



HVAC-R Curriculum

Week	Year 1 - Topic	Year 2 - Topic	Year 3 - Topic	Year 4 - Topic
1	Introduction to Trade	Introduction / Basic Math Review	Customer Relations	Course Overview and Trade Safety
2	Communications and Human Relations Skills	Introduction / Basic Math Review	Customer Relations	Blue Print Reading
3	Communications and Human Relations Skills	Trade Math	Preventive Maintenance for Gas Fired Equipment	Blue Print Reading
4	Safety Training w/OSHA Trainer	Trade Math	Preventive Maintenance for Oil Fired Equipment	Blue Print Reading
5	Safety Training w/OSHA Trainer	Review / Exam / Critique	Preventive Maintenance for Cooling Equipment	Psychometrics
6	Safety Training w/OSHA Trainer	Communications and Human Relation Skills	Preventive Maintenance for Electric Heating Equipment	Psychometrics
7	Basic Math w/Specialty Instructor	Communications and Human Relation Skills	Preventive Maintenance for Heat Pump Systems; and Review Unit 4	Psychometrics
8	Basic Math w/Specialty Instructor	Metering Device Selection, Operation and Maintenance	Examination and Critique; begin next unit	Heat Load / Gain Calculations, Air Flow Measurements
9	Basic Math w/Specialty Instructor	Metering Device Selection, Operation and Maintenance	Introduction to National Electrical Code	Heat Load / Gain Calculations, Air Flow Measurements
10	Trade Math w/Specialty Instructor	Metering Device Selection, Operation and Maintenance	Introduction to Boca Mechanical Code	Heat Load / Gain Calculations, Air Flow Measurements
11	Trade Math w/Specialty Instructor	Auxiliary Refrigerant Flow Controls	Introduction to Troubleshooting	Heat Load / Gain Calculations, Air Flow Measurements
12	Trade Math w/Specialty Instructor	Auxiliary Refrigerant Flow Controls	Introduction to Troubleshooting	Heat Load / Gain Calculations, Air Flow Measurements
13	Trade Math w/Specialty Instructor	Review / Exam / Critique	Introduction to Troubleshooting	Heat Load / Gain Calculations, Air Flow Measurements
14	Heat, Heat Transfer and Heat Measurement	Electric Motor Application and Selection	Troubleshoot Gas Furnaces	Heat Load / Gain Calculations, Air Flow Measurements
15	Heat, Heat Transfer and Heat Measurement	Electric Motor Application and Selection	Troubleshoot Gas Furnaces	Heat Calc Exam
16	Pressure and Pressure Measurement	Electric Motor Diagnosis and Service	Troubleshoot Gas Furnaces	Duct Sizing
17	Refrigerants, Refrigerant Oils and Mid-unit Quiz	Electric Motor Diagnosis and Service	Troubleshoot Gas Furnaces	Duct Sizing
18	Refrigerants, Refrigerant Oils and Mid-unit Quiz	Electric Motor Diagnosis and Service	Troubleshooting Electric Resistance Heat	Commercial Refrigeration Selection/Installation/Maintenance
19	Refrigerants, Refrigerant Oils and Mid-unit Quiz	Electric Motor Diagnosis and Service Review / Exam / Critique	Troubleshooting Electric Resistance Heat	Commercial Refrigeration Selection/Installation/Maintenance
20	Mechanical Refrigeration Cycle	Power and Control Circuit Components	Troubleshooting Electric Resistance Heat	Commercial Refrigeration Selection/Installation/Maintenance



