

SYLLABUS

Code: AUTO 243

Title: Automotive Heating and Air Conditioning

Institute: STEM

Department: Automotive

Course Description: This course is designed to cover the automotive heating, cooling and refrigeration systems. Emphasis will be placed on refrigeration system operation, service and diagnosis, as well as diagnosis and repair of cooling systems and other power accessories commonly found on modern automobiles.

Prerequisites: Prerequisite: A grade of "C" or higher in AUTO 123 and AUTO 141

Corequisites: Toyota T-TEN students may take AUTO-123 concurrent with AUTO-243

Prerequisites or Corequisites:

Credits: 4

Lecture Hours: 3

Lab/Studio Hours: 1

REQUIRED TEXTBOOK/MATERIALS:

Safety glasses, basic hand tools, textbook (see college bookstore website) <https://www.brookdalecc.edu/college-store/>

ADDITIONAL TIME REQUIREMENTS:

Lab time varies based on experience and ability. The automotive facility has a flexible lab policy. Lab assignments may be scheduled between 9-5, and 6-9:30, Monday through Thursday, and 9-3 on Fridays. Generally, students will spend an average of 3 hours a week completing required assignments.

COURSE LEARNING OUTCOMES:

Upon completion of this course, students will be able to:

- Describe the theory, operation and servicing of heating, ventilation, and air conditioning systems of the modern automobile.
- Diagnose automotive air conditioning and cooling system problems and perform specific standard industry service procedures.
- Demonstrate the ability to safely evacuate, test, and charge modern automotive Air Conditioning systems.
- Demonstrate an understanding of environmental issues associated with modern automotive A/C systems.
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GRADING STANDARD:

I. GRADING

The final grade for the course you are taking will be determined by several factors. It will combine performance in both classroom and laboratory activities as stated below:

CLASSROOM GRADING

For all grades, **attendance** and **tardiness** will be monitored and will be a determining factor in your final grade. After 3 unexcused class sessions, students will be advised to drop the class.

All classroom assignments must be completed satisfactorily.

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Students must maintain the following averages on tests and quizzes to receive grades indicated.

A	95 -100
A-	92 - 94
B+	88 - 91
B	84 - 87
B-	80 - 83
C+	75 - 79
C	70 - 74
D	60 - 69
F	Below 60
INC	This grade is given at the discretion of the instructor. Minimally, the student must have completed 70% of both the classroom and laboratory assignments at a satisfactory level.

It is the student's responsibility to approach the instructor to request an INC grade prior to the end of the term. Incomplete assignments must be completed within 21 working days after the end of the term in which they received INC grade.

LABORATORY GRADING

ALL LAB ASSIGNMENTS MUST BE COMPLETED. A GRADE OF "C" OR BETTER IS REQUIRED ON ALL LAB ASSIGNMENTS TO PASS THIS COURSE.

The following describes the basic levels of performance a student must demonstrate to receive one of the grades listed below on LABS ONLY.

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|---|---|
| A | Students need to meet the requirements listed below for "C" and "B" level work, and in addition, the student must demonstrate superior skill level and professional work habits, while working on a "live" vehicle (where appropriate). |
| B | Students must meet the requirements for "C" level work as listed below, and in addition, the student must be able to demonstrate an in depth understanding of the system being serviced. |
| C | The student must complete all tasks at a mastery level . Mastery is defined as: the ability to perform a task at a level that restores, services, or repairs components or systems to an adequate and safe level of performance in accordance with standard industry practice. |
| D | Inability to complete Lab assignments to acceptable industry standards as described in C grade above. Students will need to perform lab again. |
| F | Unsatisfactory preparation and performance of Lab assignment. Students will be referred to instructor. |

II. STUDENT RESPONSIBILITIES

1. Students must be prepared to perform each lab correctly and **safely**. Research your assignment in the appropriate service information resource prior to beginning lab work. (electronic service information, service manual, technical service bulletins, text book, etc.).
2. Familiarize yourself with the tools, equipment and procedures that will be required to complete your assignment.
3. Schedule adequate time to complete your lab work. Be prompt -- bays will be held for only 15 minutes.

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4. Students are required to provide the basic hand tools that are needed to complete each lab assignment.
5. Students must report to tool room and fill out a grade sheet before beginning lab assignment.
6. Have your work checked and lab sheet initialed by a learning assistant at each designated point in the lab.
7. Upon completion of your lab work:
 - o CLEAN and return all equipment to the tool room.
 - o Sweep and mop entire bay area.
 - o Clean work benches, tool carts and any other work areas used.
 - o Have lab assistant grade your work.

COURSE CONTENT:

<u>UNIT #</u>	<u>UNIT TITLE</u>
1.	Automotive Cooling and Heating Systems, Theory and Operation
2.	Automotive Air Conditioning Systems, Theory and Operation
3.	Automotive Air Conditioning System Service
4.	Air Conditioning System Component Diagnosis and Repair
5.	Air Conditioning and Air Delivery Systems

DEPARTMENT POLICIES:

For Department Policies, please refer to our website at:

<https://www.brookdalecc.edu/stem-institute/automotive-technology/>

College Policies:

As an academic institution, Brookdale facilitates the free exchange of ideas, upholds the virtues of civil discourse, and honors diverse perspectives informed by credible sources. Our College values all students and strives for inclusion and safety regardless of a student's disability, age, sex, gender identity, sexual orientation, race, ethnicity, country of origin, immigration status, religious affiliation, political orientation, socioeconomic standing, and veteran status. For additional information, support services, and engagement opportunities, please visit www.brookdalecc.edu/support.

For information regarding:

- Academic Integrity Code
- Student Conduct Code
- Student Grade Appeal Process

Please refer to the [Student Handbook](#) and [Catalog](#).

Notification for Students with Disabilities:

Brookdale Community College offers reasonable accommodations and/or services to persons with disabilities. Students with disabilities who wish to self-identify must contact the Accessibility Services Office at 732-224-2730 (voice) or 732-842-4211 (TTY) to provide appropriate documentation of the disability and request specific accommodations or services. If a student qualifies, reasonable accommodations and/or services, which are appropriate for the college level and are recommended in the documentation, can be approved.

Mental Health:

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24/7/365 Resources:

- Monmouth Medical Center Psychiatric Emergency Services at **(732) 923-6999**
- 2nd Floor Youth Helpline – Available to talk with you about any problem, distress, or hardship you are experiencing. Call or text at **888-222-2228** or visit the website at <https://www.2ndfloor.org/>

Faculty Counselors:

- Students who need to make an appointment with a faculty counselor can do so by calling 732-224-1822 (non-emergency line) during business hours. Faculty counselors are licensed mental health professionals who can assist students and refer them to other mental health resources.

Diversity Statement:

Brookdale Community College fosters an environment of inclusion and belonging. We promote a safe and open culture, encourage dialogue respecting diverse perspectives informed by credible sources, and uphold the virtues of civil discourse. We celebrate all identities with the understanding that ultimately, diversity, equity, and inclusion cultivate belonging and make us a stronger Brookdale community.

**The syllabus is intended to give student guidance in what may be covered during the semester and will be followed as closely as possible. However, the faculty member reserves the right to modify, supplement, and make changes as the need arise.*