

Focus Areas:

**Wind Energy,
Solar Energy,
Blade Repair,
Substation,
Unmanned Aircraft
Systems (Drones)**

RENEWABLE ENERGY

Department Chair: Kit Thompson
kthompson@cloud.edu • 785.243.1435, ext.



Recent graduates hired as:

- Wind Farm Technician
- Substation Technician
- Blade Repair Technician
- Wind Farm Manager
- Solar Array Technician
- Drone Pilot

DEGREES & CERTIFICATES

Solar Energy33-hour certificate

Solar Energy A.A.S. - 64 hours

sUAS (Drones)18-hour certificate

sUAS (Drones)30-hour certificate

sUAS (Drones) A.A.S. - 62 hours

Blade Repair16-hour certificate

Wind Energy Technology.....16-hour certificate

Substation Technician.....33-hour certificate

Wind Energy Technology.....33-hour certificate

Wind Energy Technology..... A.A.S - 64 hours

Associate of General Studies A.G.S. - 62 hours

Associate of Science A.S. - 62 hours

RENEWABLE ENERGY

Program Learning Outcomes

Wind Energy Technology:

16-hour Certificate

1. Students will explain all general safety guidelines related to the wind energy industry.
2. Students will summarize all aspects of the fundamental operation of a wind turbine and its relationship relative to a wind farm.
3. Students will summarize the extensive aspects of the wind industry; computer technology, personal communications, teamwork, and environmental issues.

33-hour Certificate

1. Students will safely operate, maintain, troubleshoot, and repair mechanical systems.
2. Students will safely operate, maintain, troubleshoot, and repair electrical systems.
3. Students will safely operate, maintain, troubleshoot, and repair hydraulic systems.
4. Students will demonstrate the extensive skill sets of the wind industry; computer technology, personal communications, and teamwork.

Associate of Applied Science

1. Students will explain and comply with all OSHA safety standards related to the wind energy industry.
2. Students will describe electrical transmission from a wind turbine, through a wind farm, and exiting a collection substation.
3. Students will troubleshoot and optimize wind farm performance through the collection and interpretation of data.

sUAS:

18-hour Certificate

1. Students will explain a sectional chart and identify different airspace.
2. Students will match different platforms and sensor payloads with their appropriate missions.
3. Students will identify and describe all of the individual components of the sUAS and explain how they integrate into its system.

30-hour Certificate:

1. Students will use a sectional chart to comply with different airspace restrictions.
2. Students will program and perform an autonomous sUAS mission.
3. Students will describe and implement a scheduled and as needed maintenance strategy for various sUAS platforms.

Associate of Applied Science

1. Students will describe and evaluate the impact of recent legislation dealing with sUAS.
2. Students will evaluate and select the appropriate platform and sensor payload for the required mission.
3. Students will analyze and compare all of the individual components of the sUAS and assess system integration.

Solar Energy:

33-hour Certificate

1. Students will identify the various safety hazards associated with PV systems and components.
2. Students will identify common types of PV system application with and without energy storage.
3. Students will describe the purpose and principles of operation for major PV system components.
4. Students will explain how PV modules are configured in series and parallel to build voltage, current, and power output.
5. Students will identify the requirements for plan review, permitting, inspections, construction contracts and other matters associated with approvals and code-compliance for PV systems.
6. Students will describe project side considerations, including common roof structural design, types of electrical services, point of interconnection, effects of obstructions, shading analysis tools and techniques, and effects of wind exposure.

Associate of Applied Science

1. Students will comply with all safety regulations associated with PV systems and components.
2. Students will analyze and compare different types of PV system application with and without energy storage.
3. Students will troubleshoot PV system components.
4. Students will configure and optimize PV modules in series and parallel to build voltage, current, and power output.
5. Students will demonstrate the required steps for plan review, permitting, inspections, construction contracts and other matters associated with approvals and code-compliance for PV systems.
6. Students will formulate and assess PV solutions to project site considerations, including common roof structural design, types of electrical services, point of interconnection, effects of obstructions, shading analysis tools and techniques, and effects of wind exposure.

