



# HEATING, VENTILATION, AIR CONDITIONING & REFRIGERATION TECHNOLOGY

Associate of  
Applied Science  
Degree

MILFORD CAMPUS

[www.southeast.edu/HVACTech](http://www.southeast.edu/HVACTech)



*There is a high demand for well-trained HVAC technicians nationwide, and it can also be very satisfying to help people with heating and cooling issues. Professionals in the HVAC/R industry design, build, install, service, maintain, troubleshoot, and repair indoor heating and cooling systems year-round.*

## Program Overview:

Students may focus on the installation and maintenance of residential, commercial or industrial heating, ventilation, air conditioning and plumbing systems or refrigeration equipment.

Prior to graduation, students will be required to take the Industry Competency Exam. The ICE measures industry-agreed standards of basic competencies for entry-level technicians.

Please contact the program chair for more information.

## Types of jobs available:

- Maintenance Specialist
- Building Engineer
- Service Technician
- Plant Manager
- Heating System Specialist
- Business Owner
- Steam Fitter
- Service Manager
- Sales Representative



## Graduate Earnings

Recent graduates report an average starting wage of \$14.80 per hour.

### For more information contact:

Jeff Boaz, Program Chair  
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[jboaz@southeast.edu](mailto:jboaz@southeast.edu)

or the College Admissions Office  
Milford 402-761-8243, 800-933-7223 ext. 8243

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## HVAC/R Required Courses:

Course #	Course title	Credit hrs
HVAC1109	Electrical Fundamentals	4.0
HVAC1131	Refrigeration Theory I	5.0
HVAC1132	Piping Practices	3.0
HVAC1133	Plumbing Theory/Print Reading	5.0
HVAC1226	Refrigeration Lab I	6.0
HVAC1230	Electrical Principles & Practices	2.0
HVAC1234	Plumbing Code	5.0
HVAC1237	Refrigeration Theory II	5.0
HVAC1251	Hydronic Theory	4.0
HVAC1330	Residential HVAC Systems & Controls I	4.0
HVAC1331	Manual J/Manual D	6.0
HVAC1336	Sheet Metal Lab	3.0
HVAC1343	Refrigeration Theory III	4.0
HVAC1363	Heat Pump Principles	5.0
HVAC1434	Refrigeration Lab II	3.0
HVAC1440	Mechanical Code	2.0
HVAC1447	Commercial HVAC Fundamental & Practices I	5.0
HVAC1450	EPA Refrigerant Certification	2.0
HVAC1452	Residential Install Lab	2.0
HVAC1461	Residential HVAC Systems & Controls II	5.0
HVAC2600	HVAC/R Lab	3.0
HVAC2610	Troubleshooting Techniques Lab	1.5
HVAC2649	Commercial HVAC Fundamental & Practices II	5.0
HVAC2650	Troubleshooting Techniques	4.0
HVAC2900	Internship or	
HVAC2901	Cooperative Experience	12.0
BSAD1000	Computer Basics	1.0
WELD1183	HVAC Welding Practices	1.5
		108.0 hours

## General Education Requirements:

Contact your program advisor to select general education courses from each category which will meet your program's graduation requirements. See the General Education pages online for a complete list. (One class from each area below).

Oral Communications	4.5
Written Communications	4.5
Science	6.0
PHYS1150 Descriptive Physics	
(Plus two classes from the four areas below; no two classes from the same area).	
Mathematics, Social Science, Humanities, and/or	
Computer Technology	9.0
24.0 hours	

### Estimated Expenses

To determine overall costs, students should plan a budget that includes room, meals, clothing, laundry, medical care, recreation and entertainment, transportation, insurance, etc.

Nebraska Resident tuition rate is \$61.50 per credit hour. Out-of-state tuition rate is \$75.50 per credit hour. Student fee is \$1.50 per credit hour. Graduation fee is \$25.

Housing is available at Beatrice and Milford campuses only. Quarterly tuition, books and fees are dependent upon classes taken.

