PLUMBING & HEATING TECHNOLOGY

ASSOCIATE OF APPLIED SCIENCE DEGREE AND CERTIFICATE PROGRAMS

The Plumbing and Heating Technology program is designed to prepare students for technician level positions in the rapidly growing field of installing, maintaining, and troubleshooting high efficiency plumbing, heating, and air conditioning. Graduates will work on systems that control water, temperature, and humidity of enclosed spaces.

"I always knew I wanted to go into heating. What I have learned at KVCC is that the world is changing and there are newer ways to heat than the old oil boilers."



Learn to install, maintain, and troubleshoot modern heating, and cooling systems



What Plumbing & Heating Technology graduates do:

- JIT Plumber
- Resource conservation manager
- Energy management technician
- Journeyman oil burner technician
- HVAC technician

Career Opportunities:

- Educational facilities
- Small businesses
- Plumbing and heating firms
- Hospital facilities
- Manufacturing companies
- Industry plants

For further questions about this program, please contact: kvccadmissions@mainecc.edu

PLUMBING & HEATING TECHNOLOGY

Associate of Applied Science Degree

First Semester

BPT124*	Construction Print Reading for Plumbers	3
COM104	Introduction to Communication	3
MAT114	Technical Math	3
PLB101*	Plumbing Fundamentals	6

Second Semester

ENG108	Technical Writing	3
MAT214	Technical Math II	3
PLB201*	Advanced Plumbing Applications	6
PLB210*	Heating and Plumbing Codes	3

Third Semester

ETL107*	Electrical Principles for HVAC	4
HAC106*	Heat Pumps and Air Conditioning	3
HAC200*	Introduction to Natural Gas and Propane	1
HAC201*	Heating System Fundamentals	6
ECO132	Personal Finance and Investing (SS)	3

Fourth Semester

ETL108*	HVAC Electronics and Controls	3
HAC202*	Advanced Heating Applications	6
HAC205*	Propane and Natural Gas	3
HUM___	Humanities Elective (H)	3

Total Credits 62

Plumbing Certificate

First Semester

BPT124*	Construction Print Reading for Plumbers	3
MAT114	Technical Math	3
PLB101*	Plumbing Fundamentals	6

Second Semester

ENG108	Technical Writing	3
PLB201*	Advanced Plumbing Applications	6
PLB210*	Plumbing Codes	3

Total Credits 24

Heating Technology Certificate

First Semester

ETL107*	Electrical Principles for HVAC	4
HAC106*	Heat Pumps and Air Conditioning	3
HAC200*	Introduction to Natural Gas and Propane	1
HAC201*	Heating System Fundamentals	6
MAT114	Tech Math I	3

Second Semester

ETL108*	HVAC Electronics and Controls	3
HAC202*	Advanced Heating Applications	6
HAC205*	Propane and Natural Gas	3

Total Credits 29

CRITERIA FOR GRADUATION

Students must complete 62 credits in the Plumbing and Heating Technology program, 24 credits in the Plumbing certificate, or 29 credits in the Heating Technology certificate and achieve a minimum grade of “C” in designated common and program core courses (*). Students must attain a final GPA of 2.0 or higher. (H,SS) Suggested Electives. Please contact your advisor for more information

PLUMBING & HEATING TECHNOLOGY

Associate of Applied Science Degree, Certificates

DESCRIPTION

The Plumbing and Heating Technology program offers a two-year Associate of Applied Science degree, a Plumbing certificate, and a Heating Services certificate. The program is designed to prepare students for technician level positions in the rapidly growing field of installing, maintaining, and troubleshooting high efficiency plumbing, heating, and cooling systems in buildings. Graduates will work on systems that control water, temperature, and humidity of enclosed spaces within building structures. They will install various types of equipment used to control human comfort in residential, commercial, industrial, and institutional environments.

This program will give the technician a working knowledge of plumbing and HVAC system building concepts and energy efficient design principles. Additionally, program graduates are eligible for State of Maine licensing in plumbing, oil burner, propane and natural gas. Students can also pursue the EPA608 refrigeration certification. Combined with the appropriate additional coursework, graduates will also have the necessary educational background and licenses needed for advancing into a career in renewable and sustainable energy systems.

Students are required to have the tools and equipment necessary to properly complete the hands-on portion of the program. The required tools and equipment will be in the range of $1,200 - $1,400.

