

# RENEWABLE ENERGY TECHNOLOGY, A.A.S.

## Major Code: 2098

The Renewable Energy Technology Associate in Applied Science (RET A.A.S.) degree provides students with a broad and comprehensive technical education in the rapidly growing field of renewable energy. The RET A.A.S. program focuses on developing skilled technicians who are prepared to enter the job market as entry-level installers, operators, or maintenance technicians for renewable energy technologies including grid-tied solar photovoltaic, solar thermal, wind, heat pump, micro hydroelectric and bioenergy systems. The degree program has the flexibility to train students directly out of high school, as well as displaced workers who already possess a mechanical or electrical technical background.

The Renewable Energy Technology A.A.S. is a demanding curriculum for incoming students as there are strong math, biology, chemistry, physics, and electrical components to the program. Graduates from the RET A.A.S. are successfully employed as entry-level installers or maintenance technicians for renewable energy technologies including grid-tied solar photovoltaic, wind, heat pump/geothermal, and bioenergy systems. Graduates are currently working in several states across the country and abroad within their chosen renewable energy field.

Required tools/equipment: Laptop, Klein Tool Kit (available through the bookstore), clipboard, safety glasses, work gloves, work boots (steel/safety toe), waterproof rubber boots (recommended), rain gear (coat and pants/ bibs), and cold weather gear (insulated clothing).

## Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Describe basic social, political and economic driving forces impacting renewable energy resources and systems regionally, nationally and abroad
- Interpret system schematics and designs to safely connect renewable energy mechanical and electrical components
- Install, maintain, and troubleshoot renewable energy systems by developing problem-solving skills through critical thinking in both hands-on and written technical environments
- Work safely and responsibly in diverse groups

SUNY General Education Requirements: (<https://system.suny.edu/academic-affairs/acaproplan/general-education/suny-ge/>) All SUNY Morrisville AAS degree programs require completion of at least 20 credits of SUNY GE, a minimum of four (out of ten) knowledge and skills areas (including the four required knowledge and skills areas as indicated below), and completion of the two core competencies. The specific courses required within each knowledge and skills area/core competency for this degree program are outlined below.

### Knowledge and Skills Areas:

Communication Written & Oral (required)	as advised
Diversity: Equity, Inclusion, and Social Justice (required)	as advised
Mathematics (and Quantitative Reasoning) (required)	as advised

Natural Sciences (and Scientific Reasoning) (required)	as advised
Humanities	as advised
Social Sciences	as advised
The Arts	as advised
US History and Civic Engagement	as advised
World History and Global Awareness	as advised
World Languages	as advised

### Core Competencies:

Information Literacy (required)	as advised
Critical Thinking and Reasoning (required)	as advised

## Curriculum Requirements

A minimum of 60 credits is required for degree completion.

Code	Title	Credits
<b>Major Field Requirements</b>		
RENG 101	Basic Elec Renewable Energy	4
RENG 102	Renewable Energy Resources	3
RENG 103	Renewable Energy Seminar	1
RENG 150	Analysis Techniques for Renewable Energy	3
NATR 113	Intro toGlobal Positioning Sys	1
RENG 310	Biomass Energy Resources	3
RENG 221	Introduction to Wind Systems	3
RENG 231	Solar Photovoltaic Installation	3
RESC 125	Residential Electrification	3
NATR 213	Basics Geospatial Technology	1
	or CAD 181 Intro To Computer-Aided Drftng	
CITA 101	Principles Computer Apps	3
Technical Electives as advised		13-14
<b>Required SUNY General Education Coursework</b>		
SUNY General Education Mathematics (and Quantitative Reasoning) as Advised		3
SUNY General Education Natural Sciences (and Scientific Reasoning) as Advised		8
SUNY General Education Communication Written and Oral as Advised		3-6
SUNY General Education Diversity: Equity, Inclusion, and Social Justice as Advised		3
Additional SUNY General Education credits as advised		3
Select from the following categories: Humanities, Social Science, The Arts, US History & Civic Engagement, World History & Global Awareness, World Languages		
<b>Total Credits</b>		<b>61-65</b>

## Recommended Technical Electives

Code	Title	Credits
AGRO 110	Soil Science	3
AGRO 210	Field Crops	3
AUTO 102	Metals (welding)	3
AGEN 131	Fundamentals of Hydraulics	3
AGEN 161	Basic Hydraulics	3

BSAD 116	Business Organization & Mgmt	3
CAD 181	Intro To Computer-Aided Drftng	1
CITA 120	Computer Concepts & Op Sys	3
CITA 140	Introduction to Programming	3
CITA 200	Data Communications Networking	3
DTEC 150	Diesel Systems	3
DTEC 225	Diesel Electronics	4
ENSC 101	Agricultural Science	3
ENSC 106	Pesticide Use and Handling	2
ENSC 107	Integrated Pest Management	1
MECH 211	Analytical Mechanics (Statics)	3
NATR 103	Natural Resources Equipment Op	2
NATR 213	Basics Geospatial Technology	2
RENG 225	Tower Climbing and Rescue	2
RENG 240	Introduction to Heat Pumps	3
RESC 130	Light Framing	3
RESC 221	Plumbing	3
RESC 260	Heating And Energy Systems	3

## Sample Course Sequence

Course	Title	Credits
<b>Year 1</b>		
<b>Fall</b>		
RENG 101	Basic Elec Renewable Energy	4
RENG 102	Renewable Energy Resources	3
RENG 103	Renewable Energy Seminar	1
SUNY General Education Mathematics (and Quantitative Reasoning) as Advised		3
SUNY General Education Communication Written and Oral as Advised (ex. COMM 105)		3
NATR 113	Intro toGlobal Positioning Sys	1
<b>Credits</b>		<b>15</b>
<b>Spring</b>		
RENG 150	Analysis Techniques for Renewable Energy	3
NATR 213	Basics Geospatial Technology	2
RESC 125	Residential Electrification	3
SUNY General Education Natural Sciences (and Scientific Reasoning) as Advised (ex. BIOL 101)		4
CITA 101	Principles Computer Apps	3
SUNY General Education as advised		3
<b>Credits</b>		<b>18</b>
<b>Year 2</b>		
<b>Fall</b>		
RENG 231	Solar Photovoltaic Installation	3
RENG 310	Biomass Energy Resources	3
PHYS 107	Introductory Physics I	4
SUNY General Education Diversity: Equity, Inclusion, and Social Justice as Advised (ex. ENSC 261)		3
100-200 Lower Division Elective as advised (ex. RESC 221)		3
<b>Credits</b>		<b>16</b>
<b>Spring</b>		
CAD 181	Intro To Computer-Aided Drftng	1
RENG 221	Introduction to Wind Systems	3
100-200 Lower Division Elective as advised (ex. AUTO 102)		3
100-200 Lower Division Elective as advised (ex. RESC 260)		3
100-200 Lower Division Elective as advised (ex. RESC 221)		3
<b>Credits</b>		<b>13</b>
<b>Total Credits</b>		<b>62</b>