

## COURSE SYLLABUS

**Course Title:** AUMT 1001-345 Introduction and Theory of Automotive Technology (2:2:0)

**Semester/Year:** Fall 2023

**Instructor:** Mr. Andrew Homan

**Office/Location:** Brownfield Automotive Building, Brownfield, TX. 79412

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**Office Hours:** Check posted hours after classes begin or by appointment

## SOUTH PLAINS COLLEGE IMPROVES EACH STUDENTS LIFE

**For Intellectual Exchange, Disabilities, Non-Discrimination, Title IX Pregnancy Accommodations, CARE (Campus Assessment, Response, and Evaluation) Team, and Campus Concealed Carry, click here:**

### [Syllabus Statements \(southplainscollege.edu\)](https://southplainscollege.edu)

#### I. GENERAL COURSE INFORMATION

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**A. Course Description: (2:2:0)** automotive history, safety practices, shop equ service publications, fasteners, professional responsibilities, and automobile maint

**B. Course Goals/Objectives:** The student will explain the history of the automobile and career possibilities of the automobile industry; explain safe professional and responsible work practices; identify and explain proper use of shop tools and equipment; explain functions of vehicle subsystems and explain the use of service publications; identify the various automobile fasteners used in industry; and explain automotive maintenance.

**B. Course Competencies:** A = 100-90 B = 89-80 C = 79-70 F = 69 or below. This course is a prerequisite to AUMT 2166, and AUMT 2366 Practicum courses. A "B" or higher is required in order to be eligible to enroll in any Practicum course.

- B. **Academic Integrity:** It is the aim of the faculty of South Plains College to foster a spirit of complete honesty and a high standard of integrity. The attempt of any student to present as his own, any work which he has not honestly performed, is regarded by the faculty and administration as a most serious offense and renders the offender liable to serious consequences, possibly suspension. For further information concerning Cheating and Plagiarism, read the section on Academic Integrity in the SPC

General Catalog. **If you have a question as to whether you may work with other students on any assignment, ask your instructor. On some assignments, working with others is encouraged.**

F. **Verification of Workplace Competencies-Technical Education Division.** The learning outcomes of this course will prepare the student to meet the competencies measured in a comprehensive elective course experience (Course #s AUMT 1366 , or AUMT 2366). In addition the student will also be prepared to take the ASE Student Certification Tests.

## II. SPECIFIC COURSE/INSTRUCTOR REQUIREMENTS

### A. Textbook and Other Required Materials

- Halderman James D. Automotive Technology, Principles, Diagnosis, and Service. 6<sup>th</sup> Edition, Pearson Publishers, Copyright 2020 ( with on-line curriculum)
- Separate notebook for classroom note taking and exercises and pencil  
(ALL EXERCISES DONE IN PENCIL ONLY)
- 1 Jump Drive (Thumb Drive)

**B. Attendance is 20 % of your grade.**

When an unavoidable reason for class absence arises, such as illness, an official trip authorized by the college or an official activity, the instructor may permit the student to make up work missed. It is the student's responsibility to complete work missed within a reasonable period of time as determined by the instructor. Students are officially enrolled in all courses for which they pay tuition and fees at the time of registration. Should a student, for any reason, delay in reporting to a class after official enrollment, absences will be attributed to the student from the first class meeting.

Students who enroll in a course but have "Never Attended" by the official census date, as reported by the faculty member, will be administratively dropped by the Office of Admissions and Records. A student who does not meet the attendance requirements of a class as stated in the course syllabus and does not officially withdraw from that course by the official census date of the semester, may be administratively withdrawn from that course and receive a grade of "X" or "F" as determined by the instructor. It is the student's responsibility to verify administrative drops for excessive absences through MySPC using his or her student online account. If it is determined that a student is awarded financial aid for a class or classes in which the student never attended or participated, the financial aid award will be adjusted in accordance with the classes in which the student did attend/participate and the student will owe any balance resulting from the adjustment.

