

COURSE SYLLABUS

Course Title: AUMT 1201-271 Introduction and Theory of Automotive Technology (2:2:0)
Semester/Year: Fall 2024
Instructor: Mr. Gary Ufford
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Office Hours: Check posted hours after classes begin or by appointment

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I. GENERAL COURSE INFORMATION

- A. Course Description: (2:2:0)** This course is introduction to the automobile industry, including automotive history, safety practices, shop equipment and tools, vehicle subsystems, service publications, fasteners, professional responsibilities, and automobile maintenance.
- 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.
- C. 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.
- D. 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.**
- E. SCANS and Foundation Skills:** Specific SCANS competencies and foundation skills applicable to this course are listed adjacent to each objective in the course objective table. They include: Foundation skills (F):1,2,3,5,6,7,8,9,10,11,12,13,15,16,17. Competencies (C): 1,3,5,6,7,15,16,17,18,19,20.
A complete list of SCANS competencies and foundation skills is attached at the end of this syllabus.

- 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. 6th 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 Policy: Students are expected to attend all classes in order to be successful in a course. The student may be administratively withdrawn from the course when absences become excessive **without notice** , **there are no excused absences. Excessive absences means 2 (two) or more absences for any reason. Upon the 3rd absence, each student will lose 10 points off of their current GPA, the 4th absence an additional 10 points, and the 5th absence an additional 10 points. Excessive absences cause you to miss key points of a class and show you are not reliable/dependable for employment. Two (2) tardies will count as one absence. Leaving class without notifying your instructor is considered an absence, regardless of the time you left.****

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:

Unit exams = 25%

Written assignments, classroom exercises, pop quizzes, attendance, Lab Sheets = 50%

Final Exam = 25%

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.

<p>F5,8,12,13,16 F5,6,8,9,11,12,16,17 F1,8,10,12 F1,2,8,10 F1-3,5,8,9,17 F1,7,8,10-12 F1,7,8,10-12 F1,7,8,10-12 F1,7,8,10-12 F1,7,8,10-12</p>	<p>Course Objectives</p> <ul style="list-style-type: none"> • practice shop safety throughout the automotive industry. • discuss and practice all requirements of a professional technician. • select and use automotive tools efficiently. • identify and use a vehicle's identification number effectively. • fill out and use a repair order efficiently. • use service manuals effectively. • use labor/time guides effectively. • use parts manuals effectively. • use the MITCHELL proDemand system effectively. • thoroughly understand different lubricants used in the automotive industry. <p>Course Content</p> <p>Unit 1: Shop Safety / Automotive Tools/Technician Professionalism</p> <p>Unit Objectives: Upon completion of this unit, the student will be able to:</p>	<p>C3,6,18,19 C1,3,5-7,11,14,16-20 C1,3,5,6,18-20 C3,5,6,15,18,19 C1,2,5-7,11,12,13,15,16 C1,5-7,15-20 C1,5-7,15-20 C1,5-7,15-20 C1,5-7,15-20 C1,5-7,15-20</p>
<p>F5,8-10,12,13 F5,8-13 F5,8-13 F1,10,12,13,17</p>	<ul style="list-style-type: none"> • 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. • practice the techniques of lifting heavy objects. • have an awareness of MSDS and other OSHA regulations. 	<p>*C3,5,6,15,18-20 * * C5,7,15,18,19</p>
<p>F5,8,10,11</p>	<ul style="list-style-type: none"> • Use feeler gauges, micrometers, and dial indicators correctly • have the opportunity to explore tool needs, selection, and pricing/purchasing with representatives from the industry. 	<p>C1-3,5,11,15,18,19 C2,3,5,11,13 15 *C1-3,5,11,15,18,19</p>
<p>F5,8,10,11,12 F5,8,10,11,12</p>	<ul style="list-style-type: none"> • select and use torque wrenches correctly. • select and use impact wrenches, air ratchets, and air hammers correctly. 	<p>* * * *</p>
<p>F5,8,10,11,12 F5,8,10,11,12</p>	<ul style="list-style-type: none"> • use tape measures, rulers, and calipers correctly. • have a basic understanding of bolt sizes and strength markings. 	<p>* * * *</p>
<p>F5,8,10,11,12 F5,8,10,11,12 F5,8,10,11,12 F5,8,10,11,12 F1,5,6,13-15 F5,6,13-17</p>	<ul style="list-style-type: none"> • distinguish between metric and standard size bolts. • use a tap and die set correctly. • use extractors and removers correctly. • identify and discuss the importance of cleanliness, both personal and occupational. • practice responsible co-worker relations. 	<p>* * * * C3,6,11,14 C9,10,12-14</p>

