems	3
Mathematics General Education Course		*WE210 Electronics	3
		*WE225 Motors, Generators, PLC's	3
		*WE230 Substation & Voltage Regulations <i>or</i>	
		WE280 Wind Energy Technology Internship	3
		*WE265 Field Training & Project Operations	3

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Fields of Study

Renewable Energy

Solar Energy

Associate of Applied Science

64 Hours

General Education Required Courses		19 cr	Required Solar Courses		36 cr
<i>Communication Requirement</i>		6	SE100	Introduction to Solar Energy	3
CM101 English Composition I (3 cr) <i>or</i>			SE101	Solar Energy Fundamentals	3
CM120 Survey of Technical Writing (3 cr)			SE102	Solar Energy Design	3
CM115 Public Speaking (3 cr) <i>or</i>			SE103	Solar Energy Operations & Maintenance	3
CM240 Interpersonal Communication (3 cr)			SE201	Advanced Solar Energy Design	3
<i>Humanities Requirement (1 area required)</i>		3	SE202	Advanced Solar Energy Installation	3
Art	Humanities		SE203	Solar Energy System Commissioning	3
Music	Literature		SE204	Solar Energy Advanced Operations & Maintenance	3
Theatre	Philosophy		WE105	Employability Skills, Safety, & Blueprint Reading	3
Foreign Language	History		WE110	Electrical Theory	3
<i>Mathematics Requirement</i>		3	*WE210	Electronics	3
MA110 Intermediate Algebra (3 cr) <i>or</i>			*WE250	Data Acquisition & Communications	3
Mathematics General Education Course			Elective Courses		
<i>Natural Science Requirement</i>		4	9 cr		
SC107 Meteorology (4 cr) <i>or</i>			BE160	Business Accounting	3
SC137 Natural Hazards and Disasters (3 cr) and			BE170	Business Statistics	3
SC138 Natural Hazards and Disasters (1 cr) <i>or</i>			CS108	Computer Applications	3
SC146 Environmental Science & Conservation (3 cr) and			CS155	Networking and Computer Technology	3
SC147 Environmental Science & Conservation Lab (1 cr)			MG102	Introduction to Entrepreneurship	3
<i>Social/Behavioral Science Requirement</i>		3	SC109	Applied Physics	3
<i>(1 area required)</i>			WE100	Introduction to Wind Energy	3
Economics	Anthropology		*WE225	Motors, Generators, PLC's	3
Psychology	Political Science		*WE230	Substation & Voltage Regulations	3
Sociology	Geography		*WE270	Transformer Theory	3
			WE280	Wind Energy Technology Internship	4

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Fields of Study

Renewable Energy

sUAS (Drones)

Associate of Applied Science

62 Hours

General Education Required Courses		19 cr	Required Courses		21 cr
<i>Communication Requirement</i>		6	UA100	Introduction to sUAS	3
CM101 English Composition I (3 cr) or			UA201	sUAS Command, Control, & Comm.	3
CM120 Survey of Technical Writing (3 cr)			UA210	sUAS Systems & Conceptual Design	3
CM115 Public Speaking (3 cr) or			WE110	Electrical Theory	3
CM240 Interpersonal Communication (3 cr)			WE240	GIS/GPS	3
<i>Humanities Requirement (1 area required)</i>		3	*WE250	Data Acquisition and Communications	3
Art	Humanities		WE255	Airfoils and Composite Repair	3
Music	Literature		Elective Courses		
Theatre	Philosophy				22 cr
Foreign Language	History		AG132	Agriculture Management	3
<i>Mathematics Requirement</i>		3	AG255	Precision Ag Hardware	3
MA110 Intermediate Algebra (3cr) or			AG256	Precision Ag Software	3
Mathematics General Education Course			AG257	Precision Ag Machine Data Management	3
<i>Natural Science Requirement</i>		4	AG210	Agriculture Advertising & Design	3
Science General Education Course			AG217	Farm Computer Applications	3
SC107 Meteorology (4 cr) <i>recommended</i>			AG220	Cooperative Ed Internships	1-4
<i>Social/Behavioral Science Requirement</i>		3	AR129	Introduction to Digital Photography	3
<i>(1 area required)</i>			AR210	Digital Video Techniques	3
Economics	Anthropology		MG102	Introduction to Entrepreneurship	3
Psychology	Political Science		WE105	Employability Skills, Safety, &	
Sociology	Geography			Blueprint Reading	3
			WE280	Wind Energy Technology Internship	4

