

# Course Syllabus

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Introduction To HVAC 1 – HVA 100

3.0 Credits

Fall 2021 Semester Syllabus

## Course Information

**Instructor:** Jeff Dufriend

**Office:** \*Room 110 Building D

**Office Hours:** 12:00PM – 1:00PM Tuesday - Friday

**Office Telephone:** 928-649-5469

**E-mail:** jefferson.dufriend@yc.edu (*Please use your Yavapai student email for correspondence.*)

## Course Description

Class meets in building D room 111 HVAC Lab at Yavapai College, Verde Valley campus in Clarkdale, AZ.

### Meeting times:

Thursday 4:30PM – 7:00PM

Friday 1:00PM – 4:00PM

Saturday 8:00AM – 11:45AM

Credits Hours: 3 credit hours (2 lecture, 3 lab)

Basic principles of air conditioning, heating and refrigeration. Examination of the structures and function of cooling and air systems. Focus is on skill development in the areas of soldering, brazing and pipe design.

## Required Text

- You are not required to purchase a text book for this course but there may be required reading

from various sources that I will make available to you. It is recommended that you purchase a 3 ring binder to collect valuable handouts that can be used for future reference.

## Course Requirements

- During labs you will be required to wear the assigned PPE and follow all safety rules. There will be no exceptions! Hard toe shoes are not required but recommended. Closed toe shoes, however, are required to be worn in the classroom at all times. There will be no food in the classroom or labs unless it is part of a planned event and approved by instructor. Drinks are allowed only in spill proof containers. Cell phones not allowed out in class unless specifically asked to take them out for course relevant research. Please turn off ringers while in class.

## Course Content & Learning Outcomes

### Course content

- Heating systems
- Cooling systems
- Air distribution systems
- Copper and plastic pipe
- Soldering and brazing
- Carbon steel pipe
- Tool Use
- Blueprints, codes, and specifications

### Learning Outcomes

- Employ HVAC tools and equipment properly.
- Differentiate the various types of HVAC systems in use today.
- Explain the operation of the basic refrigeration cycle.
- Demonstrate the assembly of pipe using brazing and soldering techniques.
- Perform installation and repair of copper and plastic piping.
- Describe the function of individual HVAC components.
- Interpret types of regulations codes encountered in the HVAC trade.
- Identify the types of schedules/designs used in the HVAC trade.

## Course Calendar Fall 2021

- **Week 1:**

- Introduction and syllabus overview
- **Module 1 Introduction to HVAC**
  - Lecture
  - 3 Quizzes
  - Trade terms exam
  - Module 1 exam

- **Module 2 Trade Math**

- Lecture
- 3 Quizzes
- Trade terms exam
- Module 2 exam

- **Week 02:**

- **Module 3 Basic Electricity**
  - Lecture
  - 4 Quizzes
  - Labs
  - Trade terms exam
  - Module 3 exam

- **Week 03:**

- **Module 4 Introduction to Heating**
  - Lecture
  - 3 quizzes
  - Labs
  - Trade terms exam
  - Module 4 exam

- **Week 04:**

- **Module 5 Introduction to Cooling**
  - Lecture
  - 4 Quizzes
  - Labs
  - Trade term exams
  - Module 5 exam
  
- **Week 05:**
  - **Module 6 Introduction to Air Distribution**
    - Lecture
    - 3 Quizzes
    - Labs
    - Trade terms exam
    - Module 6 exam
  
- **Week 06:**
  - **Module 7 Basic Copper and Plastic Piping Practices**
    - Lecture
    - 3 Quizzes
    - Labs
    - Trade terms exam
    - Module 7 exam
  
- **Week 07:**
  - **Module 8 Soldering and Brazing**
    - Lecture
    - 2 Quizzes
    - Labs
    - Trade terms exam
    - Module 8 exam
  
- **Week 08:**
  - **Module 9 Basic Carbon Steel Piping Practices**
    - Lecture

- 3 Quizzes
- Labs
- Trade terms exam
- Module 9 exam

## Grading Policy

### Methods of Evaluation

<b>Points</b>	<b>Description</b>
140 points	28 Quizzes at 5 points each
350 points	Performance test 50 points each
180 points	Trade Terms Exams 10 points each
900 points	Module exams 100 points each
1570 points	Total Points Possible

### Makeup Exam Policy

Please see additional instructor information at the end of this syllabus.

