



## **Aut: 170 501 Heating and Air Conditioning**

Summer 2025 Tuesdays and Wednesdays 9:00 A:M to 11:30 A:M

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VHS 720/Office Hours: T/W 9:00 A:M-11:30:00 A:M

Today's automotive repair technician has a monumental challenge before him or her to keep abreast of the, constantly changing technical advances in the automotive industry. The technician has to comprehend information on the new Hi-Tech electrical systems, the ever- changing mechanical technology and improved materials, which make up a modern day vehicle. The automotive technician has to determine what component part or parts are performing incorrectly by using meters, gauges, and computer test equipment.

The technician will need to be able to repair the customer's vehicle as quickly as possible. Increased vehicle sales caused by the increasing population means increased use of automobiles. Automotive repair technicians are very desirable employees in the current and future workplace. They command high salaries for their expertise of diagnosis and repair of the automobile

### **Course Description**

The Auto Service Technician program for the University of New Mexico Valencia Campus. Prepares individuals to apply technical knowledge and skills to repair, service, and maintain all types of automobiles. Instruction includes basic theory and familiarization of automobile components.

In this course Heating and Air Conditioning Fundamentals explains the operation, service, and repair of heating and air conditioning systems. It will detail methods for repairing these systems without damaging the environment and will give detailed information on Safety.

### **Course Goals:**

1.Students will demonstrate the ability to diagnose and repair heating and air conditioning concerns within the following categories according to NATEF.

- A. A/C system diagnosis and repair
- B. Refrigeration system component diagnosis and repair
- C. Heating, ventilation, and engine cooling systems diagnosis and repair
- D. Operating systems and related controls diagnosis and repair
- E. Refrigerant recovery, recycling, and handling
- H. Lubrication and cooling systems diagnosis and repair

## **Student Learning Outcomes/Course Objectives**

*Explain the principles of refrigeration.*

*Describe the four cycles of refrigeration.*

Describe the high and low sides of an air conditioning system.

Explain the basic function and construction of each major part of a typical heating and air conditioning system.

Summarize the operation and interaction of heating, ventilation, and air conditioning system.

Describe SAFETY precautions to be observed when working on heating and air conditioning.

## **Prerequisites and Co-requisites**

*Basic Knowledge of Hand tools and equipment and Auto shop SAFETY SAFETY is my #1 priority and must follow rules that are posted*

Students will practice the skills, knowledge and abilities necessary to perform, with supervision, Basic heating and air conditioning repairs on import and domestic cars and light trucks. This course prepares students to service these systems with limited supervision, which is the skill level necessary for employment at an apprentice level.

Professionalism is the core of this program! Individuals are expected to model a list of professional standards created by industry partners. Students are also expected to be responsible for their education and actions while enrolled in this program.

## **TECHNICAL SKILLS AND METHODS**

In order to participate and succeed in this class, you will need to be able to perform the following basic technical tasks:

- Lectures with, or without, various visual aids.
- Individual or group problem solving, discussions, debates, and/or critique.
- Demonstration
- Hands-on shop assignments.
- Use UNM Learn (help documentation located in "How to Use Learn" link on left course menu, and also at [Online Student Documentation](#) ). Also, UNM-Valencia provides a Blackboard Learn Jumpstart self-learning module to give you practice with the most commonly used tools in UNM Learn. Ask your instructor if you do not see the UNM-Valencia Blackboard Learn Jumstart in your list of classes in UNM Learn.
- Use email – including attaching files, opening files, downloading attachments
- Copy and paste within applications including Microsoft Office
- Open a hyperlink (click on a hyperlink to access a website or online resource)
- Use Microsoft Office applications

- Create, download, update, save and upload MS Word documents
- Create, download, update, save and upload MS PowerPoint presentations
- Create, download, update, save and upload MS Excel spreadsheets
- Download, annotate, save and upload PDF files
- Access MS Teams
- Use the in-course web conferencing tool (Collaborate Web Conferencing software in UNM Learn) or use Zoom or other web conferencing tool
- Download and install an application or plug in – required for participating in web conferencing sessions

