



#### AOS DEGREE - CODE #0464

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The heating, ventilation, and air conditioning program will prepare you for this growing field with courses on all phases of residential and commercial installation, maintenance, troubleshooting, and repair. It includes forced air, hot water and steam heating, gas and oil burner systems, along with hands-on air conditioning and heat pump technology.

The plumbing aspect of the program provides instruction in the basic skills required by the plumber in the construction of residential housing and commercial buildings. The program ranges from the installation of waste and sewage lines to the installation of potable water lines and plumbing fixtures.

#### ADVANTAGES

- The program provides the necessary theory connected with plumbing and HVAC, as well as on-the-job training experience overseen by expert tradesmen.
- Students will take the National Refrigerant Handling Certification Course and Test and the National ARI HVAC (Air Conditioning & Refrigeration Institute Heating Ventilation & Air Conditioning) Competency Test.

#### DIRECT ENTRY INTO BACCALAUREATE DEGREE PROGRAM

Alfred State heating, ventilation, and air conditioning graduates may enter directly into the construction supervision BTech or technology management BBA degree program. Graduates who have credit for freshman composition, statistics, literature, history, and speech may complete the baccalaureate program in two additional years; others may complete the program in two-and-one-half years.

#### OCCUPATIONAL OPPORTUNITIES

- Maintenance personnel
- Maintenance supervisor
- Sheet metal fabricator
- Sales representative
- Pipe fitter
- Sprinkler installer
- HVAC mechanic or troubleshooter
- Water or sewer plant operator
- Private contractor

#### EMPLOYMENT STATISTICS

Employment and continuing education rate of 81 percent – 81 percent are employed.

#### RELATED PROGRAMS

[Building Trades: Building Construction](#)  
[Masonry](#)

#### REQUIRED TOOLS/EQUIPMENT

A list of required tools, equipment, PPE, etc. for all of the programs mentioned above can be found at <http://www.alfredstate.edu/tool-lists>.

A tier 1 laptop computer is required for students entering this degree program. Laptop specifications are available at [www.alfredstate.edu/required-laptops](http://www.alfredstate.edu/required-laptops).

#### ENTRANCE REQUIREMENTS/RECOMMENDATIONS

Recommended: Algebra and Geometry

#### TECHNICAL STANDARDS

It is crucial that all student applicants in this degree program must be able to meet the following requirements, with or without reasonable accommodation. Students who are enrolled in this degree program should have the physical capabilities to be able to engage in all training, field, and laboratory environments in a safe and ethical manner. Students must be able to:

- Lift and carry up to or 50 pounds of building materials/equipment without accommodations.
- Perform and function in a safe manner in all laboratory and classroom environments, and off campus job site locations.
- Effectively communicate with classmates and instructional staff using appropriate visual and/or auditory communication from a distance of 20 feet.
- Physically setup, move, or climb ladders, scaffolding, etc., unaided, using the designated safety method.
- Identify and react to safety alarms which include, but not limited to, fire alarms, back up alarms and those meant for emergencies.

#### OFFICE OF ACCESSIBILITY SERVICES

Students who believe they need a reasonable accommodation to properly participate in this program may contact Melanie Ryan in the Office of Accessibility Services. This office may be contacted by email at [oas@alfredstate.edu](mailto:oas@alfredstate.edu) or by phone at 607-587-4506. Please keep in mind that some accommodations may take time to implement, so students seeking accommodations are encouraged to contact OAS as early as possible.

#### HEATING, VENTILATION, AND AIR CONDITIONING - AOS DEGREE

##### TYPICAL FOUR-SEMESTER PROGRAM

First			
BLCT	3413	Blueprint Reading-Bldg Construct	3
BLCT	3423	Pipe Fitting - Math Estimating	3
BLCT	3433	Cop Pipe & Tub, Water Sys Des	3
BLCT	3443	Drainage Systems & Piping	3
BLCT	3453	Plumb Trade History & Safety	3
BLCT	3463	Watr Heats-Plumb Fix Inst/Rpr	3
			18
Second			
BLCT	4143	Basic House Wiring- Forced Air	3
BLCT	4153	Sheet Metal Fabrication	3
BLCT	4163	Mid & Hi Effy Furn-Alt Warm Ar	3
BLCT	4173	Sheet Mtl Air Dist Systm & Vent	3
BLCT	4183	Sheet Metal Trade Safety	3
BLCT	3473	Heating Fuels-Comb Theo&Troubl	3
			18
Third			
BLCT	3483	Electrical Fundamentals	3
BLCT	3493	Forced Air Furnace Controls	3
BLCT	3503	Hydro Comp, Circu Pump&Ht Emit	3
BLCT	3513	Hydronic Controls and Motors	3
BLCT	3523	Hydronic Funda & Heat Sources	3
BLCT	3533	Hydronic Piping Systems	3
			18

#### Fourth

BLCT	4203	Air Cond Components & Install	3
BLCT	4213	Air Conditioning Fundamentals	3
BLCT	4223	Air Cond Perf & Trou & Ht Pump	3
BLCT	4233	Heat Loss & Heat Gain	3
BLCT	4243	Refrigeration Handling Cert	3
BLCT	4253	Residential Duct System Design	3
			18

#### GRADUATION REQUIREMENTS

A student must successfully complete all courses in the prescribed four-semester program and earn a minimum cumulative grade point average of 2.0 in major courses.