### Grading Timeframes

I will return graded assignments within 14 days after the scheduled due date. If you have questions regarding an assignment, contact me prior to the due date so your question can be answered in a timely manner.

#### Letter Grade Assignment

Final grades assigned for this course will be based on the percentage of total points earned and are assigned as follows:

Letter Grade	Points	Performance
A 90% to 100%	1413-1570	Excellent
B 80% to 89%	1256-1412	Good
C 70% to 79%	1099-1255	Average
S	N/A	Satisfactory

*A course completed with a grade of A, B, C or S fulfills the prerequisite requirement for another course. A maximum of 12 credit hours of S grades may be applied to a degree or certificate program. Grades of S are not an option towards completion of an AGEC (Arizona General Education Curriculum) certificate.*

D 60% to 69%	942-1098	Unsatisfactory
F 59% and below	941 and below	Failing
U	N/A	Unsatisfactory

*A course completed with a grade of D, F or U does not fulfill the prerequisite requirement for another course and may not be applied to a degree or certificate requirement.*

## Institutional Policies and Instructor Procedures

**Student Email:** Yavapai College provides enrolled students with an official [username@scholar.yc.edu](mailto:username@scholar.yc.edu) are expected to check their Yavapai College email account as directed by their instructor

Students are expected to attend and participate in all class meetings, laboratories, and field trips. **Attendance:** instructor's and College's attendance and participation requirements should be dropped/record. The last date of attendance will need to be documented.

A student-initiated withdrawal deadline is established by the College. If a student has not withdrawn from the class after the deadline depending upon the instructor's withdrawal policy. If a student withdraws after the deadline, the student will be charged with a full semester's tuition and fees.

### Course

#### Withdrawal:

Faculty initiated withdrawals for non-attendance are in place for both the benefit of the college and the student. Faculty will withdraw them from their classes unless they have been in contact with faculty members.

**Academic Calendar:** <https://www.yc.edu/v6/registrar/calendar.html> [\\_ \(https://nam02.data=04%7C01%7CAngie.Poland%40yc.edu%7C8c5c6234c7684aba512b08d913df842e%7Cf%3D%7C1000&sdata=0f91b1gWMzFOo3yPPreuWUQ%2BkSLnclc%2BLArFHm5E%2Fds%3C](https://nam02.data=04%7C01%7CAngie.Poland%40yc.edu%7C8c5c6234c7684aba512b08d913df842e%7Cf%3D%7C1000&sdata=0f91b1gWMzFOo3yPPreuWUQ%2BkSLnclc%2BLArFHm5E%2Fds%3C)

### Academic Integrity:

Honesty in academic work is a central element of the learning environment. It is expected that all students will adhere to the highest standards of academic integrity. Plagiarism, or other dishonest means are violations of the College's Student Code of Conduct.

Definitions of plagiarism, cheating, and violation of copyright and penalties for violation are available in the Student Code of Conduct.

All students need to be aware of and comply with the safety and operational protocols for the college. [/v6/college-police/covid-19/reentry/](#).

### Student Code of Conduct:

Respect for the rights of others and for the College and its property are fundamental expectations. Any allegations of student misconduct.

Students are expected to respond and write in a respectful, professional, and appropriate manner. Inappropriate language or objectionable material will not be tolerated and could result in disciplinary action.