**C. Assignment Policy:** All assignments are due at the beginning of class on the due date unless otherwise stated by the instructor. **No late assignments may be accepted.** Assignments will include resume writing (possibly outside of class). Practical exercises pertaining to service manuals, VIN's, labor/time guides, repair orders, and parts manuals (In class). **Part of these assignments can be on-**

line through the on-line curriculum, you should log on to the on-line curriculum at the beginning of the semester in order to complete them on time.

The dates printed in this syllabus can change. Every effort will be made to inform students of any changes, but the students are ultimately responsible for all assignments. Please check the dates with your instructor throughout the course.

**D. Grading Policy/Procedure and/or Methods of Evaluation:** All exams, including the final exam, are mandatory for effective student evaluation. Exams will cover theory and practical skills pertaining to all aspects of material presented. Adequate study time should be set aside for exam reviews. **There may be no make-up exams. If a student's financial records are not clear at the time of the final exam, the student will not be allowed to take the final exam.** Your grade will be determined on the basis of the following factors:

Skills Tests 40% Quizzes 20% Attendance 20%

Written assignments,

Final Exam = 20%

**E. Additional Information: A student's conduct is expected to follow the guidelines stated in the college catalogue and student handbook, any deviation will result in immediate disciplinary action.** Please turn off all cell phones, pagers, etc. during class. A detailed list of lab/shop guidelines will be distributed to you at the beginning of this class, you are expected to follow all guidelines when in the shop. **No smoking, chewing, or dipping is permitted in the building or outside the back doors of the shop and food and drinks are not allowed in any classroom, lab, or shop.** All these activities will be limited to break time in designated areas only. Breaks will be limited to 20 minutes.

Do not park on the back lot unless preauthorized by your instructor, unauthorized vehicles can be towed at the owner's expense.

**Dress Code:** The Automotive Program requires you to dress appropriately. Flip flops or opened toed shoes are not allowed in the shop, proper foot attire should be worn to protect your feet, leather work boots are recommended. Jeans/ pants will be worn so that neither one falls to your thighs or knees, belts must hold them at your waist line. Safety glasses will be worn at all times in the shop. If a student fails to comply with the above dress code, he or she, will be sent home and given an absence for that day.

## LUBBOCK CAMPUS GUIDELINES

### CHILDREN ON CAMPUS

Many of the students attending classes at South Plains College - Lubbock Camps are also parents who value the opportunity to participate in higher education. Sometimes students are faced with the decision

of whether to remain at home with their children, bring children with them to class, or be absent from class. The following guidelines address concerns for the safety of children on campus and provide for an environment conducive to learning.

### **CHILDREN IN THE CLASSROOM**

**Students are not allowed to bring children to class** and will be asked to leave in the interest of providing an environment conducive for **all** students enrolled in the class. Students are responsible for adherence to the attendance requirements set forth by the instructor in the course syllabus.

### **UNATTENDED CHILDREN ON CAMPUS**

**Children may not be left unattended.** In order to provide for the safety of children on campus, parents or other guardians are responsible for supervising children while utilizing services or conducting business on campus.

### **DISRUPTIVE CHILDREN**

**Disruptive children will not be allowed to interfere with college business.** Parents or other guardians are responsible for supervising and controlling the behavior of children they have brought on campus.

### **GENERAL SAFETY ON CAMPUS**

South Plains College recognizes the importance of safety on campus. The protection of persons and property is a responsibility which we all share. Personal safety begins with the individual. The following guidelines are intended to assist you in protecting yourself and to encourage practices that contribute to a safe environment for our campus community.

- Never leave your personal property unsecured or unattended.
- Look around and be aware of your surroundings when you enter and exit a building.
- Whenever possible, avoid walking alone, particularly after dark. Walk to your vehicle with other class members or request that the Security Guard walk you to your car.
- When approaching your vehicle, keep your keys in your hand; look under your car and in the back seat and floorboard. Lock the doors as soon as you are inside your car.

### **FOOD AND DRINK IN CLASSROOMS**

It is the policy of South Plains College not to permit food or drink in the classrooms or laboratories.

