

# Heating, Ventilation, Air Conditioning/Refrigeration (HVAC/R) Emphasis

## Construction Technologies Degree

Associate of Applied Science

The AAS degree in heating, ventilation, air conditioning and refrigeration trains technicians to design and maintain complex heating, cooling and refrigeration systems in structures of all sizes and functions, from homes to casino resort hotels. The HVAC/R program combines classroom instruction with hands-on practice and provides industry upgrade training on an on-going basis.

### Degree Outcomes

Students completing the degree will:

- Fulfill the requirements of the Associate of Applied Science.
- Demonstrate competency in their specified emphasis.

### Emphasis Outcomes

Students completing the emphasis will:

- Demonstrate a comprehensive understanding of HVAC/R principles and applications and the skills to work safely and efficiently in the HVAC industry.
- Design residential and commercial HVAC/R systems.
- Gain knowledge and practical skills to troubleshoot and repair residential and commercial HVAC/R systems.

### General Education Requirements

Diversity	(3 credits)
English/Communications	6 credits
Human Relations	3 credits
Recommended: CE 201	
Quantitative Reasoning	3 credits
Recommended: MATH 108	
Science	3 credits
Social Science/Humanities	3 credits
U.S. and Nevada Constitutions	3 credits
<b>Total General Education Requirements</b>	<b>21 Credits</b>

### Core Requirements

AIT 110	General Industrial Safety	1
BI 101	Introduction to Building Codes	3
CONS 120	Print Reading and Specification	3

**Total Core Requirements 7 Credits**

### Emphasis Requirements

AC 102	Refrigeration Theory	3
AC 107	Electrical and Controls for HVAC	6
AC 121	Sheet Metal I	3
AC 150	Basic Refrigeration Servicing	6
ENRG 130	Introduction to Solar Energy	3

Choose one of the following:

AC 106 Residential Gas Heating ..... (6)

– or –

AC 200 Commercial Refrigeration I ..... (6)

**Total Emphasis Requirements 27 Credits**

### Elective Requirements

Choose six credits from the following:

AC 111	Heat Pumps	(3)
AC 122	Sheet Metal II	(3)
AC 210	Boiler Operation and Maintenance	(3)
AC 295	Internship HVAC Career	(3)
CONS 121	Principles of Construction Estimating	(3)
ENRG 142	Solar Thermal Technologies	(3)
Any other AC courses not listed		

**Total Elective Requirements 6 Credits**

**Total Degree Requirements 61 Credits**

### Suggested Course Sequence

First Year	Course #	Title	Credits
<b>1st Semester</b>			
Emphasis	AC 102	Refrigeration Theory	3
Emphasis	AC 107	Electrical & Controls for HVAC	6
Core	AIT 110	General Industrial Safety	1
Core	CONS 120	Print Reading & Specification	3
Quantitative Reasoning	MATH 108	Math for Technicians	3
<b>Total</b>			<b>16</b>
<b>2nd Semester</b>			
Emphasis	AC 121	Sheet Metal I	3
Core	BI 101	Introduction to Building Codes	3
Communications	ENG 107	Technical Communications I	3
Emphasis	ENRG 130	Introduction to Solar Energy	3
Science	PHYS 100	Introductory Physics	3
<b>Total</b>			<b>15</b>
Second Year	Course #	Title	Credits
<b>3rd Semester</b>			
Elective		Choose from list	3
U.S. and Nevada Constitutions	Elective		3
Emphasis	AC 150	Basic Refrigeration Servicing	6
English	ENG 101	Composition I	3
<b>Total</b>			<b>15</b>
<b>4th Semester</b>			
Elective		Choose from list	3
Social Science/ Diversity	AAD 201	History of the Built Environment	3
Emphasis	AC 106 or AC 200	Residential Gas Heating Commercial Refrigeration I	6
Human Relations	CE 201	Workplace Readiness	3
<b>Total</b>			<b>15</b>
<b>Degree Total</b>			<b>61</b>

Recommended program prerequisites:

ENG 090 or 097 or qualifying Accuplacer score

MATH 093 or qualifying Accuplacer score