<p>F2,5,6,8,9,13,15,17 F5,6,8,9,12,13,16,17 F1,2,5,6,8,9,10,12,13,17</p>	<ul style="list-style-type: none"> • practice effective customer relations. • understand and practice the concept of doing the job right the first time. <p>Write a current professional resume`.</p>	<p>C1,5-7,11,13,14 C1,3,5-7,11,13,15-20 C1,3,5-7,11,13,14,15</p>
<p>F1,2,5,8,10,12 F1,2,5,6,10,12 F1,2,5,6,10,12 F1,5,8,10,12 F5,6,8,9,13,16,17 F1,2,5,8,10,12 F1,2,5,8,10,12 F1,5,6,8,10,12,13,17 F1,2,3,5,6,8,9,10,12,13,17 F1,2,5,6,8,9,10,12,13,17 F1,2,6,8,9,10,12,13,17</p>	<p>Unit 2: Vehicle Identification Numbers, Service Manuals, Vehicle Lubricants, Maintenance Schedules, Repair Orders and Labor time Guides</p> <p>Unit Objectives: Upon completion of this unit, the student will be able to:</p> <ul style="list-style-type: none"> • understand the importance of a vehicle's VIN. • use a VIN to 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. • functionally use a labor/time guide, including reasonable fees charged for repairs. 	<p>C5-7,15,18,19 C5-7,15,16,18,19 C5-7,15,16,18,19 C5-7,15,16,18,19 C1,3,5-7,11,13,15-20 C5-7,15,18,19 C5-7,15,16,18,19 C1,2,5,6,7,11 *C1,3,5-7,11,13,14,15 * C1,2,5-7,11,13,14</p>

<p>F1-6,8-12</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p>	<p>Unit 3:Multi-Point Inspections/Basic Maintenance/Functional use of Shop Equipment</p> <p>Unit Objectives:</p> <p>Upon completion of this unit, the student will be able to:</p> <ul style="list-style-type: none"> • 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 • 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; including pressure, CO, temperature and determine necessary action • Perform a Multi-Point Inspection as per Manufacturer recommendations • Inspect engine/ heater hoses and belts; perform necessary action 	<p>C5-7,15,16,18-20</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p>
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Intro/Theory of Automotive Technology Assignment and Exam Schedule

Log on to this course on Blackboard using your SPC credentials, also log on to the on-line curriculum using your purchased access from the bookstore. Become familiar with the website and look for all on line assignments. It is your responsibility to keep up with all assignments and turn in by the due dates listed below and on line.

Unit 1: Shop Safety/ Automotive Tools/ Technician Professionalism

Date: August 30th – September 20th

Unit 1 Written Exam: September 20th (on blackboard)

Unit 1 Assignment: Read chapters 6, 7, 8, 11, & 12. Browse Chapters 9 & 10, which means to skim the chapters, look at pictures, captions, headings, etc. and briefly read some of the text, enough to get a general idea of what is being described. Part of Ch. 4 will also be covered in this unit. **Log on to the on-line curriculum.** Take notes on all lectures; participate in all class discussions/ exercises pertaining to the objectives in unit 1. Bring your book and supplies to each class meeting. Turn in your resume' on the due date listed below.

Unit 2: VIN Numbers/Service Manuals/Lubricants/Maintenance Schedules/Repair Orders/ Labor Time Guides

Date: September 27th – October 25th

Unit 2 Written Exam: October 25th (on blackboard)

Resume Due: October 25th ???

Unit 2 Assignment: Read chapters 4, 15, & 16. Take notes on all lectures; participate in all class discussions/ exercises pertaining to the objectives in unit 2. Bring your book and supplies to each class meeting.

Fall BREAK October 18th No Classes

Thanksgiving Holiday- November 27th-30th

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

Date: November 1st – November 22nd

Unit 3 Assignment: Read chapter 17. Take notes on all lectures; participate in all discussions/exercises pertaining to the objectives in unit 3. Bring your book and supplies to each class meeting.

Unit 3 Written Exam: November 15th

Final Exam: Due by December 6th, this will be a comprehensive exam, please allow yourself adequate study time.

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.