**In case of emergency, contact the following numbers, but DO NOT leave a voice mail message. 716-4677, – ATC 716-2923, – Reese Center (mobile 806-893-5705)**

### Course Objectives

|                      |   |   |                         |
|----------------------|---|---|-------------------------|
| F5,8,12,13,16        | · | practice shop safety throughout the automotive industry.                    | C3,6,18,19              |
| F5,6,8,9,11,12,16,17 | · | discuss and practice all requirements of a professional technician.         | C1,3,57,11,14,16-20     |
| 16,17                | · | select and use automotive tools efficiently.                                | C1,3,5,6,1820           |
| F1,8,10,12           | · | identify and use a vehicle's identification number effectively.             | C3,5,6,15,18,           |
| F1,2,8,10            | · | fill out and use a repair order efficiently.                                | 19                      |
| F1-3,5,8,9,17        | · | use service manuals effectively.  | C1,2,5-7,11,12,13,15,16 |
|                      | · | use labor/time guides effectively.  | C1,5-7,15-20            |
| F1,7,8,10-12         | · | use parts manuals effectively.  | C1,5-7,15-20            |
| F1,7,8,10-12         | · | use the MITCHELL proDemand system effectively.                              | C1,5-7,15-20            |
| F1,7,8,10-12         | · | thoroughly understand different lubricants used in the automotive industry. | C1,5-7,15-20 C1,5-      |
| F1,7,8,10-12         |   | <b>Course Content</b>   | 7,15-20                 |
| F1,7,8,10-12         |   |   |                         |

### Unit 1: Shop Safety / Automotive Tools/Technician Professionalism

#### Unit Objectives:

Upon completion of this unit, the student will be able to:

|               |   |   |                    |
|---------------|---|---|--------------------|
|               | · | raise and lower a vehicle safely, using the shop's hoists.  |                    |
|               | · | practice the safe use of other shop equipment such as safety glasses, compressed air, floor jacks, jack stands, electric drills, drop lights, creepers, fender covers and fire extinguishers. |                    |
| F5,8-10,12,13 | · | practice the techniques of lifting heavy objects.   |                    |
|               | · | have an awareness of MSDS and other OSHA regulations.   | *C3,5,6,15,18 - 20 |
| F5,8-13       |   | Use feeler gauges, micrometers, and dial indicators correctly   | *                  |
|               | · | have the opportunity to explore tool needs, selection, and pricing/purchasing with representatives from the industry.   |                    |
| F5,8-13       | · | select and use torque wrenches correctly.   |                    |

|                           |   |  |
|---------------------------|---|--|
| F1,10,12,13,17            | · select and use impact wrenches, air ratchets, and air hammers correctly.            | *  |
|                           | · use tape measures, rulers, and calipers   | C5,7,15,18,19                                    |
| F5,8,10,11                | · correctly. · have a basic understanding of bolt sizes and strength markings.        | C1-3,5,11,15,18, 19                              |
|                           | · distinguish between metric and standard size bolts.                                 | C2,3,5,11,13<br>15                               |
| F5,8,10,11,12             | · use a tap and die set correctly.  | *C1-   |
| F5,8,10,11,12             | · use extractors and removers correctly.  | 3,5,11,15,                                       |
|                           | · identify and discuss the importance of cleanliness, both personal and occupational. | 18,19<br>*                                       |
| F5,8,10,11,12             | · practice responsible co-worker relations.   | *  |
|                           | · practice effective customer relations.  |  |
| F5,8,10,11,12             |   | *  |
| F5,8,10,11,12             | · understand and practice the concept of doing the job right the first time.          | *  |
| F5,8,10,11,12             | · Write a current professional resume`.   | *  |
| F1,5,6,13-15              |   | *  |
| F5,6,13-17                |   | *  |
| F2,5,6,8,9,13, 15,17      |   | C3,6,11,14<br>C9,10,12-14                        |
| F5,6,8,9,12,13, 16,17     |   | C1,5-7,11,13,<br>14                              |
| F1,2,5,6,8,9,10, 12,13,17 |   | C1,3,5,7,11,13,<br>15-20<br>C1,3,5,7,11,13,14,15 |