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Fields of Study

Renewable Energy

WIND ENERGY TECHNOLOGY (WET)

Associate of Applied Science

64 Hours

General Education Required Courses 19 cr

<i>Communication Requirement</i>	6
CM101 English Composition I (3 cr) <i>or</i>	
CM120 Survey of Technical Writing (3 cr)	
CM115 Public Speaking (3 cr) <i>or</i>	
CM240 Interpersonal Communication (3 cr)	
<i>Humanities Requirement (1 area required)</i>	3
Art Humanities	
Music Literature	
Theatre Philosophy	
Foreign Language History	
<i>Mathematics Requirement</i>	3
MA110 Intermediate Algebra (3 cr) <i>or</i>	
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)	

Required Wind Energy 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 <i>or</i>	
WE280 Wind Energy Technology Internship	3-4
*WE250 Data Acquisition & Communication	3
WE255 Airfoils and Composite Repair	3
WE260 Wind Turbine Siting <i>or</i>	
WE240 GIS/GPS	3
*WE265 Field Training & Project Operations	3
*WE270 Transformer Theory	3

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

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Fields of Study

Renewable Energy

Associate of General Studies
62 Hour

Required General Education Courses 25 cr

<i>Communication Requirement</i>	6
CM101 English Composition I (3 cr) <i>or</i>	
CM120 Survey of Technical Writing (3 cr)	
CM115 Public Speaking (3 cr) <i>or</i>	
CM240 Interpersonal Communications (3 cr)	

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

<i>Humanities Requirement</i>	3
Art	Humanities
Music	Literature
Theatre	Philosophy
Foreign Language	History

<i>Social/Behavioral Science Requirement</i>	3
Economics	Anthropology
Psychology	Political Science
Sociology	Geography

<i>Humanities or Social Science Requirement</i> (Must be from second area)	3
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<i>Natural Science Requirement</i>	4
Physical Science w/lab <i>or</i>	
Biological Science w/lab	

<i>Open General Education Elective</i>	3
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Required Renewable Energy Electives 12 cr

SE100 Introduction to Solar Energy	3
UA100 Introduction to sUAS	3
WE100 Introduction to Wind Energy	3
WE110 Electrical Theory	3

Elective Courses 19 cr

Business

BE100 Introduction to Business	3
BE152 Salesmanship	3
BE154 Business Law	3
BE155 Marketing	3
BE160 Business Accounting	3
BE170 Business Statistics	3
BE185 Human Resource Management	3
BE188 Principles of Advertising	3
EC101 Principles of Macroeconomics	3
EC102 Principles of Microeconomics	3
MG101 Management Principles	3
MG102 Introduction to Entrepreneurship	3

Political Science and History

HI123 US History II	3
SS130 Introduction to Sociology	3
SS140 U.S. Gov't: National	3
SS141 U.S. Gov't: State and Local	3
SS142 Current Political Issues	3