PROGRAM MISSION

The Plumbing and Heating Technology program provides graduates with the technical background and the manual skills necessary for careers in the installation and maintenance of modern, energy efficient, plumbing, heating, and air conditioning systems. Graduates are critical thinkers and are able to troubleshoot problems in residential, commercial, or industrial environments. The program provides students with the ability to communicate effectively using standard methods of communication.

Recognizing the need for lifelong learning, the Plumbing and Heating Technology program helps students achieve various professional and personal goals that may arise over a lifetime, including the opportunity to transfer to other college and university technical programs. The program strives to maintain a high academic standard for teaching and learning through a continuous process of self-assessment and improvement.

Students are exposed to a learning environment that is safe and supportive of student growth and achievement. Using modern training equipment, innovative teaching methods and highly trained faculty members, the Plumbing and Heating Technology program endeavors to fully prepare students for a variety of building energy system occupations.

EDUCATIONAL OUTCOMES

Upon successful completion of the Plumbing and Heating Technology program, graduates are expected to:

1. Practice the skills of the profession in a conscientious, responsible, and accountable manner while recognizing the need to continue to expand their technical knowledge and skills.
2. Communicate effectively and listen and respond appropriately to a variety of residential, commercial and industrial applications.
3. Think critically and use their acquired analytical skills to solve problems encountered in a residential, commercial or industrial environment.

COLLEGE ADMISSION

General admission guidelines can be found on page 34 in the catalog.

The **Plumbing** program technical standards have been developed to inform students of the nonacademic essential functions of the program and profession. Examples are not all inclusive.

Standard	Essential Function	Examples
Communication Oral / Written	• Ability to understand verbal and written instructional approaches and apply this understanding to maintenance projects in a manner that produces quality outcomes and safe work practices.	• Communicate with coworkers and customers • Be able to clearly and effectively communicate with others, at moderate distances and without line of sight. • Be able to understand orders, instructions and descriptions and be able to read and comprehend technical manuals, manufacturer's specifications and instructions, and warning labels in English.

Mobility / Motor Skills	• Possess sufficient physical strength, flexibility, and dexterity to safely handle electrical and mechanical parts.
	• Motor skills sufficient to move the hands and use hands to grasp or manipulate objects
	• Ability to safely move around the jobsite
	• Ability to work in varied spaces
		• Use hand tools and power tools
		• Operate necessary tools, equipment, and machinery.
		• Remove and replace failed components.
		• Physical activities may include:
		  • Stooping
		  • Crawling
		  • Reaching
		  • Squatting
		  • Lifting
		  • Bending
		  • Balancing
		  • Climbing and working on a ladder
		• Position and maneuver in confined spaces to do repairs.
		• Work at varying heights.
		• Lift and transport equipment and materials as necessary.

Physical Strength and Stamina	• Ability to participate in an activity for long periods of time • Ability to safely lift/carry a minimum of 50 lbs.	• Carry supplies. • Installing/repairing various components in multiple positions. • Use sensory cues to conduct inspections and tests to determine causes of failures, and respond properly.
Sensory **• Sight** **• Sound** **• Taste** **• Touch** **• Smell**	• Visual skills sufficient to see details at close range • Be able to distinguish between tones of various pitches and differentiate between the primary colors • Listening skills sufficient to communicate with others • Ability to use sensory (hearing, visual, and smell) skills to be able to detect danger from various equipment found in maintenance facilities. understand what is being communicated	• Have sufficient visual capacity to interpret read-outs on meters, gauges, and other measuring devices. • Distinguish identifying colors of wires, knobs, and other objects. • Recognize and compare shapes and forms of objects. • Have sufficient visual capacity to read blueprints, sketches, schematic diagrams and other printed documents including but not limited to tape measures, architect and engineer scales, meters and testers. • Detect and respond to indicators of malfunctions.

Standard	Essential Function	Examples
Environmental / Occupational Exposure	• Ability to tolerate and adequately function in hot and cold work conditions • Possible exposure to extreme noise levels • Possible exposure to extreme weather • Possible exposure to dust, chemicals, and fumes • Must not have a debilitating fear of insects, spiders, snakes or lizards.	• Work for 6 hours in indoor and outdoor areas without heating or air conditioning. • Work outdoors • Work with construction materials and tools • Work with various chemicals and toxins
Field or Industry Professional Standards	• Safely operate tools and equipment • Wear safety equipment • Must be able to wear a tool pouch for up to 10 hours per day.	• PPE includes but not limited to safety glasses, closed-toe shoes, hard-hats.