**Unit 2:** Vehicle Identification Numbers, Service Manuals, Vehicle Lubricants, Maintenance Schedules, Repair Orders and Labor time Guides

**Unit Objectives:**

Upon completion of this unit, the student will be able to:

- understand the importance of a vehicle's VIN. describe body styles, engine sizes, and year models.
  - use a VIN to describe manufacturing plants, restraint systems, and vehicle makes.
  - have a basic understanding of manufacturer option codes.
  - Thoroughly understand the difference between engine oils, transmission fluids, other lubricants and their correct applications
  - Read and understand vehicle maintenance schedules use service manuals quickly and accurately
  - use the MITCHELL system effectively.
  - understand the purpose of repair orders, including disclaimers and record keeping.
  - correctly fill out a repair order, including VIN's, customer information, parts, and the 3 C's.
  - use a repair order from a technician's viewpoint.
- F1,2,5,8,10,12 · 7,15,18,19 F1,2,5,6,10,12 C5-7,15,16,18,19
- F1,2,5,6,10,12 C5-19
- F1,5,8,10,12 7,15,16,18,19
- F5,6,8,9,13,16,17 C5-7,15,16,18,19
- F1,2,5,8,10,12 C1,3,5,7,11,13,15-20
- F1,5,6,8,10,12, C5-7,15,18,19

|                 |   |                 |
|-----------------|---|-----------------|
| 13,17           | · functionally use a labor/time guide, including reasonable | 7,15,16,18,19   |
| F1,2,3,5,6,8,9, | fees charged for repairs.                                   | C1,2,5,6,7,11   |
| 10,12,13,17     |   |                 |
| F1,2,5,6,8,9,   |   | *C1,3,5-7,11,   |
| 10,12,13,17     |   | 13,14,15        |
| F1,2,6,8,9,10,  |   | *               |
| 12,13,17        |   |                 |
|                 |   | C1,2,5,7,11,13, |
|                 |   | 14              |

**Unit 3: Multi-Point Inspections/Basic Maintenance/Functional use of Shop Equipment**

**Unit Objectives:**

Upon completion of this unit, the student will be able to:

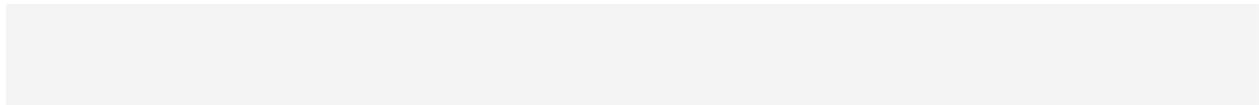
- Properly use all of the shop equipment listed below

Brake lathe, wheel balancer, tire changer, scan tool, AC recovery/recharge.
- Properly choose the correct engine oil & filter for most vehicles
- F1-6,8-12     · Perform an oil change/LOF ( including turbocharged engines)
- Determine coolant condition and coolant type for vehicle application; drain and recover coolant
- \*     · Flush system; refill with recommended coolant; bleed system
- \*     · Perform cooling system, cap, and recovery system tests; determine including pressure, CO, temperature and necessary action

C5-7,15,16,18-20
- \*     · Perform a Multi-Point Inspection as per Manufacturer recommendations

\*
- \*     · Inspect engine/ heater hoses and belts; perform necessary action

\*
- \*
- \*
- \*
- \*
- \*
- \*
- \*



**Intro/Theory of Automotive Technology**

**Assignment and Exam Schedule**

**Unit 1 August 8th to Sept 22nd**

Please refer to course content in Blackboard for exact content and exam schedule.

**Unit 2 Sept 25th to Oct 20th**

Please refer to course content in Blackboard for exact content and exam schedule.

**Unit 3 Oct 23rd to Nov 17th.**

Please refer to course content in Blackboard for exact content and exam schedule.

**Thanksgiving Holiday- November 20th -24th Unit 4 Nov 27th**

to Dec 14th.