Energy Technology

IE117 OSHA 10-Hour General Industry Training	.5
SE101 Solar Energy Fundamentals	3
SE102 Solar Energy Design	3
SE103 Solar Energy Operations & Maintenance	3
SE201 Advanced Solar Energy Design	3
SE202 Advanced Solar Energy Installation	3
SE203 Solar Energy System Commissioning	3
SE204 Solar Energy Advanced O&M	3
UA201 sUAS Command, Control, and Communication	3
UA210 UAS Systems & Conceptual Design	3
WE102 Energy Industry Fundamentals	3
WE105 Employability Skills, Safety, & Blueprint Reading	3
WE120 Hydraulics	3
WE130 Wind Public/Landowner Relations	3
WE150 Mechanical Systems	3
WE202 Electrical Power Delivery	3
WE205 Wind Business	3
*WE210 Electronics	3
*WE215 Electrical System Protection and Coordination	3
*WE220 Cooperative Education Internship	3
*WE225 Motors, Generators, PLC's	3
*WE227 PLC's	3
*WE230 Substation & Voltage Regulation	3
WE240 GIS/GPS	3
*WE250 Data Acquisition & Communication	3
WE255 Airfoils & Composite Repair	3
WE257 Applied Airfoils	3
WE260 Wind Turbine Siting	3
*WE262 Blade Repair Operations	3
*WE265 Field Training & Project Operations	3
*WE270 Transformer Theory	3
WE280 Wind Energy Technology Internship	1-4

Additional Electives

CS108 Computer Applications	3
CS155 Networking and Computer Technology	3
MA114 Elementary Statistics	3
SC107 Meteorology	4
SC109 Applied Physics	3
SC146 Environmental Science and Conservation	3

Life Skills

BE139 Basic Personal Finance	1
BE210 Leadership Development	3
PE141 Personal Wellness	3
PE250 Stress Management	3
SS106 Marriage & Family	3

Open Electives 6 cr

*Must have admittance to Wind Program to enroll in these courses or permission from Department Chair.

Fields of Study

Renewable Energy

Associate of Science
62 Hours

Required General Education Courses 32 cr

<i>Communication Requirement</i>	9
CM101 English Composition I (3 cr)	
CM102 English Composition II (3 cr)	
CM115 Public Speaking (3 cr) <i>or</i>	
CM240 Interpersonal Communications (3 cr)	
<i>Humanities Requirement (2 areas required)</i>	6
Art Humanities	
Music Literature	
Theatre Philosophy	
Foreign Language History	
<i>Mathematics Requirement</i>	3
Mathematics General Education Course	
<i>Natural Science Requirement</i>	8
SC146 Environmental Science & Conservation (3 cr) and	
SC147 Environmental Science & Conservation Lab (1 cr)	
SC107 Meteorology (4 cr)	
<i>Social/Behavioral Science Requirement (2 areas required)</i>	6
Economics Anthropology	
Psychology Political Science	
Sociology Geography	

Energy Technology

*WE210 Electronics	3
WE255 Airfoils & Composite Repair	3
WE240 GIS/GPS	3

Additional Electives

CS108 Computer Applications	3
CS155 Networking & Computer Technology	3
MA114 Elementary Statistics	3
SC109 Applied Physics	3

Open Electives 6 cr

*Must have admittance to Wind Program to enroll in these courses or permission from Department Chair.

Required Renewable Energy Courses 12 cr

SE100 Introduction to Solar Energy	3
UA100 Introduction to sUAS	3
WE100 Introduction to Wind Energy	3
WE110 Electrical Theory	3

Elective Courses 12 cr

Business

BE100 Introduction to Business	3
BE152 Salesmanship	3
BE154 Business Law	3
BE155 Marketing	3
BE160 Business Accounting	3
BE170 Business Statistics	3
BE185 Human Resource Management	3
BE188 Principles of Advertising	3
BE210 Leadership Development	3
EC101 Principles of Macroeconomics	3
EC102 Principles of Microeconomics	3
MG101 Management Principles	3
MG102 Introduction to Entrepreneurship	3

Political Science and History

HI122 US History I	3
HI123 US History II	3
SS130 Introduction to Sociology	3
SS140 U.S. Government: National	3
SS141 U.S. Government: State and Local	3
SS142 Current Political Issues	3