

2018-2019

SOUTHEAST  
COMMUNITY  
COLLEGE  
NEBRASKA

# 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 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 hydronic heating 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 \$17 per hour.

## For more information contact:

Jeff Boaz, Program Chair  
402-761-8262, 800-933-7223 ext. 8262  
[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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## 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
Analytical, Quantitative, and Scientific Reasoning	
MATH1040 Business Math or higher (Recommended)	4.5
Critical Thinking & Problem Solving	
PHYS1150 Descriptive Physics (Recommended)	6.0
(Plus one class from the two areas listed below)	
Career and Life Skills or Global Awareness and Citizenship	4.5
<b>24.0 hours</b>	

## HVAC/R Required Courses:

Course #	Course title	Credit hrs
HVAC1109	Electrical Theory/Lab	6.0
HVAC1131	Refrigeration Systems I	4.5
HVAC1132	Piping Practices	4.0
HVAC1226	Refrigeration Lab I	4.0
HVAC1237	Refrigeration Systems II	5.0
HVAC1251	Hydronic Heating	5.0
HVAC1330	Residential Controls I	3.5
HVAC1331	Manual J/Manual D	5.0
HVAC1336	Sheet Metal Fabrication	3.0
HVAC1363	Heat Pump Systems	3.5
HVAC1434	Refrigeration Lab II	3.0
HVAC1450	EPA Refrigerant Certification	2.0
HVAC1452	Residential Install Lab	3.0
HVAC1461	Residential Controls II	3.5
HVAC2600	HVAC/R Lab	3.0
HVAC2610	HVAC Troubleshooting	6.0
HVAC2649	Commercial HVAC Systems	3.5
HVAC2900	Internship <b>or</b>	
HVAC2901	Cooperative Experience	6.0
BSAD1000	Computer Basics	1.0
WELD1190	O/A and GMAW Welding	1.5
<b>76.0 hours</b>		

*Expand your education and become more marketable with a certificate in the new Plumbing Technology program!*

### Estimated Expenses

Nebraska Resident tuition/fee rate is \$69.50 per credit hour. Out-of-state tuition/fee rate is \$83.50 per credit hour. Graduation fee is \$25.

Housing is available at Beatrice and Milford campuses only. Tuition, books and fees are dependent upon classes taken each quarter.

Students should plan a budget that includes room, meals, clothing, laundry, medical care, recreation and entertainment, transportation, insurance, etc.

#### FIRST QUARTER

Tuition And Fees	\$1,703
Books	560
Tools/Kit	1,097
<b>Total</b>	<b>\$3,360</b>

#### SECOND QUARTER

Tuition And Fees	\$1,564
Books	750
Tools/Kit	457
<b>Total</b>	<b>\$2,771</b>

#### THIRD QUARTER

Tuition And Fees	\$1,355
Books	450
Tools/Kit	223
<b>Total</b>	<b>\$2,028</b>

#### FOURTH QUARTER

Tuition And Fees	\$904
Books	180
Tools	99
Supplies	180
EPA Certification Test	35
<b>Total</b>	<b>\$1,398</b>

#### FIFTH QUARTER

Tuition And Fees	\$417
Coop Quarter	
<b>Total</b>	<b>\$417</b>

#### SIXTH QUARTER

Tuition And Fees	\$1,494
Books	235
ARI Industry Competency Exam	40
<b>Total</b>	<b>\$1,769</b>
<b>Total Estimate For Program</b>	<b>\$11,743</b>

## Required Tools and Supplies

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

### 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 20-1/4")
- 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 Store or Parts Store.

