**SUSTAINABLE ENERGY***
**Degree Program**

Career Curriculum GRE 2012
Associate in Applied Science
Minimum Hrs. 62
Major Code: 1.2 150503C

**FIRST YEAR – FALL SEMESTER**

| Dept. | No. | | Hrs. | Gr. |
|---|---|---|---|---|
| ELT | 102 | Basic Electricity and Wiring | 4 | ____ |
| ELT | 125 | Energy Auditing & Thermography | 4 | ____ |
| ELT | 143 | Renewable Energy Principles | 3 | ____ |
| HAC | 121 | Heating I | 4 | ____ |
| HAC | 140 | Weatherization | 3 | ____ |
| | | | 18 | |

**FIRST YEAR – SPRING SEMESTER**

| Dept. | No. | | Hrs. | Gr. |
|---|---|---|---|---|
| ELT | 224 | Power Distribution and Motors | 3 | ____ |
| ELT | 243 | Renewable Energy Systems | 3 | ____ |
| ELT | 260 | Introduction to Hydropower | 3 | ____ |
| HAC | 122 | Heating II | 4 | ____ |
| IAI Physical/Life Science or IAI Humanities/ Fine Arts Elective | | | 3-5 | ____ |
| | | | 16 | |

**FIRST YEAR – SUMMER SEMESTER (OPTIONAL)**

| Dept. | No. | | Hrs. | Gr. |
|---|---|---|---|---|
| ATI | 200 | Applied Technologies Internship[1] OR PSY 110 College Success and Career Planning[1] | 1-3 | ____ |

**SECOND YEAR – FALL SEMESTER**

| Dept. | No. | | Hrs. | Gr. |
|---|---|---|---|---|
| CIS | 101 | Introduction to Computers[1] (optional) | 3 | ____ |
| ECO | 201 | Introduction to Macroeconomics | 3 | ____ |
| ENG | 101 | English Composition I[2] OR ENG 113 Professional Technical Writing[2] | 3 | ____ |
| SPE | 115 | Speech | 3 | ____ |
| Approved Elective[3] | | | 3 | ____ |
| | | | 12-15 | |

**SECOND YEAR – SPRING SEMESTER**

| Dept. | No. | | Hrs. | Gr. |
|---|---|---|---|---|
| HAC | 131 | Refrigeration & Air Conditioning I | 4 | ____ |
| HAC | 224 | Geothermal Systems | 3 | ____ |
| HAC | 241 | Building Systems Performance | 3 | ____ |
| MAT | 113 | Intro to Contemporary Mathematics OR MAT 100 Mathematics for Applied Technologies OR MAT 120 Elementary Statistics | 3-4 | ____ |
| Approved Elective[3] | | | 3 | ____ |
| | | | 16-17 | |

| Fall Only Courses | Spring Only Courses |
|---|---|
| ELT 102 | ELT 243 |
| ELT 125 | ELT 260 |
| ELT 143 | ELT 270 |
| HAC 121 | HAC 107 |
| HAC 140 | HAC 122 |
| HAC 240 | HAC 131 |
| MFT 103 | HAC 224 |

* The Sustainable Energy AAS Degree is offered through the Illinois Green Economy Network's Career Pathways Project in conjunction with Southeastern Illinois College and Heartland Community College.

[1] Although ATI 200 or PSY 110 and CIS 101 are recommended, they are not required for graduation from this program and therefore are ineligible for Title IV financial aid funding. CIS 101 is recommended to provide students with adequate computer skills necessary for success in the program.

[2] Requires a grade of "C" or higher.