### Civil Dialogue Statement:

Regardless of venue or delivery method, faculty must ensure and maintain an environment appropriate for higher education. To promote a positive educational experience, appropriate and civil communication is an expectation of all students. All communication must remain respectful. Language or behavior that is threatening, harassing, or discriminatory will not be tolerated.

intimidating, harassing, defamatory, libelous, or obscene is unacceptable. Hate speech is prohibited. Failure to abide by these standards may result in disciplinary measures. Please see [policy 10.10](https://www.yc.edu/v6/policies/docs/1000d/1010-public-access-expression.pdf) [\\_ \(https://www.yc.edu/v6/policies/docs/1000d/1010-public-access-expression.pdf\)](https://www.yc.edu/v6/policies/docs/1000d/1010-public-access-expression.pdf) for further detail.

**Academic  
Complaint Form:**

A student may appeal an academic or instructional decision by faculty if s/he deems the decision to be made in error. The appeal must be made in a timely manner in accordance with established procedures. ([www.yc.edu/academiccomplaints](http://www.yc.edu/academiccomplaints) [\\_ \(http://www.yc.edu/academiccomplaints\)\\_](http://www.yc.edu/academiccomplaints))

**Acceptable Use:**

Yavapai College technological equipment and resources must be used in accordance with the [Technology Resource Standards \(5.27\)](https://www.yc.edu/v6/policies/docs/500b/527techstandards.pdf) [\\_ \(https://www.yc.edu/v6/policies/docs/500b/527techstandards.pdf\)](https://www.yc.edu/v6/policies/docs/500b/527techstandards.pdf), [Copyright Use \(2.28\)](https://www.yc.edu/v6/policies/docs/200hr/228-copyrightuse.pdf) [\\_ \(https://www.yc.edu/v6/policies/docs/200hr/228-copyrightuse.pdf\)](https://www.yc.edu/v6/policies/docs/200hr/228-copyrightuse.pdf) and [Peer-to-Peer \(P2P\) File Sharing \(5.26\)](https://www.yc.edu/v6/policies/docs/500b/526-p2p.pdf) [\\_ \(https://www.yc.edu/v6/policies/docs/500b/526-p2p.pdf\)](https://www.yc.edu/v6/policies/docs/500b/526-p2p.pdf) policies. Use of Yavapai College equipment and resources to illegally copy, download, access, print, or store copyrighted material or download pornographic material is strictly prohibited. For example, file swapping of copyrighted material, such as music or movies is strictly prohibited. Users found to violate this policy will have their privileges to use Yavapai College technological equipment and resources revoked. ([www.yc.edu/policies](http://www.yc.edu/policies) [\\_ \(http://www.yc.edu/policies\)\\_](http://www.yc.edu/policies))

**Mobile Devices:**

Yavapai College is committed to providing a quality learning environment. All cell phones and mobile devices must be placed in silent mode while in classrooms, computer labs, library, learning center, and testing areas. Cell phones must be used outside these facilities.

**Smoking and  
Tobacco Use:**

Yavapai College is committed to limiting exposure to the harmful effects of primary and secondary smoke to campus students, visitors, and employees. In order to reduce the harmful effects of tobacco use and to maintain a healthful working and learning environment, the College prohibits smoking, including vaping, on all campuses except in designated smoking areas as per the [Smoking](#)



[\\_& Tobacco Use Policy \(10.09\)\\_](https://www.yc.edu/v6/policies/docs/1000d/1009-smoking.pdf) [\\_\(https://www.yc.edu/v6/policies/docs/1000d/1009-smoking.pdf\)](https://www.yc.edu/v6/policies/docs/1000d/1009-smoking.pdf)

[\\_\(www.yc.edu/v6/policies/docs/1000d/1009-smoking.pdf](http://www.yc.edu/v6/policies/docs/1000d/1009-smoking.pdf)  
[\\_\(http://www.yc.edu/v6/policies/docs/1000d/1009-smoking.pdf\)\\_](http://www.yc.edu/v6/policies/docs/1000d/1009-smoking.pdf))

**Drug Free  
Environment:**

Yavapai College's policy is to provide an environment free of drugs and alcohol. The use of illegal drugs and abuse of alcohol pose significant threats to health and can be detrimental to the physical, psychological, and social well-being of the user and the entire Yavapai College community, and is prohibited. Campus Safety will be notified if a student exhibits an impaired state in the classroom environment.