RENEWABLE ENERGY

Program Learning Outcomes

Renewable Energy:

Associate of General Studies

1. Students will apply the knowledge and skills from multiple disciplines with renewable energy to be prepared for opportunities in governmental policy, entrepreneurship, or technical professions.
2. Students will identify the various safety hazards associated with PV systems and components.
3. Students will identify common types of PV system application with and without energy storage.
4. Students will describe the purpose and principles of operation for major PV system components.
5. Asset Selection: Students will evaluate and select the appropriate platform and sensor payload for the required mission.
6. Industry Trends and Literacy: Students will describe and evaluate the impact of recent legislation dealing with sUAS.
7. System Literacy: Students will analyze and compare all of the individual components of the sUAS and assess system integration.
8. Students will explain all general safety guidelines related to the wind energy industry.
9. Students will summarize all aspects of the fundamental operation of a wind turbine and its relationship relative to a wind farm.
10. Students will summarize the extensive aspects of the wind industry; computer technology, personal communications, teamwork, and environmental issues.
11. Students will safely operate, maintain, troubleshoot, and repair electrical systems.

Associate of Science

1. Students will apply the knowledge and skills from multiple disciplines with renewable energy to be prepared for further study in an advanced degree.
2. Students will identify the various safety hazards associated with PV systems and components.
3. Students will identify common types of PV system application with and without energy storage.
4. Students will describe the purpose and principles of operation for major PV system components.
5. Students will evaluate and select the appropriate platform and sensor payload for the required mission.
6. Students will describe and evaluate the impact of recent legislation dealing with sUAS.
7. System Literacy: Students will analyze and compare all of the individual components of the sUAS and assess system integration.
8. Students will explain all general safety guidelines related to the wind energy industry.
9. Students will summarize all aspects of the fundamental operation of a wind turbine and its relationship relative to a wind farm.
10. Students will summarize the extensive aspects of the wind industry; computer technology, personal communications, teamwork, and environmental issues.
11. Students will safely operate, maintain, troubleshoot, and repair electrical systems.



RENEWABLE ENERGY

Solar Energy 33-Hour Certificate

General Education Required Courses 6 cr

| | |
|---|---|
| <i>Communication Requirement</i> | 3 |
| CM115 Public Speaking (3 cr) or | |
| CM240 Interpersonal Communications (3 cr) | |
| <i>Mathematics Requirement</i> | 3 |
| MA104 Technical Math (3 cr) or | |
| MA110 Intermediate Algebra (3 cr) or | |
| 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 |
| CS140 | Introduction to Robotics | 3 |
| MG102 | Introduction to Entrepreneurship | 3 |
| UA100 | Introduction to sUAS | 3 |
| UA110 | sUAS Ground School | 3 |
| SC109 | Applied Physics | 3 |
| WE100 | Introduction to Wind Energy | 3 |
| WE210 | Electronics | 3 |
| WE225 | Motors, Generators, PLC's | 3 |
| WE230 | Substation & Voltage Regulation | 3 |
| WE270 | Transformer Theory | 3 |
| WE280 | Wind Energy Technology Internship | 1-4 |