[3] Students can choose approved electives offered through John A. Logan College, Heartland Community College, or Southeastern Illinois College. Some electives may be offered online. Please seek assistance from your advisor to enroll in these electives.

| Course Number | | Course Title | Credit Hours | College |
|---|---|---|---|---|
| ELT | 270 | Introduction to Smart Grid | 3 | John A. Logan College |
| ENGY | 111 | Intro to Biofuels | 3 | Southeastern Illinois College |
| ENGY | 131 | Biodiesel Production | 3 | Southeastern Illinois College |
| HAC | 107 | Electrical Controls and Circuitry | 3 | John A. Logan College |
| HAC | 240 | Installation of HVAC Systems | 3 | John A. Logan College |
| MAC | 180 | Blueprint Reading | 3 | John A. Logan College |
| MFT | 103 | Industrial Robots and PLCs | 3 | John A. Logan College |
| REEC | 220 | Solar Thermal Systems | 3 | Heartland Community College |
| REEC | 120 | Renewable Energy & Sustainability | 3 | Heartland Community College |

The minimum general education component for the Associate in Applied Science degree requires satisfactory completion of at least 15 semester credits of coursework distributed over the disciplines of Communications, Mathematics, Arts and Humanities, Physical and Life Sciences, and Social and Behavioral Sciences. The curriculum guide for each Associate in Applied Science degree program will spell out the course requirements or options available for satisfying the general education component. With appropriate justification and in consultation with your academic advisor, a request to substitute a course for one recommended in this guide may be granted with the appropriate approvals from the Department Chair, Dean for Instruction and Vice-President for Instruction. However, no substitutions are allowed in Groups I-III (General Education Component; GECC) of the curriculum guide (see the Associate in Applied Science general degree requirements worksheet in the John A. Logan College Catalog).

**Effective Date: Spring 2017**

Students planning to transfer and pursue a baccalaureate degree should, when given a choice, enroll in the general education course that is IAI GECC approved and articulated with participating Illinois institutions.

*John A. Logan College reserves the right to modify this curriculum guide as needed.*
*Please verify with your academic advisor the accuracy and time lines of this document.*

All students registered for heating and air conditioning classes are required to furnish a basic tool set. The basic tool set will be necessary by the beginning of the fifth week of the semester. The set includes the following:

**Nutdrivers**
- Nutdriver ND5 ¼"
- Nutdriver ND7 5/16"
- Manifold Gauge Set

**Pliers**
- 7" Diagonal Pliers
- 7 ½" Longnose Pliers
- 6" Slip Joint Pliers
- ARC Joint 9-1/2" Pliers

**Screwdrivers**
- Phillips Stubby Screwdriver
- #2 x 4" Phillips Screwdriver
- Flat Stubby Screwdriver
- 3/16" x 6" Slotted Screwdriver
- 5/16" x 6" Slotted

**Sockets**
- 1/4" Socket Set
- 3/8" Socket Set

**Wrenches**
- 6" Adjustable Wrench
- 8" Adjustable Wrench
- 10" Adjustable Wrench
- 12" Adjustable Wrench
- Hex Wrench Set
- Service Valve Wrench

**Additional Tools**
- Wire Strippers
- AW Sperry SPR Clamp-On Amp Meter
- UEI M110A Multimeter
- Pocket Thermometer
- Inspection Mirror
- Sling Psychromater
- Red and Green Tin Snips
- Tinners Hammer
- Dividers

Note: Costs of supplies vary by supplier. Tools may be purchased at Sears, Snap-On, True Value, etc.

**Additional Information:** This program prepares students for careers in the heating and air conditioning industry with an emphasis on energy efficiency and pollution reduction. The curriculum provides theory as well as sufficient laboratory experience to prepare graduates for immediate employment. Students will be trained for competency in installing, operating, troubleshooting, and maintaining all types of environmental control equipment. Besides becoming specialized HVAC technicians, students may choose to pursue careers as energy auditors, weatherization installers, or obtain more specific accreditations such as BPI Certification (Building Performance Institute, Inc.) and be nationally qualified for residential energy efficiency retrofitting.

Students are required to sit for EPA testing which is required for buying and handling refrigeration. The testing agency sets the price of the test.

**Career Opportunities:** Energy Auditor, Technician, Installer, Maintenance Service Manager, HVAC Energy Efficiency Specialist, Hydroelectric Production Managers, Geothermal Technicians, Weatherization Installers, Power Plan Operators, Biofuels Production Managers, Maintenance and Repair Workers