**Title IX –**

**Sexual Misconduct:**

Yavapai College does not deny or limit any student or employee the ability to participate in or benefit from any program offered by the institution on the basis of sex or gender. Sexual harassment, which includes acts of sexual violence such as rape, sexual assault, sexual battery, sexual coercion, unwanted touching, dating/relationship violence and stalking, are forms of gender-based discrimination prohibited by Title IX.

The college encourages students and employees to report incidents of sexual misconduct as soon as possible to the Title IX Coordinator or to a Deputy Title IX Coordinator. Contact information for Coordinators can be found at [Sexual Misconduct Resources](https://www.yc.edu/v6/student-services/sexualmisconduct.html) [\\_\(https://www.yc.edu/v6/student-services/sexualmisconduct.html\)](https://www.yc.edu/v6/student-services/sexualmisconduct.html) .

**Disability  
Resources:**

Disability Resources ensures qualified students with disabilities equal access and reasonable accommodations in all Yavapai College academic programs and activities. YC supports disability and accessibility awareness and promotes a welcoming environment to all. The Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 prohibits discrimination on the basis of disability and requires Yavapai College to make reasonable accommodations for those otherwise qualified individuals with a disability who request accommodations.

[\\_\(www.yc.edu/disabilityresources](http://www.yc.edu/disabilityresources) [\\_\(http://www.yc.edu/disabilityresources\)](http://www.yc.edu/disabilityresources) )

Yavapai College is committed to providing educational support services to students with documented disabilities. Accommodations for a student must be arranged by the student through Disability Resources by phone 928.776.2085 or email





[disabilityresources@yc.edu](mailto:disabilityresources@yc.edu) (<mailto:disabilityresources@yc.edu>).







**Faculty Response Time:** I will do my best to respond to emails, voicemails within 48 hours during the week.











**Additional Instructor Information:** LATE WORK: Assigned work (worksheets, labs, and exams) will be accepted after the due date defined in the calendar only if prior notice is given of an absence to the instructor in advance of the class meeting (via e-mail or phone). In other words, if you miss class and don't let me know about it in advance you will not be allowed to make up any work that you missed.

Note: All assignments including labs and worksheets are due the next class meeting.

## Course Summary:

Date	Details	Due
Fri Aug 20, 2021	 <a href="https://canvas.yc.edu/courses/30706/assignments/540201">Mod 1 Quiz 1</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/540201">https://canvas.yc.edu/courses/30706/assignments/540201</a> )	due by 11:59pm
Wed Sep 1, 2021	 <a href="https://canvas.yc.edu/courses/30706/assignments/540841">Syllabus Agreement Fall 2021</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/540841">https://canvas.yc.edu/courses/30706/assignments/540841</a> )	due by 11:59pm
Thu Sep 2, 2021	 <a href="https://canvas.yc.edu/courses/30706/assignments/542062">Module 2 Exam</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/542062">https://canvas.yc.edu/courses/30706/assignments/542062</a> )	due by 11:59pm
Sat Sep 4, 2021	 <a href="https://canvas.yc.edu/courses/30706/assignments/542063">Mod 3 Lab</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/542063">https://canvas.yc.edu/courses/30706/assignments/542063</a> )	due by 11:59pm

