

## COURSE SYLLABUS

**Course Title:** AUMT 1201-382 Introduction and Theory of Automotive Technology (2:2:0)

**Semester/Year:** Fall 2017

**Instructor:** Mr. Edward Rincon

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

### *SOUTH PLAINS COLLEGE IMPROVES EACH STUDENTS LIFE*

#### 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 1366, 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. 5<sup>th</sup> Edition, Pearson Publishers, Copyright 2016 (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:** Satisfactory course completion requires classroom attendance and participation. Due to the amount of time required for lecture or lab activities, no make-up work can be scheduled. Two (2) absences, for whatever reason, will result in withdrawal by the instructor - no exceptions. Two tardies will count as one absence. Leaving class without notifying your instructor is considered an absence, regardless of the time you left.

- 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 will 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 will be no make-up exams - no exceptions. 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%

- B. 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.

## **CAMPUS GUIDELINES**

### **CHILDREN ON CAMPUS**

Many of the students attending classes at South Plains College 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.

### **Diversity Statement**

In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

### **ADA Statement**

Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Disability Services Office. For more information, call or visit the Disability Services Office through the Guidance and Counseling Centers at Reese Center (Building 8) [716-4606](tel:716-4606), or Levelland (Student Services Building) [716-2577](tel:716-2577), Plainview Center Main Office: 806-716-4302 or 806-296-9611, or the Health and Wellness main number at 806-716-2529

### **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.**

**Plainview Center Main Office: 806-716-4302 or 806-296-9611**

<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>F5,8-10,12,13  F5,8-13  F5,8-13 F1,10,12,13,17  F5,8,10,11  F5,8,10,11,12 F5,8,10,11,12  F5,8,10,11,12 F5,8,10,11,12  F5,8,10,11,12</p>	<p><b>Course Objectives</b></p> <ul style="list-style-type: none"> <li>• practice shop safety throughout the automotive industry.</li> <li>• discuss and practice all requirements of a professional technician.</li> <li>• select and use automotive tools efficiently.</li> <li>• identify and use a vehicle's identification number effectively.</li> <li>• fill out and use a repair order efficiently.</li> <li>• use service manuals effectively.</li> <li>• use labor/time guides effectively.</li> <li>• use parts manuals effectively.</li> <li>• use the MITCHELL proDemand system effectively.</li> <li>• thoroughly understand different lubricants used in the automotive industry.</li> </ul> <p><b>Course Content</b></p> <p><b>Unit 1: Shop Safety / Automotive Tools/Technician Professionalism</b></p> <p><b>Unit Objectives:</b> Upon completion of this unit, the student will be able to:</p> <ul style="list-style-type: none"> <li>• raise and lower a vehicle safely, using the shop's hoists.</li> <li>• 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.</li> <li>• practice the techniques of lifting heavy objects.</li> <li>• have an awareness of MSDS and other OSHA regulations.</li> <li>• Use feeler gauges, micrometers, and dial indicators correctly</li> <li>• have the opportunity to explore tool needs, selection, and pricing/purchasing with representatives from the industry.</li> <li>• select and use torque wrenches correctly.</li> <li>• select and use impact wrenches, air ratchets, and air hammers correctly.</li> <li>• use tape measures, rulers, and calipers correctly.</li> <li>• have a basic understanding of bolt sizes and strength markings.</li> </ul>	<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>*C3,5,6,15,18-20 * * C5,7,15,18,19 C1-3,5,11,15,18,19 C2,3,5,11,1315 *C1-3,5,11,15,18,19 * * * *</p>
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<p>F5,8,10,11,12  F5,8,10,11,12  F5,8,10,11,12  F1,5,6,13-15  F5,6,13-17  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"> <li>• distinguish between metric and standard size bolts.</li> <li>• use a tap and die set correctly.</li> <li>• use extractors and removers correctly.</li> <li>• identify and discuss the importance of cleanliness, both personal and occupational.</li> <li>• practice responsible co-worker relations.</li> <li>• practice effective customer relations.</li> <li>• understand and practice the concept of doing the job right the first time.</li> <li>• Write a current professional resume`.</li> </ul>	<p>*  *  *  C3,6,11,14  C9,10,12-14  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><b>Unit 2: Vehicle Identification Numbers, Service Manuals, Vehicle Lubricants, Maintenance Schedules, Repair Orders and Labor time Guides</b></p> <p><b>Unit Objectives:</b>  Upon completion of this unit, the student will be able to:</p> <ul style="list-style-type: none"> <li>• understand the importance of a vehicle's VIN.</li> <li>• use a VIN to describe body styles, engine sizes, and year models.</li> <li>• use a VIN to describe manufacturing plants, restraint systems, and vehicle makes.</li> <li>• have a basic understanding of manufacturer option codes.</li> <li>• Thoroughly understand the difference between engine oils, transmission fluids, other lubricants and their correct applications</li> <li>• Read and understand vehicle maintenance schedules</li> <li>• use service manuals quickly and accurately</li> <li>• use the MITCHELL system effectively.</li> <li>• understand the purpose of repair orders, including disclaimers and record keeping.</li> <li>• correctly fill out a repair order, including VIN's, customer information, parts, and the 3 C's.</li> <li>• use a repair order from a technician's viewpoint.</li> <li>• functionally use a labor/time guide, including reasonable fees charged for repairs.</li> </ul>	<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><b>Unit 3: Multi-Point Inspections/Basic Maintenance/Functional use of Shop Equipment</b></p> <p><b>Unit Objectives:</b></p> <p>Upon completion of this unit, the student will be able to:</p> <ul style="list-style-type: none"> <li>• Properly use all of the shop equipment listed below Brake lathe, wheel balancer, tire changer, scan tool, AC recovery/recharge.</li> <li>• Properly choose the correct engine oil &amp; filter for most vehicles</li> <li>• Perform an oil change/LOF ( including turbocharged engines)</li> <li>• Determine coolant condition and coolant type for vehicle application; drain and recover coolant</li> <li>• Flush system; refill with recommended coolant; bleed system</li> <li>• Perform cooling system, cap, and recovery system tests; including pressure, CO, temperature and determine necessary action</li> <li>• Perform a Multi-Point Inspection as per Manufacturer recommendations</li> <li>• Inspect engine/ heater hoses and belts; perform necessary action</li> </ul>	<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**

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

**Date:** August 28th – September 24th

**Unit 1 Written Exam:** September 18th (possibly on-line)

**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 25th – October 29th

**Unit 2 Written Exam:** October 29th (on-line)

**Resume Due: October 29th**

**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.

**Labor Day September 4<sup>th</sup>**

**Fall BREAK October 13<sup>th</sup>**

**Thanksgiving Holiday- November 22<sup>rd</sup> – 24<sup>th</sup>**

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

**Date:** October 30th – November 20th

**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 20th

**Final Exam: December 11<sup>th</sup> at 8:00 am, this will be a comprehensive exam, please allow yourself adequate study time.**

**"Texas Senate Bill 11 (Campus Concealed Carry) does not go into effect for community colleges until August 1, 2017."**





## **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.