## TECHNICAL REQUIREMENTS

### Computer

- A high-speed Internet connection is highly recommended.
- Supported browsers include: [Detailed Supported Browsers and Operating Systems](#)
- Any computer capable of running a recently updated web browser should be sufficient to access your online course. However, bear in mind that processor speed, amount of RAM and Internet connection speed can *greatly* affect performance.
- For the best experience when using the Kaltura Media Tools inside UNM Learn, be sure to use a [supported browser](#) on a desktop.
- Microsoft Office products are available free for all UNM students (more information on the [UNM IT Software Distribution and Downloads page](#))
- Please update your contact information in LoboWeb: [MyUNM Login](#). When you log into MyUNM, Enter LoboWeb. Click on the Personal Information link to make sure your contact information is up to date.

### Web Conferencing

*Web conferencing will be used in this course during the following times and dates:*

*For the online sessions, you will need:*

- *A USB headset with microphone. Headsets are widely available at stores that sell electronics, at the UNM Bookstore or online.*
- *A high-speed internet connection is highly recommended for these sessions. A wireless Internet connection may be used if successfully tested for audio quality prior to web conferencing.*
- *You should also dress as you would when attending an in-person class, even if you do not turn on your video camera.*

### Technical Support

- For UNM Learn Technical Support: (505) 277-0857 (24/7) or use the “Create a Tech Support Ticket” link in your course.
- For UNM-Valencia IT Support: (505)925-8911
- For UNM Web Conference Technical Help: (505) 277-0857

## TEXTBOOK AND SUPPLEMENTAL MATERIALS

### Textbooks:

*Modern Automotive Technology textbook and work book.*

## COURSEWORK AND PARTICIPATION

### Instructor Response Time

*Example: I routinely check the course for postings or emails, Monday (8 am) – Friday (12 pm) and sometimes on the weekend. You can anticipate a 24 to 48 hour response from me, Monday – Thursday. I will try and respond to all weekend (Friday afternoon to Sunday) emails and postings by noon on Monday or earlier.*

### Procedures for Completing Coursework

*Include:*

- *policy for missed or late work*
- *if tests/exams will require a pre-arranged and approved proctor*
- *recommended:*
  - *Please notify Instructor by email or text if you have difficulties turning in assignments on time*
  - *“All written work needs to be submitted in person or online. If you have a difficulty using a tool to complete work, use the “Create a Tech Support Ticket” link in the Course Menu immediately and notify your instructor as well.*

### Course Schedule

*List all relevant due dates – academic holidays, Spring/Fall break, readings, assignments, projects, exams etc. You can do this here, at the end of the syllabus, or in a separate course schedule document.*

### Expectations for Participation

*Example Expectations:*

- *time required (4 hrs per week)*
- *students are expected to learn how to navigate in Learn*
- *students are expected to communicate with one another in team projects*
- *students are expected to keep abreast of course announcements*
- *students are expected to use the Learn course email as opposed to a personal email address*
- *students are expected to keep instructor informed of class related problems, or problems that may prevent the student from full participation*
- *students are expected to address technical problems immediately*
- *students are expected to observe course netiquette at all times*

## Netiquette

*[Please follow these rules ]*

- [Netiquette document](#)

## NOTES TO STUDENTS ABOUT PARTICIPATION IN A COURSE USING UNM LEARN:

### Tracking Course Activity

UNM Learn automatically records all students' activities including: your first and last access to the course, the pages you have accessed, the number of discussion messages you have read and sent, web conferencing, discussion text, and posted discussion topics. This data can be accessed by the instructor to evaluate class participation and to identify students having difficulty

### Submitting Assignments

When you submit an assignment via UNM Learn, you will receive an email receipt of your submission from *do-not-reply@learn.unm.edu*. Save this email as confirmation of your submission.