#### FIRST QUARTER

Tuition And Fees	\$1,544
Books	595
Tools/Kit	1,075
<b>Total</b>	<b>\$3,214</b>

#### SECOND QUARTER

Tuition And Fees	\$1,859
Books	545
Tools/Kit	440
<b>Total</b>	<b>\$2,844</b>

#### THIRD QUARTER

Tuition And Fees	\$1,449
Books	525
Tools/Kit	210
<b>Total</b>	<b>\$2,184</b>

#### FOURTH QUARTER

Tuition And Fees	\$1,292
Books	200
Tools	95
Supplies	165
EPA Certification Test	30
<b>Total</b>	<b>\$1,782</b>

#### FIFTH QUARTER

Tuition And Fees	\$756
Coop Quarter	
<b>Total</b>	<b>\$756</b>

#### SIXTH QUARTER

Tuition And Fees	\$1,418
Books	590
ARI Industry Competency Exam	35
<b>Total</b>	<b>\$2,043</b>
<b>Total Estimate For Program</b>	<b>\$12,823</b>

## Required Tools and Supplies

**\*\*A 10% discount is given to students purchasing a complete tool kit. Kits can be preordered from the bookstore.**

### 1ST QUARTER SUPPLIES

- \* (2) Pad Locks
- \* Safety Glasses (Z87 SPECS)

### 3RD QUARTER SUPPLIES

- \* Hard Hat

### 1ST QUARTER TOOL KIT\*\*

- 22" Tool Box (10-7/8" x 9-1/4" x 20-14")
- Service Valve Wrench 3/16", 1/4", 5/16" and 3/8" Sizes
- Service Valve Wrench 3/8", 1/2" Adapter
- (2) 10" Adjustable End Wrenches
- 6" Regular Slip Joint Pliers
- Claw Hammer (16 oz.)
- 12" Multi-Track Pliers
- Flaring Tools:
  1. Tube Cutter
  2. Imp Tube Cutter
  3. Flaring Tool
  4. Swage Tool Set (1/4", 3/8", 1/2", 5/8")
- 25' Steel Measuring Tape
- 12" Long Arm Hex Key Set (5/64", 3/32", 1/8", 5/32", 3/16", 7/32" & 1/4")
- Volt Ohmmeter (Analog or Dialog) (Field Piece SC77) (w/2 temperature leads)
- Deburring Tool
- Triangle File
- 11-Piece Wrench Set (1/4"-3/4") Open/Box End
- \*1020 Colored Pencils/Pens
- \*Arch Scale
- \*Scientific Calculator (Sharp EL-506)
- 6" Diagonal Pliers (insulated handles)
- 6" Long Nose Pliers (insulated handles)
- Insulated Wire Crimpers
- Standard Screwdriver (overall length 8 1/2")
- Standard Electrical Screwdriver (overall length 6")
- Standard Stubby Screwdriver
- No. 2 Point Phillips Screwdriver

### 2ND QUARTER TOOL KIT\*\*

- 410A Standard Refrigeration Charging Manifold Set
- Magnetic Tip Nut Drivers (1/4" x 5/16" - 9 3/4" long)
- 7 Piece Nut Driver Set (hollow shaft)
- Valve Core Tool
- (1) 3 pk. Environmental Charging Hose (w/shutoff ball valve)
- Hose Gaskets
- 3/8" Socket Set (16 piece set minimum)
- Inspection Mirror
- Non-Contact AC Voltage Pen
- Flashlight
- Utility Knife
- \*Duct Tape
- \*Electrical Tape
- \*Clipboard

### 3RD QUARTER TOOL KIT\*\*

- Sheet Metal Offset Aviation Snips (red handles)
- Sheet Metal Offset Aviation Snips (green handles)
- Sheet Metal Scratch Awl Regular Handle
- 18" Sheet Metal Dividers
- Sheet Metal Straight Snips
- Bar Fold
- Adjustable Scribe

### 3RD QUARTER DRAFTING KIT\*\*

- Mars Compass with Extension Bar
- \*Pencil Eraser (white eraser)
- Triangle 45 degree
- Post T-Square
- \*Black Sharpie Permanent Marker - fine
- Mesh Bag

### 4TH QUARTER TOOL KIT\*\*

- Torpedo Level
- 12V - 3/8" Drive Cordless Drill
- 1/4" Hex X 1-7/8" Setter
- Knee Pads (optional)

### 4TH QUARTER WELDING SUPPLIES\*\*

- \*Arc Welding Helmet (#10 Lens - 2 Clear Lenses)
- \*Oxy-Fuel Face Shield (#5 or #6 Lenses)
- \*Welding Gloves
- \*Pliers or Vice-Grips
- \*Wire Cutters or Side Cutters
- \*Chipping Hammer & Wire Brush

\* May be purchased at the Milford Campus Bookstore or Parts Store.

