

COURSE SYLLABUS

AUMT 2425 (4:2:8)

AUTOMATIC TRANSMISSIONS AND TRANSAXLES

Automotive Service Technology

Industrial Technology Department

Technical Education Division

Levelland Campus

SOUTH PLAINS COLLEGE

SCANS COMPETENCIES

- C-1 TIME--Selects goal--relevant activities, ranks them, allocates time, and prepares and follows schedules.
- C-2 MONEY--Uses or prepares budgets, makes forecasts, keeps records, and makes adjustments to meet objectives
- C-3 MATERIALS & 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 Correct 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, and evaluates and chooses best alternative.
- F-9 Problem Solving--Recognizes problems and 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 preserves 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 politeness 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.

COURSE SYLLABUS

COURSE TITLE: AUTOMATIC TRANSMISSIONS AND TRANSAXLES
AUMT 2425 (4:2:8)

INSTRUCTOR: Michael Reimer

OFFICE LOCATION AND PHONE/E-MAIL: Auto \ Diesel Building- office #4
(806) 894-9611 ext. 2295 mreimer@southplainscollege.edu

OFFICE HOURS: 7:00 to 8:00 AM and 1:00 to 2:00 PM MW
8:00 AM to 1:00 PM F

SOUTH PLAINS COLLEGE IMPROVES EACH STUDENT'S LIFE

I. GENERAL COURSE INFORMATION:

Course Description: Prerequisite: AUMT 1407 or consent of instructor. This course is a study of the operation, hydraulic principles, and related circuits of modern automatic transmissions and automatic transaxles. Topics include diagnosis, disassembly, and assembly procedures with emphasis on the use of special tools and proper repair techniques. Elements of the course may be taught manufacturer specific.

A. **Course Learning Outcomes:** Utilizing appropriate safety procedures, the student will perform general transmission and transaxle diagnosis; perform automatic transmission and transaxle maintenance and adjustments; and perform in-vehicle and off-vehicle automatic transmission and transaxle repair.

B. **Course Competencies:** Upon completion of this course the student must demonstrate the following competencies:

1. The service of the automatic transmission and transaxle.
2. The service of the differential.
3. Hydraulic systems service and repair.
4. Torque multipliers diagnostic and repair.
5. Electronic transmission sensors, relays, switches, and solenoid testing and replacement.
6. The student must also be able to utilize allocated time prudently in the completion of the assigned task.
7. Demonstrate proper use of manuals and computer equipment to retrieve repair information to properly complete a task.
8. Accomplish as a group, tasks requiring various skills and completion in the most efficient manner.

9. Demonstrate the ability to serve the industry, by listening to the customer's explanation of what is happening with their vehicle and demonstrate the ability to use established methods to operate equipment.

- D. **Academic Integrity:** See current college catalog for policy.
- E. **SCANS and Foundation Skills:** C-1 through C-20 and F-1 through F-17 See back of cover page
- F. **Verification of Workplace Competencies:** Capstone experience is offered as a comprehensive written, oral, or hands-on exit exam during the last course of the program.

II. SPECIFIC COURSE/INSTRUCTOR REQUIREMENTS:

- A. **Textbook and Other Materials:** Today's Technician "*Automotive Transmissions and Transaxles*", by Jack Erjavec, 4th Edition. Students are required to possess a basic tool set for the program by the 12th class day.
- B. **Attendance Policy:** Whenever absences become excessive and, in the instructor's opinion, minimum course objectives cannot be met due to absences, the student should be withdrawn from the course. In addition, an instructor is required to notify the Office of Student Services when the student has missed every class day during any 14 consecutive calendar-day period, excluding holidays.

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 in which they pay tuition and fees at the time of registration. Should a student, for any reason, delay in reporting to class after official enrollment, absences will be attributed to the student from the first meeting of the class.