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) or | | | SE101 | Solar Energy Fundamentals | 3 |
| CM120 Survey of Technical Writing (3 cr) | | | SE102 | Solar Energy Design | 3 |
| CM115 Public Speaking (3 cr) or | | | 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 |
| MA104 Technical Math (3 cr) or | | | WE250 | Data Acquisition & Communications | 3 |
| MA110 Intermediate Algebra (3 cr) or | | | Elective Courses | | 9 cr |
| Mathematics General Education Course | | | BE160 | Business Accounting | 3 |
| <i>Natural Science Requirement</i> | | 4 | BE170 | Business Statistics | 3 |
| SC107 Meteorology (4 cr) or | | | CS108 | Computer Applications | 3 |
| SC137 Natural Hazards and Disasters (3 cr) and | | | CS140 | Introduction to Robotics | 3 |
| SC138 Natural Hazards and Disasters Lab (1 cr) or | | | CS155 | Networking and Computer Technology | 3 |
| SC146 Environmental Science & Conservation (3 cr) and | | | MG102 | Introduction to Entrepreneurship | 3 |
| SC147 Environmental Science & Conservation Lab (1 cr) | | | SC109 | Applied Physics | 3 |
| <i>Social/Behavioral Science Requirement</i> | | 3 | UA100 | Introduction to sUAS | 3 |
| (1 area required) | | | UA110 | sUAS Ground School | 3 |
| Economics | Anthropology | | WE100 | Introduction to Wind Energy | 3 |
| Psychology | Political Science | | WE225 | Motors, Generators, PLC's | 3 |
| Sociology | Geography | | WE230 | Substation & Voltage Regulation | 3 |
| | | | WE270 | Transformer Theory | 3 |
| | | | WE280 | Wind Energy Technology Internship | 1-4 |



RENEWABLE ENERGY

sUAS Remote Pilot(Drones) 18-Hour Certificate

General Education Required Courses 6 cr

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

Mathematics Requirement 3
MA104 Technical Math (3 cr) **or**
MA110 Intermediate Algebra **or**
Mathematics General Education Course

Required sUAS Courses 9 cr

UA110 sUAS Ground School 3
UA140 sUAS Applications 3
UA150 sUAS Personnel, Safety, & Crew Resource Mgmt 3

Elective Courses 3 cr

CS140 Introduction to Robotics 3
CS145 Introduction to CAD 3



RENEWABLE ENERGY

sUAS (Drones) 30-Hour Certificate

General Education Required Courses 6 cr

Communication Requirement 3

CM101 English Composition I (3 cr) **or**

CM120 Survey of Technical Writing (3 cr)

Mathematics Requirement 3

MA104 Technical Math **or**

MA110 Intermediate Algebra **or**

Mathematics General Education Course

Required sUAS Courses 18 cr

UA110 sUAS Ground School 3

UA140 sUAS Applications 3

UA150 sUAS Personnel, Safety, & Crew Resource Mgmt 3

UA201 sUAS Command, Control, & Communications 3

UA210 sUAS Systems & Conceptual Design 3

WE240 GIS/GPS 3

Elective Courses 6 cr

AG255 Precision Ag Hardware 3

AG256 Precision Ag Software 3

AR129 Introduction to Digital Photography 3

CS140 Introduction to Robotics 3

CS141 Introduction to Additive Manufacturing

(3D Printing) 3

CS145 Introduction to CAD 3

EC101 Introduction to Macroeconomics 3

MG102 Introduction to Entrepreneurship 3

UA100 Introduction to sUAS 3

WE110 Electrical Theory 3

WE250 Data Acquisition & Communications 3

WE280 Wind Energy Technology Internship 4



RENEWABLE ENERGY

sUAS (Drones)

Associate of Applied Science

62 Hours

General Education Required Courses 19 cr

Communication Requirement 6

- CM101 English Composition I (3 cr) **or**
 CM120 Survey of Technical Writing (3 cr)
 CM115 Public Speaking (3 cr) **or**
 CM240 Interpersonal Communication (3 cr)

Humanities Requirement (1 area required) 3

- Art Humanities
 Music Literature
 Theatre Philosophy
 Foreign Language History

Mathematics Requirement 3

- MA104 Technical Math (3 cr) **or**
 MA110 Intermediate Algebra (3 cr) **or**
 Mathematics General Education Course

Natural Science Requirement 4

- SC107 Meteorology (4 cr) recommended

Social/Behavioral Science Requirement 3

- SS101 General Psychology recommended

Required Courses 27 cr

- UA100 Introduction to sUAS 3
 UA110 sUAS Ground School 3
 UA140 sUAS Applications 3
 UA150 sUAS Personnel, Safety, & Crew Resource Mgmt 3
 UA201 sUAS Command, Control, & Comm. 3
 UA210 sUAS Systems & Conceptual Design 3
 WE240 GIS/GPS 3
 WE250 Data Acquisition and Communications 3
 WE255 Airfoils and Composite Repair 3