Date	Details	Due
	 <a href="https://canvas.yc.edu/courses/30706/assignments/542064">Module 3 Quiz 1</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/542064">https://canvas.yc.edu/courses/30706/assignments/542064</a> )	due by 11:59pm
	 <a href="https://canvas.yc.edu/courses/30706/assignments/542065">Module 3 Quiz 2</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/542065">https://canvas.yc.edu/courses/30706/assignments/542065</a> )	due by 11:59pm
	 <a href="https://canvas.yc.edu/courses/30706/assignments/542066">Module 3 Quiz 3</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/542066">https://canvas.yc.edu/courses/30706/assignments/542066</a> )	due by 11:59pm
	 <a href="https://canvas.yc.edu/courses/30706/assignments/542067">Module 3 Quiz 4</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/542067">https://canvas.yc.edu/courses/30706/assignments/542067</a> )	due by 11:59pm
Fri Sep 10, 2021	 <a href="https://canvas.yc.edu/courses/30706/assignments/544006">Module 3 exam</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/544006">https://canvas.yc.edu/courses/30706/assignments/544006</a> )	due by 11:59pm
Sat Sep 11, 2021	 <a href="https://canvas.yc.edu/courses/30706/assignments/543294">Module 4 lab</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/543294">https://canvas.yc.edu/courses/30706/assignments/543294</a> )	due by 11:59pm
Fri Sep 17, 2021	 <a href="https://canvas.yc.edu/courses/30706/assignments/544756">Module 4 exam</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/544756">https://canvas.yc.edu/courses/30706/assignments/544756</a> )	due by 11:59pm
	 <a href="https://canvas.yc.edu/courses/30706/assignments/544758">Mod 4 Quiz 1</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/544758">https://canvas.yc.edu/courses/30706/assignments/544758</a> )	
	 <a href="https://canvas.yc.edu/courses/30706/assignments/544760">Mod 4 Quiz 2</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/544760">https://canvas.yc.edu/courses/30706/assignments/544760</a> )	
	 <a href="https://canvas.yc.edu/courses/30706/assignments/544761">Mod 4 Quiz 3</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/544761">https://canvas.yc.edu/courses/30706/assignments/544761</a> )	

Date	Details	Due
	 <a href="https://canvas.yc.edu/courses/30706/assignments/544763">Mod 4 Trade Terms Exams</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/544763">https://canvas.yc.edu/courses/30706/assignments/544763</a> )	
	 <a href="https://canvas.yc.edu/courses/30706/assignments/540889">Module 1 Exam</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/540889">https://canvas.yc.edu/courses/30706/assignments/540889</a> )	
	 <a href="https://canvas.yc.edu/courses/30706/assignments/540856">Module 1 Quiz 2</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/540856">https://canvas.yc.edu/courses/30706/assignments/540856</a> )	
	 <a href="https://canvas.yc.edu/courses/30706/assignments/540857">Module 1 Quiz 3</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/540857">https://canvas.yc.edu/courses/30706/assignments/540857</a> )	
	 <a href="https://canvas.yc.edu/courses/30706/assignments/540862">Module 1 Trade Terms</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/540862">https://canvas.yc.edu/courses/30706/assignments/540862</a> )	
	 <a href="https://canvas.yc.edu/courses/30706/assignments/540858">Module 2 Quiz 1</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/540858">https://canvas.yc.edu/courses/30706/assignments/540858</a> )	
	 <a href="https://canvas.yc.edu/courses/30706/assignments/540860">Module 2 Quiz 2</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/540860">https://canvas.yc.edu/courses/30706/assignments/540860</a> )	
	 <a href="https://canvas.yc.edu/courses/30706/assignments/540859">Module 2 Quiz 3</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/540859">https://canvas.yc.edu/courses/30706/assignments/540859</a> )	
	 <a href="https://canvas.yc.edu/courses/30706/assignments/540863">Module 2 Trade Terms</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/540863">https://canvas.yc.edu/courses/30706/assignments/540863</a> )	
	 <a href="https://canvas.yc.edu/courses/30706/assignments/538364">Roll Call Attendance</a> ( <a href="https://canvas.yc.edu/courses/30706/assignments/538364">https://canvas.yc.edu/courses/30706/assignments/538364</a> )	