A student who does not attend a class and does not officially withdraw from that course by the 12th class day in a regular semester or by the 4th class day in a summer session should be administratively withdrawn from that course and receive a grade of "X" or "F" as determined by the instructor. Instructors are responsible by clearly stating their administrative drop policy in the course syllabus, and it is the student's responsibility to be aware of that policy.

Regular attendance is required. Roll will be checked at the beginning of each class period and after lunch. Absences will affect the final grade as follows:

- fourth absence (4th), final grade may be lowered 5 points
- fifth absence (5th), final grade may be lowered an additional 5 points (10 points from initial grade).
- sixth absence (6th), final grade may be lowered an additional 5 points (15 points from initial grade).

Three (3) tardies will equal 1 absence. On the 6th absence, you may be automatically dropped from the course. If the excessive absence occurs after the official drop date at the end of the semester, a grade of "F" will be issued.

- C. **Assignment Policy:** Class assignments and/or homework may be given at the instructor's discretion. Homework and other assignments are due at the beginning of class unless otherwise instructed. Late work will not be accepted. Students are

expected to complete all assignments. When assigned to a lab competency, the student is expected to stay with the project until completion.

- D. **Grading Policy/Procedure and/or methods of evaluation:** There are three categories taken into consideration when computing the final semester grades.

The percentages below will be calculated based on points given for completion of the following objectives:

1. Classroom objectives: 20 %
2. Skills objectives: 60%
3. Final Exam: 20%

Clean-up will be part of skills objectives grade. You will be expected to maintain a clean and safe work area at all times. A complete lab area cleanup will be performed at the end of the semester.

There are four levels of attainable grades in the Automotive Service Technology program. This grading policy follows industry standards used in ASE certification testing. The levels are:

- A (90 and above)
- B (80 to 89)
- C (70 to 79)
- F (69 and below)

- E. **Special Requirements:** The student must pass a series of comprehensive exit exams related to the main competencies covered in the automotive courses. The exams shall be administered during the last semester of the program.

Safety Exam: The student must pass a safety exam with a score of 100 to continue lab assignments per NATEF standard 6.8C.

HAZARDOUS MATERIALS

Students will come in contact with chemicals and other materials, which come under the "HAZARDOUS MATERIALS" classification as defined by Title 83, Article 5182b of the Hazard Communication Act. Material Safety Data Sheets (MSDS) information will be posted outside of office number 1. Warning signs are posted throughout the Auto/Diesel building and all appropriate personal protective equipment will be provided, which the student must use. Safety information will be given and demonstrated in class before safety quizzes and test.

III. COURSE OUTLINE:

SAFETY

- A. Hazardous materials
- B. Professional behavior
- C. Tool Safety
- D. Technician dress and appearance

DRIVE TRAIN THEORY

- A. Identify the major components

GENERAL THEORIES OF OPERATION

- A. Identification of basic parts
- B. Diagnostic procedures
- C. Basic service and repair procedures

PLANETARY GEARS AND SHAFTS

- A. Inspect bushings and shafts
- B. Inspect and measure planetary gear assembly

HYDRAULIC SYSTEMS AND APPLY DEVICES

- A. Basic hydraulics
- B. Identification of hydraulic circuit flow and pressurization
- C. Air test clutch pack and servo assemblies

COMMON AUTOMATIC TRANSMISSIONS

- A. Identify transmissions
- B. Procedures for disassembly and reassembly

HYDRAULIC TORQUE MULTIPLIERS

- A. Diagnose torque convertor problem
- B. Inspect convertor flex plate
- C. Inspect, flush, and measure endplay, and test torque convertors

ELECTRONIC AUTOMATIC TRANSMISSIONS

- A. Retrieve trouble codes using scan tool computers
- B. Test and replace electrical switches and components

IV. ACCOMMODATIONS:

1. See "Equal opportunity" statement in the South Plains College catalog at bottom of page 3.
2. See "Services for Students with Disabilities" statement in the South Plains College catalog in right-hand column of page 46.
3. See "Special Services" statement in the South Plains College catalog in right-hand column of page 46.