Elective Courses 16 cr

- AG255 Precision Ag Hardware 3
 AG256 Precision Ag Software 3
 AR129 Introduction to Digital Photography 3
 CS140 Introduction to Robotics 3
 CS141 Introduction to Additive Manufacturing (3D Printing) 3
 CS145 Introduction to CAD 3
 CS155 Networking & Computer Technology 3
 EC101 Principles of Macroeconomics 3
 MG102 Introduction to Entrepreneurship 3
 SC109 Applied Physics 3
 WE110 Electrical Theory 3
 WE280 Wind Energy Technology Internship 4



RENEWABLE ENERGY

Blade Repair 16-Hour Certificate

General Education Required Courses 3 cr

| | |
|--|---|
| <i>Communication Requirement</i> | 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 a physical on file prior to enrolling in this class.



RENEWABLE ENERGY

Wind Energy Technology 16-Hour Certificate

General Education Required Courses 3 cr

| | |
|--|---|
| CM101 English Composition (3 cr) or | 3 |
| CM120 Survey of Technical Writing (3 cr) or | |
| MA104 Technical Math (3 cr) or | |
| MA110 Intermediate Algebra (3 cr) or | |
| Mathematics General Education Course | |

Required Wind Energy Courses 3 cr

| | |
|-----------------------------------|---|
| WE100 Introduction to Wind Energy | 3 |
|-----------------------------------|---|

Elective Courses 10 cr

| | |
|--|-----|
| CS140 Introduction to Robotics | 3 |
| CS155 Networking & Computer Technology | 3 |
| SE100 Introduction to Solar Energy | 3 |
| UA100 Introduction to sUAS | 3 |
| UA110 sUAS Ground School | 3 |
| WE110 Electrical Theory | 3 |
| WE120 Hydraulics | 3 |
| WE150 Mechanical Systems | 3 |
| WE210 Electronics | 3 |
| WE225 Motors, Generators, PLC's | 3 |
| WE250 Data Acquisition & Communications | 3 |
| WE255 Airfoils and Composite Repair | 3 |
| *WE265 Field Training & Project Operations | 3 |
| WE280 Wind Energy Technology Internship | 1-4 |

*Must have a physical on file prior to enrolling in this class.



RENEWABLE ENERGY

Substation Technician 33-Hour Certificate

General Education Required Courses 6 cr

Communication Requirement 3
 CM101 English Composition I (3 cr) **or**
 CM120 Survey of Technical Writing (3 cr) **or**
 CM115 Public Speaking (3 cr) **or**
 CM240 Interpersonal Communications (3 cr)

Mathematics Requirement 3
 MA104 Technical Math (3 cr) **or**
 MA110 Intermediate Algebra (3 cr) **or**
 Mathematics General Education Course

Required Substation Courses 24 cr

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

Elective Courses 3 cr

SE100 Introduction to Solar Energy 3
 UA110 sUAS Ground School 3
 WE100 Introduction to Wind Energy 3
 WE210 Electronics 3



RENEWABLE ENERGY

Wind Energy Technology 33-Hour Certificate

General Education Required Courses 6 cr

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

Mathematics Requirement 3
MA104 Technical Math (3 cr) **or**
MA110 Intermediate Algebra (3 cr) **or**
Mathematics General Education Course

Required Wind Energy Courses 21 cr

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
*WE265 Field Training & Project Operations 3

Elective Courses 6 cr

CS140 Introduction to Robotics 3
CS155 Networking & Computer Technology 3
SE100 Introduction to Solar Energy 3
UA100 Introduction to sUAS 3
UA110 sUAS Ground School 3
WE230 Substation & Voltage Regulation 3
WE250 Data Acquisition & Communications 3
WE255 Airfoils and Composite Repair 3
WE280 Wind Energy Technology Internship 1-4

*Must have a physical on file prior to enrolling in this course.