## GRADING PROCEDURES

*Include a detailed statement of*

- *how grades are related to or reflective of the expected learning objectives*
- ***your expected grading response time***
- *how weighted grades will be calculated (if using)*

### Grading Scale

Student's will be graded on assignments, participation, attendance, quizzes and tests. Final grades will be based on the sum of all possible course points as noted above. Percentage of available points

Grade	
90 -100	A
80 -89	B
70 -79	C
60 -69	D
< 60	F

## UNM POLICIES

### Equal Opportunity and Non-Discrimination

In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered “responsible employees” by the [Department of Education](#) (see pg. 15). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the [Office of Equal Opportunity](#).

[Read more about campus policy regarding sexual misconduct.](#)

### Copyright Issues

All materials in this course fall under copyright laws and should not be downloaded, distributed, or used by students for any purpose outside this course.

[The UNM Copyright Guide](#) has additional helpful information on this topic.

### Accessibility and Accommodations

The American with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodations of their disabilities. If you have a disability requiring accommodation, please contact:

- [UNM-Valencia Student Services](#) if you are a Valencia campus student. The phone number is 505-925-8560
- [UNM Accessibility Resource Center](#) in 2021 Mesa Vista Hall if you are a main campus student. The phone number is 505-277-3506.

Information about your disability is confidential and your instructor cannot refer you for accommodations. Be aware that you will need to provide documentation. If you need assistance in obtaining documentation, the offices above can assist you.

### Accessibility Statements

[Blackboard's Accessibility statement](#)

[Microsoft's Accessibility statement](#)

*Include links to accessibility statements for all other technologies included in the course.*

### Academic Integrity

You should be familiar with UNM's [Policy on Academic Dishonesty](#) and the [Student Code of Conduct](#) which outline academic misconduct defined as plagiarism, cheating, fabrication, or facilitating any such act.

**Drop Policy:**

Dropping or being dropped from a course can affect your GPA, enrollment status, and financial aid status/award. Always talk to your instructor before it's too late about the possible consequences of a drop and opportunities for avoiding it.

*UNM Policies: This course falls under all UNM policies for last day to drop courses, etc. Please see or the UNM Course Catalog for information on UNM services and policies. Please see the UNM academic calendar for course dates, the last day to drop courses without penalty, and for financial disenrollment dates.*

**UNM RESOURCES**

- [UNM Valencia Campus Tutoring Services](#)
- [UNM Main Campus CAPS Tutoring Services](#)
- [UNM-Valencia Library](#)
- [UNM Libraries](#)
- ["Life" Resources available to UNM-Valencia Students](#)
- [Student Health & Counseling \(SHAC\) Online Services](#)

**FOR MILITARY-CONNECTED STUDENTS**

There are resources on campus designed to help you succeed. You can approach any faculty or staff for help with any issues you may encounter. Many faculty and staff have completed the GREEN ZONE training to learn about the unique challenges facing military-connected students. If you feel that you need help beyond what faculty and/or staff can give you, please reach out to the Veterans Resource Center on main campus at 505-277-3181, or by email at [vinc@unm.edu](mailto:vinc@unm.edu). The Veterans Coordinator at UNM-Valencia is in the Student Services Office, at 505-925-8560.

**SEMESTER DEADLINES**

**Fall 2020 – 16-week classes (deadlines will be different for first and second 8-week classes)**

- Monday, August 22: First day of class.
- Friday, September 1, by 5:00 PM: Last day to add a class or to change credit hours or grade mode in LoboWEB.
- Friday, September 9: Last day to drop without "W" grade and with 100% refund on LoboWEB
- Monday, September 5 : LABOR DAY HOLIDAY

- Wednesday, October 7: FALL BREAK
- Tuesday, November 3: Election Day, no classes
- Friday, November 6: Last day to drop *without* Dean's permission on LoboWEB. Will receive "W" grade and will be responsible for tuition for the course.
- November 26-29: THANKSGIVING BREAK
- November 30 – December 4: All classes will convert to remote instruction if not already remote
- Friday, December 4: Last day to add sections and/or change credit hours with form, last day to drop *with* Dean's permission. Will receive "W" grade and will be responsible for tuition for the course.
- December 7-12: Finals week. All final exams given remotely.