

# AIR CONDITIONING, HEATING AND REFRIGERATION TECHNOLOGY (HVAC/R)



## Associate Degree

### 10-601-1

HVAC/R is one of the fastest growing industries in the world today. With the changing laws involving refrigerants and the influx of digital control systems, there is a constant need for qualified service technicians to work on HVAC/R equipment. A service technician will have to continually update his/her skills to keep up with the changing industry.

This program will provide proper training for people interested in a career in the heating, ventilation, air conditioning and refrigeration (HVAC/R) field. The technician will be prepared for employment in a variety of areas including servicing, installing, designing, estimating and selling HVAC systems for commercial and residential applications. The most modern equipment, test instruments, and computers are used for instruction.

After completing the HVAC/R two year associates degree program, students may wish to pursue additional training in heating, ventilation, and air conditioning engineering. Credit for many of the associate degree courses in the program may be transferred to a four-year institution.

- Perform HVAC/R service and repair operations in compliance with published safety standards.
- Promote customer satisfaction.
- Operate tools/equipment according to process published in operator's manual and/or demonstrated in class.
- Service and/or repair/replace defective components established in equipment specific repair manual and/or electronic service information systems.
- Diagnose root cause of problems by comparing test results to an established standard.
- Efficiently complete tasks within the expected time frame for an entry level technician.

Semester 1		Credits
601-116	A/C Safety, Tools, Thermal Dynamics and HVAC Terminology	1
601-117	A/C Components, Refrigeration Cycle and Refrigeration Gauges	1
601-118	Air Flow Fundamentals	1
601-121	Electrical Safety, Meter Usage and Ohm's Law	1

601-122	Parallel Circuits, Combination Circuits and Capacitors	1
601-123	Electrical Services, Wire Sizing and Electrical Diagrams	1
601-131	Access Valves, Compressors and Condensers	1
601-132	Evaporators, Metering Devices and Accessories	1
601-133	Heat Transfer Principles and Manual J	1
601-134	Wrightsoft Load Calculations and RESCheck	1
601-128	Print Reading for HVAC/R	1
601-129	Mechanical Code	1
804-113	College Technical Mathematics 1A	3
<b>Credits</b>		<b>15</b>

### Semester 2

601-146	Flaring, Swagging and Soldering Copper Pipe	1
601-147	Air Acetylene and Oxy-Acetylene Brazing Copper Pipe	1
601-148	Refrig Recov, Deep Evac and Charging of Residential, Light Commercial, Geothermal and Ice Mach Equip	1
601-149	Refrig Recovery, Triple Evacuation and Charging of Heat Pumps and Refrig Equipment and EPA Test	1
601-141	Gas Pipe Sizing, Gas Regulators and Gas Valves	1
601-142	Residential Gas Furnaces	1
601-143	Electric Heat and Air-to-Air Residential Heat Pump Systems	1
601-136	Split Phase Motor Identification, Testing and Replacement	1
601-137	Variable Speed Motors, Current Relays, Potential Relays and PTC Relays	1
601-138	Transformers, Contactors, Relays and Motor Starters	1
801-136	English Composition 1	3
809-196	Introduction to Sociology	3
<b>Credits</b>		<b>16</b>

### Semester 3

601-156	Refrigeration and HVAC Temperature Control Systems	1
601-157	Refrigeration and A/C Control Systems	1

601-158	Heating and Package Gas/Electric Control Systems	1	809-198	Introduction to Psychology	3
601-151	Residential Split and Light Commercial Package Gas/Electric Cooling Applications	1	<b>Credits</b>		<b>15</b>
601-152	Residential Air-to-Air and Geothermal Heat Pump Systems Cooling Applications	1	<b>Total Credits</b>		<b>61</b>
601-153	Commercial - Package, Split DX and Chilled Water A/C Applications	1	General Education		
601-161	Advanced Compressors, Condensers, Metering Devices, and Evaporators	1	<b>Code</b>	<b>Title</b>	<b>Credits</b>
601-162	Walk-in Coolers/Freezers and Reach-in Freezers	1	801-136	English Composition 1	3
601-163	Ice Machines	1	801-197	Technical Reporting	3
601-171	Residential Split System Gas and Refrigeration Pipe Installation	1	804-113	College Technical Mathematics 1A	3
601-172	Residential Split System Duct and Controls System Installation and Start-up	1	809-196	Introduction to Sociology	3
601-173	Split Refrigeration System Installation	1	809-198	Introduction to Psychology	3
801-197	Technical Reporting	3			
<b>Credits</b>		<b>15</b>			
<b>Semester 4</b>					
601-176	Residential Oil Heat, Dual Fuel Systems and Two Stage Heat Pump Heating Applications	1			
601-177	Mini-Split, Light Commercial Gas/Electric Package and Unit Heater Heating Applications	1			
601-178	Commercial-Package Gas/Electric, Hydronic and In-Line Duct Heating Applications	1			
601-181	Hydronic Systems Theory	1			
601-182	Hydronic Systems Design and Mechanical Installation	1			
601-183	Hydronic Systems Controls and Start-up	1			
601-166	Residential, Light Commercial Package Gas/Electric and Refrigeration Control Systems	1			
601-167	Commercial Package Gas/Electric BAS	1			
601-168	Commercial Split and Geothermal BAS	1			
601-184	Service and Troubleshooting HVAC/R 1	1			
601-185	Service and Troubleshooting HVAC/R 2	1			
601-186	Service and Troubleshooting HVAC/R 3	1			