

### Program Description

This program provides students with an in-depth background of the heating, ventilation, air conditioning and refrigeration industry. By combining theory and practical shop experiences, students will develop the skills needed for design, installation, maintenance, and troubleshooting HVACR systems for residential and commercial applications. The heating ventilation and air conditioning diploma is designed to prepare students for entry-level positions in the HVAC&R field. Students learn the refrigerants used in the industry, the basic refrigeration cycle, calculate design load and duct sizing to ACCA standards, fabricate ductwork, and control circuitry. The skills to install and service gas and oil furnaces are stressed. Students will install and service water based heating and cooling systems, air conditioners and heat pumps, basic wiring, and learn refrigerant recovery techniques.

### Career Opportunities

Recent graduates of the HVAC program have obtained jobs with the following titles: HVAC instructor, HVAC system designer, service technician, installer, inside salesperson, maintenance technician, contractor and troubleshooter.

### Program Learning Outcomes

Upon successful completion of this degree, students will be able to:

- Demonstrate the skills, professional values and ethics necessary to be employed in the heating, ventilation and air conditioning field.
- Demonstrate effective oral and written communication skills with customers, salespersons, and fellow employees.
- Describe the general principles and terminology of HVAC systems.
- Become certified in EPA Refrigerant Handling by preparing to pass the EPA Refrigeration Exam.
- Understand basic electrical and control circuitry.
- Demonstrate the ability to utilize direct digital controls.
- Design, install and maintain hydronic heating and cooling equipment.
- Use computers and the internet to calculate HVAC loads, design ducts and hydronic systems.
- Build and maintain heating, air conditioning, ventilation and heat pump equipment.
- Understand the operation of gas and oil furnaces.
- Understand and implement heating and air conditioning systems that utilize natural technologies.
- Demonstrate the ability to read and understand blueprints for residential and commercial structures.
- Design, install and maintain heating and cooling equipment.
- Identify and demonstrate the proper use of HVAC hand tools, meters and gauges.
- Demonstrate the ability to fabricate ductwork.

Sugg. Term	Seq #	Course ID	Course Title	Cr.	Prereq/Coreq(Co)	Options Available
1st Fall	1	PDV 101	First Year Seminar	1		
	2	HAC 257	Commercial Refrigeration	4		
	3	HAC 101	Introduction to Refrigeration/Air Conditioning	4		
	4	HAC 240	HVAC Duct Fabrication	2		
	5	HAC 175	Direct Digital Controls	2		
	6	HAC 280	Residential Wiring	3		
1st Spring	7	HAC 105	Blueprint Reading for HVAC Technicians	2		
	8	HAC 170	HVACR Control Systems	2		
	9	HAC 255	Air Conditioning/Heat Pumps	4		
	10	HAC 150	ACCA Manual J and Manual D Load Estimating	4		
	11	HAC 290	EPA Refrigerant Exam Preparation	3		
2nd Fall	12	ENG 161	College Writing	3	ENG 085 with Permission of Instructor, ENG 095 or Placement	
	13	HAC 250	Gas and Oil Heating Technology	4		
	14	HAC 256	Geothermal and Solar Technology	3		
	15	MTH 104	Introduction to Applied Mathematics	4	MTH 050 or Placement	
	16	Elective	Drafting (DFT courses)	3-4		
2nd Spring	17	DFT 258	AutoCAD	4		
	18	ENG 162	Technical Communication	3	ENG 161	ENG 163 or ENG 164
	19	HAC 260	Hydronics	4		
	20	Science	Science Elective	3-4	Varies	Page 42 Column V
	21	Elective	Social Science Elective	3	Varies	Page 42 Column III

Minimum Program Credits

65-67

HVA