# Industrial Sciences & Technology (HVAC & Refrigeration)

Associate of Applied Science (A.A.S.)

**Transfer Options**

- Arkansas State University-Jonesboro
  - BAS Organizational Supervision
- Oklahoma State University Institute of Technology
  - Bachelor of Technology Applied Technical Leadership
- University of Arkansas-Fort Smith
  - Bachelor of Applied Science

This degree option provides the heating, ventilation, air conditioning (HVAC and refrigeration training necessary for those desiring employment in these high demand and high paying fields. Opportunities abound with local area companies as well as opportunities across the nation. Employment in the HVAC and refrigeration technician field is expected to grow by 24% thru 2024, much faster than the average for all occupations. The HVAC and refrigeration technician program is designed to provide the student with the skills and knowledge necessary to safely install, troubleshoot and repair HVAC and refrigeration equipment used in the home and light commercial applications.

This is a comprehensive study of both a balance of theory and practical hands-on approach to the repair, replacement and installation of HVAC and refrigeration equipment.

As a part of the program, students must take and pass, with 70% or better, the Environmental Protection Agency (EPA) Section 608 Certification Exam and will earn a universal license. Additionally, students are required to sit for Employment Ready (ER) Electrical, ER Air Conditioning, and ER Heat Pumps industry competency exams thru HVAC Excellence prior to graduation.

**Mission**

The mission of the Industrial Sciences & Technology program is to provide quality education and training that enhance employment opportunities and increase the personal development of students including opportunity to complete a four-year degree.

**Program Goal**

The Associate of Applied Science in Industrial Sciences & Technology will provide students the knowledge and skills necessary to obtain entry level employment in the applicable field of study and the first two years of a university program.

SAU TECH We put YOU first!

**DEGREE PLAN**
**2021-2022**

**Developmental Coursework**

| *Course Number* | *Course Title* | *Required* | *Enrolled* | *Completed* |
|---|---|---|---|---|
| ENGL 0121 | Composition I Lab | ☐ | ☐ | ☐ |

**Semester I (13 hours)**

| *Course Number* | *ACTS#* | *Course Title* | *Enrolled* | *Completed* |
|---|---|---|---|---|
| [1]MIS 1003 | CPSI 1003 | Introduction to Computers | ☐ | ☐ |
| [1,2]HVAC 1023 | N/A | Fundamentals of Electricity | ☐ | ☐ |
| [1,2]HVAC 1033 | N/A | Fundamentals of Basic Compression & Refrigeration | ☐ | ☐ |
| [1]MATH 1063 | MATH 1113 | Math Reasoning [P1] | ☐ | ☐ |
| GSTD 1021 | N/A | Student Success I | ☐ | ☐ |

**Semester II (16 hours)**

| *Course Number* | *ACTS#* | *Course Title* | *Enrolled* | *Completed* |
|---|---|---|---|---|
| [1]ENGL 1113 | ENGL 1013 | Composition I [P1] | ☐ | ☐ |
| MD 1113 | N/A | Motor Controls [P6] | ☐ | ☐ |
| MD 1403 | N/A | Basic Blueprint Reading | ☐ | ☐ |
| [1,2]HVAC 1043 | N/A | Industrial Controls & Electronic Components [P3] | ☐ | ☐ |
| [1,2]HVAC 1053 | N/A | Tubing and Piping [P3] | ☐ | ☐ |
| GSTD 1031 | N/A | Student Success II | ☐ | ☐ |

**Semester III (16 hours)**

| *Course Number* | *ACTS#* | *Course Title* | *Enrolled* | *Completed* |
|---|---|---|---|---|
| CO 2213 | ENGL 2023 | Technical Writing [P2] | ☐ | ☐ |
| EM 2924 | N/A | Programmable Logic Controller 1 | ☐ | ☐ |
| [1]HVAC 2023 | N/A | Residential Systems [P3] | ☐ | ☐ |
| [1]HVAC 2033 | N/A | Heat Gain and Loss [P3] | ☐ | ☐ |
| MD 1052 | N/A | Intro to Preventive Maintenance | ☐ | ☐ |
| GSTD 2041 | N/A | Student Success III | ☐ | ☐ |

**Semester IV (15 hours)**

| *Course Number* | *ACTS#* | *Course Title* | *Enrolled* | *Completed* |
|---|---|---|---|---|
| EM 2213 | N/A | Industrial Electricity | ☐ | ☐ |
| CE 2403 | N/A | Internship | ☐ | ☐ |
| [1]HVAC 2043 | N/A | Air Conditioning Service [P3] | ☐ | ☐ |
| [1]HVAC 2053 | N/A | Professional Development* [P4] | ☐ | ☐ |
| *Choose three (3) hours from these courses:* | | | | |
| CJ 1003 | CRJU 1023 | ☐Introduction to Criminal Justice<br>☐ECON [P5], GEOG, HIST, PSCI, PSYC, **or** SOC prefix | ☐ | ☐ |

**EPA Section 608, ER Electrical, ER Air Conditioning, and ER Heat Pumps exams taken.*

**Total Credit Hours: 60**

[1]Indicates Technical Certificate in **HVAC & Refrigeration (33 hours)**.

[2]Indicates Certificate of Proficiency in **HVAC & Refrigeration (12 hours)**.

**Program Learning Outcomes (PLOs)**

PLO 1. An ability to use the techniques, skills, and modern tools necessary for the appropriate field of study.

PLO 2. An ability to apply knowledge of mathematics, science, and engineering.

PLO 3. An ability to identify, formulate, and solve problems.

PLO 4. An understanding of professional and ethical responsibility.

PLO 5. An ability to communicate effectively.

**General Information**

- Developmental coursework may be required in addition to the courses required for this degree and/or certificate(s).
- A [P] indicates that a prerequisite is required before the course can be taken. Refer to the prerequisites table listed below the degree plan or the course description in the College Catalog to determine the prerequisite.

**General Requirements**

- This degree requires successful completion of **60** credit hours.
- All degree-seeking students are required to take Student Success.
- A minimum 2.00 cumulative grade point average is required for graduation.
- Satisfaction of all financial obligations due to the college is required for graduation.

**Residency Requirement**

The student is required to complete a minimum of 15 semester hours in residence at SAU Tech for associate degrees and technical certificates and half of the credit hours required for certificates of proficiency as well as complete all other graduation requirements. Students who wish to pursue additional degrees must complete a minimum of 15 credit hours of difference between the degrees.

**ACTS Course Numbers**

The Arkansas Course Transfer System (ACTS) contains information about the transferability of courses within Arkansas public colleges and universities. Students are guaranteed the transfer of applicable credits and equitable treatment in the application of credits for admissions and degree requirements. Go to http://acts.adhe.edu for more information.

**PREREQUISITES**

| | |
|---|---|
| P1 | Refer to the SAU Tech Placement Plan. |
| P2 | ENGL1113-Composition I. |
| P3 | HVAC1023- Fundamentals of Electricity & HVAC1033- Fundamentals of Basic Compression & Refrigeration. |
| P4 | Prerequisites: HVAC 1023, HVAC 1033, HVAC 1043, HVAC 1053, HVAC 2023, HVAC 2033. Co-requisite: HVAC 2043. |
| P5 | MATH 1023 OR MATH 1063. |
| P6 | EE 1003-Intro to Basic Electricity or HVA 1023-Fundamentals of Electricity |