RENEWABLE ENERGY

WIND ENERGY TECHNOLOGY (WET)

Associate of Applied Science

64 Hours

General Education Required Courses 19 cr

Communication Requirement 6

CM101 English Composition I (3 cr) **or**

CM120 Survey of Technical Writing (3)

CM115 Public Speaking (3 cr) **or**

CM240 Interpersonal Communication (3 cr)

Humanities Requirement (1 area required) 3

Art Humanities

Music Literature

Theatre Philosophy

Foreign Language History

Mathematics Requirement 3

MA104 Technical Math (3 cr) **or**

MA110 Intermediate Algebra (3 cr) **or**

Mathematics General Education Course

Natural Science Requirement 4

SC107 Meteorology (4 cr)

Social/Behavioral Science Requirement 3

SS101 General Psychology (3 cr)

Required Wind Courses 39 cr

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 Regulation 3

WE240 GIS/GPS 3

WE250 Data Acquisition & Communications 3

WE255 Airfoils and Composite Repair 3

*WE265 Field Training & Project Operations 3

Elective Courses 6 cr

CS140 Introduction to Robotics 3

CS155 Networking & Computer Technology 3

SE100 Introduction to Solar Energy 3

UA100 Introduction to sUAS 3

UA110 sUAS Ground School 3

WE260 Wind Turbine Siting 3

WE270 Transformer Theory 3

WE280 Wind Energy Technology Internship 3-4



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

*Must have a physical on file prior to enrolling in this course.

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) or | |
| CM120 Survey of Technical Writing (3 cr) | |
| CM115 Public Speaking (3 cr) or | |
| CM240 Interpersonal Communications (3 cr) | |

| | |
|--|---|
| <i>Mathematics Requirement</i> | 3 |
| Mathematics General Education Course or | |
| 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> | 3 |
| (Must be from second area) | |

| | |
|------------------------------------|---|
| <i>Natural Science Requirement</i> | 4 |
| Physical Science w/lab or | |
| Biological Science w/lab | |

| | |
|--|---|
| <i>Open General Education Elective</i> | 3 |
|--|---|

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 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

| | |
|-----------------------------------|---|
| HI122 US History I | 3 |
| 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 | 1 |
| 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 sUAS Systems & Conceptual Design | 3 |
| WE105 Employability Skills, Safety, & Blueprint Reading | 3 |
| WE120 Hydraulics | 3 |
| WE150 Mechanical Systems | 3 |
| WE202 Electrical Power Delivery | 3 |
| WE210 Electronics | 3 |
| WE215 Electrical System Protection and Coordination | 3 |
| WE220 Cooperative Ed 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 |
| *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 |

Life Skills

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

Open Electives 6 cr

*Must have a physical on file prior to enrolling in this course.

RENEWABLE ENERGY

Associate of Science

62 Hours

Required General Education Courses 32 cr

Communication Requirement 9

CM101 English Composition I (3 cr)

CM102 English Composition II (3 cr)

CM115 Public Speaking (3 cr) **or**

CM240 Interpersonal Communications (3 cr)

Humanities Requirement (2 areas required) 6

Art Humanities

Music Literature

Theatre Philosophy

Foreign Language History

Mathematics Requirement 3

Mathematics General Education Course

**Natural Science Requirement* 8

SC103 Physical Science (5 cr) **or**

SC104 Geology (4 cr)

SC107 Meteorology (4 cr)

**The biological science requirement is waived.*

Social/Behavioral Science Requirement 6
(2 areas required)

Economics Anthropology

Psychology Political Science

Sociology Geography

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

Energy Technology

WE210 Electronics 3

WE240 GIS/GPS 3

WE255 Airfoils & Composite Repair 3

Additional Electives

CS108 Computer Applications 3

CS155 Networking & Computer Technology 3

MA114 Elementary Statistics 3

SC109 Applied Physics 3

Open Electives 6 cr