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21	Mechanical Refrigeration Cycle	Power and Control Circuit Components	Troubleshooting Heat Pumps	Electrical Trouble Shooting Meters (Multimeter/Ampmeter) and Techniques Review
22	Mechanical Refrigeration Cycle	Power and Control Circuit Components	Troubleshooting Heat Pumps	Electrical Trouble Shooting Meters (Multimeter/Ampmeter) and Techniques Review
23	CFC Handling and Certification Prep	Wiring Diagrams and Schematics with Graded Quiz	Troubleshooting Heat Pumps	Electrical Trouble Shooting Meters (Multimeter/Ampmeter) and Techniques Review
24	CFC Handling and Certification Prep	Wiring Diagrams and Schematics with Graded Quiz	Troubleshooting Heat Pumps	Midterm Exam
25	CFC Handling and Certification Prep	Wiring Diagrams and Schematics with Graded Quiz	Troubleshooting Heat Pumps	Gas Pipe Sizing and Run Design, Gas Pipe
26	CFC Exam	Wiring Diagrams and Schematics with Graded Quiz	Mid Term Examination and Critique; begin next unit	Gas Pipe Sizing and Run Design, Gas Pipe
27	Accessories	Service, Adjustment and Diagnosis of Electric Control Circuit Components	Troubleshoot Oil Furnaces	Wiring Diagrams
28	Vapor System Service Procedures	Service, Adjustment and Diagnosis of Electric Control Circuit Components	Troubleshoot Oil Furnaces	Wiring Diagrams
29	Piping Procedures	Service, Adjustment and Diagnosis of Electric Control Circuit Components	Troubleshoot Oil Furnaces	Wiring Diagrams
30	Piping Procedures	Review / Exam / Critique	Troubleshooting Cooling Systems	Wiring Diagrams
31	Basic Components, Service, Diagnosis and Repair	Properties of Air	Troubleshooting Cooling Systems	Wiring Diagrams
32	Basic Components, Service, Diagnosis and Repair	Properties of Air	Troubleshooting Cooling Systems	Wiring Diagrams
33	Diagnosis and Repair	Basic Heating Systems and Mid-Unit Quiz	Troubleshooting Cooling Systems	Wiring Diagrams
34	Diagnosis and Repair	Basic Heating Systems and Mid-Unit Quiz	Troubleshooting Cooling Systems	Wiring Diagrams
35	Diagnosis and Repair	Basic Heating Systems and Mid-Unit Quiz	System Balancing (Air) and Review of Units 1 and 2	Wiring Diagrams
36	Review and Exam	Basic Heating Systems and Mid-Unit Quiz	Examination and Critique; begin next unit	Wiring Diagrams
37	Basic Electricity	Basic Cooling Systems / Heat Pumps	Introduction to Hydronics and Boilers	Wiring Diagrams
38	Basic Electricity	Basic Cooling Systems / Heat Pumps	Introduction to Hydronics and Boilers	Wiring Diagrams
39	Basic Electricity	Basic Cooling Systems / Heat Pumps	Introduction to Hydronics and Boilers	Wiring Diagrams
40	Basic Electricity	Basic Cooling Systems / Heat Pumps	Introduction to Hydronics and Boilers	NEC Text Use and Application
41	Basic Electricity	Review / Exam / Critique	Chilled Water Systems	NEC Text Use and Application
42	Electrical Components, Wiring, Diagrams and Test, Measurement	Heating System Installation / Startup	Chilled Water Systems	NEC Text Use and Application



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43	Electrical Components, Wiring, Diagrams and Test, Measurement	Heating System Installation / Startup	System Balancing (Water) and Review of Unit 3	BOCA Text Use and Application
44	Electrical Components, Wiring, Diagrams and Test, Measurement	Heating System Installation / Startup	System Balancing (Water) and Review of Unit 3	BOCA Text Use and Application
45	Diagnostic Equipment	Cooling System Installation / Startup	Examination and Critique; begin next unit	BOCA Text Use and Application
46	Diagnostic Equipment	Cooling System Installation / Startup	Commercial Refrigeration Equipment Selection/Application/Installation	CPR
47	Diagnostic Equipment	Cooling System Installation / Startup	Commercial Refrigeration Equipment Selection/Application/Installation	CPR
48	Unit Review / Exam / Critique	Review / Exam / Critique	Commercial Refrigeration Equipment Service and Maintenance	Review of all four years
49	Course Review	Review	Course Review	Review of all four years
50	Final Examination / Critique	Final Exam and Critique	Final Examination and Critique	Final Exam
	Total Hours - 150	Total Hours - 150	Total Hours - 150	Total Hours - 150



HVAC-R Work Processes

Performance Completions		Hours Required
A. Safety: Use and Care of Tools and Equipment		
<ul style="list-style-type: none">• Safety regulations, practices, and procedures• Identifying function, care, cleaning, use/operator maintenance, and storage of tools and equipment		1,000
B. Air Conditioning and Refrigeration Systems		
<ul style="list-style-type: none">• Installation, service, and maintenance of compressors, condensers, receivers, evaporators, heat-exchangers, refrigerant piping and insulation, circulator and cooling equipment and cooling towers• Inspection of the above		1,000
C. Air Ducting and Treatment		
<ul style="list-style-type: none">• Installation, service, and maintenance of ducting, filtration, and humidification elements to include sizing, balancing, and noise control, plus solid and liquid absorbents and their controls,• Inspection of the above mentioned		1,500
D. Refrigerant Controls and Specialties		
<ul style="list-style-type: none">• Installation, maintenance, and servicing of controls and specialties• Inspection of the above		1,000
E. Motors, Controls, and Wiring		
<ul style="list-style-type: none">• Installation, service maintenance of motors, thermostats, pressure devices, switches, starters, power control and wiring for heating, air conditioning and refrigeration units/elements• Inspection of the above		1,000
F. Heating Units		
<ul style="list-style-type: none">• Installation, servicing, and maintenance of various types of central and diversified heating units and associated components to include electric, gas, liquid fuel and heat pump systems, and ventilation systems		1,500
G. Blueprints, Specifications, and Job Orders		
<ul style="list-style-type: none">• Read and interpret blueprints and specifications to heating, cooling, and refrigeration systems and their integration with other systems• Preparation and effective use of order of materials, supplies, equipment, and tools required in the installation, servicing, and maintenance of all system types involved in the trade• Inspection of above		1,000
		8,000
Total number of hours required		

Make note of each different task you perform and record your work experiences in your log book. Enter the number of hours you spent performing a task in the column under the code



HVAC-R Work Processes

letter for that task. There is a separate line to be used for each day of the month. Total each column and write these onto a new page at the beginning of each month. Call your VADOLI representative, 703-392-0900 ext. 102 or 131, if you have any questions.