**Please refer to course content in Blackboard for exact content and exam schedule.**

**Final Exam: The week of December 11<sup>th</sup>- 14th TBA**

## **SCANS COMPETENCIES**

C-1 **TIME** - Selects goal - relevant activities, ranks them, allocates time, prepares and follows schedules.

C-2 **MONEY** - Uses or prepares budgets, makes forecasts, keeps records and makes adjustments to meet objectives.

C-3 **MATERIALS AND FACILITIES** - Acquires, stores, allocates, and uses materials or space efficiently.

C-4 **HUMAN RESOURCES** - Assesses skills and distributes work accordingly, evaluates performances and provides feedback.

### **INFORMATION - Acquires and Uses Information** C-5

Acquires and evaluates information.

C-6 Organizes and maintains information.

C-7 Interprets and communicates information.

C-8 Uses computers to process information.

### **INTERPERSONAL—Works With Others**

C-9 Participates as members of a team and contributes to group effort.

C-10 Teaches others new skills.

C-11 Serves Clients/Customers—works to satisfy customer's expectations.

C-12 Exercises Leadership—communicates ideas to justify position, persuades and convinces others, responsibly challenges existing procedures and policies.

C-13 Negotiates—works toward agreements involving exchanges of resources; resolves divergent interests.

C-14 Works With Diversity—works well with men and women from diverse backgrounds.

### **SYSTEMS—Understands Complex Interrelationships**

C-15 Understands Systems—knows how social, organizational, and technological systems work and operates effectively with them.

C-16 Monitors and Corrects Performance—distinguishes trends, predicts impacts on system operations, diagnoses systems performance and corrects malfunctions.

C-17 Improves or Designs Systems—suggests modifications to existing systems and develops new or alternative systems to improve performance.

**TECHNOLOGY—Works With a Variety of Technologies**

C-18 Selects Technology—chooses procedures, tools, or equipment, including computers and related technologies.

C-19 Applies Technology to Task—understands overall intent and proper procedures for setup and operation of equipment.

C-20 Maintains and Troubleshoots Equipment—prevents, identifies, or solves problems with equipment, including computers and other technologies.

**FOUNDATION SKILLS**

**BASIC SKILLS—Reads, Writes, Performs Arithmetic and Mathematical Operations, Listens and Speaks**

F-1 Reading—locates, understands, and interprets written information in prose and in documents such as manuals, graphs, and schedules.

F-2 Writing—communicates thoughts, ideas, information and messages in writing and creates documents such as letters, directions, manuals, reports, graphs, and flow charts.

F-3 Arithmetic—performs basic computations; uses basic numerical concepts such as whole numbers, etc.

F-4 Mathematics—approaches practical problems by choosing appropriately from a variety of mathematical techniques.

F-5 Listening—receives, attends to, interprets, and responds to verbal messages and other cues.

F-6 Speaking—organizes ideas and communicates orally.

**THINKING SKILLS—Thinks Creatively, Makes Decisions, Solves Problems, Visualizes and Knows How to Learn and Reason**

F-7 Creative Thinking—generates new ideas.

F-8 Decision-Making—specifies goals and constraints, generates alternatives, considers risks, evaluates and chooses best alternative.

F-9 Problem Solving—recognizes problems, devises and implements plan of action.

F-10 Seeing Things in the Mind's Eye—organizes and processes symbols, pictures, graphs, objects, and other information.

F-11 Knowing How to Learn—uses efficient learning techniques to acquire and apply new knowledge and skills.

F-12 Reasoning—discovers a rule or principle underlying the relationship between two or more objects and applies it when solving a problem.

**PERSONAL QUALITIES–Displays Responsibility, Self-Esteem, Sociability, Self-Management, Integrity and Honesty**

F-13 Responsibility–exerts a high level of effort and perseveres towards goal attainment.

F-14 Self-Esteem–believes in own self-worth and maintains a positive view of self.

F-15 Sociability–demonstrates understanding, friendliness, adaptability, empathy and polite-ness in group settings.

F-16 Self-Management–assesses self accurately, sets personal goals, monitors progress and exhibits self-control.

F-17 Integrity/Honesty–chooses ethical courses of action.