Automotive Services Technology I is a one year course that encompasses the sub topics of the NATEF/ASE identified areas of Steering and Suspension and Braking Systems. This one year course offering may be structured in a series of two topics per year offered in any combination of instructional strategies of semester based or yearlong instruction. Additional areas of manual transmissions, differentials, automatic transmissions, air conditioning, and engine repair will be covered as time permits. This one year offering must meet the NATEF program certifications for the two primary areas offered in this course. Mathematical skills will be reinforced through precision measuring activities and cost estimation/calculation activities. Scientific principles taught and reinforced in this course include the study of viscosity, friction, thermal expansion, and compound solutions. Written and oral skills will also be emphasized to help students communicate with customers, colleagues, and supervisors.

- DOE Code: 5510
- Recommended Grade Level: Grade 11-12
- Recommended Prerequisites: Introduction to Transportation
- Credits: 2-3 credits per semester, maximum of 6 credits
- Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas
- This course is aligned with postsecondary courses for Dual Credit:
  - Ivy Tech
    - AUTC 101-Suspension and Steering
    - AUTC 121-Brakes
  - Vincennes University
    - AUTO 105-Transportation Fundamentals

Dual Credit
This course provides the opportunity for dual credit for students who meet postsecondary requirements for earning dual credit and successfully complete the dual credit requirements of this course.

Application of Content and Multiple Hour Offerings
Intensive laboratory applications are a component of this course and may be either school based or work based or a combination of the two. Work-based learning experiences should be in a closely related industry setting. Instructors shall have a standards-based training plan for students participating in work-based learning experiences. When a course is offered for multiple hours per semester, the amount of laboratory application or work-based learning needs to be increased proportionally.

Career and Technical Student Organizations (CTSOs)
Career and Technical Student Organizations are considered a powerful instructional tool when integrated into Career and Technical Education programs. They enhance the knowledge and skills students learn in a course by allowing a student to participate in a unique program of career and leadership development. Students should be encouraged to participate in SkillsUSA, the CTSO for this area.

Content Standards

Domain 1 – Employability
Core Standard 1 Students apply and adapt appropriate workplace behaviors and characteristics to prepare for automotive careers.

Standards
ASTI-1.1 Demonstrate effective interpersonal skills
ASTI-1.2 Develop leadership skills
ASTI-1.3 Research, analyze, and use data for work assignments
ASTI-1.4 Apply written communication skills
ASTI-1.5 Demonstrate effective listening and speaking skills
ASTI-1.6 Perform appropriate mathematical calculations correctly
ASTI-1.7 Exhibit a responsible work ethic
ASTI-1.8 Demonstrate accepted standards for ethical behavior
ASTI-1.9 Establish a personal career goal and develop objectives for achieving the goal
ASTI-1.10 Create a continuing education plan that identifies further education and training options
ASTI-1.11 Prepare for exams leading to certifications recognized by business and industry
ASTI-1.12 Develop skills needed to enter the workforce
ASTI-1.13 Evaluate resources that keep workers current in the career field
ASTI-1.14 Apply effective money management strategies
ASTI-1.15 Use and identify tools and equipment used to repair brake systems

Domain 2 – Knowledge/Understanding
Core Standard 2 Students analyze vehicle components and system operations to establish accurate diagnosis and repair procedures.

Standards
ASTI-2.1 Allocate the appropriate resources for task completion
ASTI-2.2 Read and interpret written materials
ASTI-2.3 Demonstrate knowledge of vehicle system
ASTI-2.4 Explain safety procedures
ASTI-2.5 Disable supplemental restraint systems in accordance with manufacturers’ procedures
ASTI-2.6 Describe steering and alignment geometry
ASTI-2.7 Score satisfactory grade on tests, quizzes, and lab assignments
ASTI-2.8 Demonstrate proper shop safety practices while using brake tools and equipment
ASTI-2.9 Use and identify tools and equipment used to repair brake systems
ASTI-2.10 Identify and explore operation, construction, and nomenclature of braking system components including hydraulic control devices
ASTI-2.11 Identify and explore operation and repair on and ABS and traction control systems

Domain – Diagnosis
Core Standard 3 Students analyze vehicle system defects to determine necessary service.

Standards
ASTI-3.1 Apply effective critical thinking, decision making, and problem-solving techniques
ASTI-3.2 Evaluate resources that keep workers current in the career field
ASTI-3.3 Conduct other related engine service activities
Examine brake systems
Analyze suspension and steering systems performance and determine repairs
Diagnose power steering systems and determine need for replacement
Diagnose steering and suspension components to determine need for replacement
Analyze suspension and steering systems performance and determine repair
Remove and replace steering and suspension components
Diagnose McPherson strut assembly according to industry standards
Diagnose rear suspension system and determine needed service or repair
Remove, inspect and service or replace front or rear wheel bearings
Check and adjust all 4-wheel alignment angles and measurements
Inspect, rotate, mount, and balance tires
Perform pre-alignment checks according to industry standards
Use and identify tools and equipment used to repair brake systems
Diagnose and repair ABS and traction control systems
Troubleshoot, clean, and replace components of transmission system.

Domain – Repair
Core Standard 4 Students select appropriate industry tools and procedures to perform service and repairs on various vehicle components and systems.

Standards
Select and use appropriate tools and technology
Implement quality assurance measures and safeguards
Develop skills needed to enter the workforce
Evaluate resources that keep workers current in the career field
Conduct other related engine service activities
Service brake systems
Disable supplemental restraint systems in accordance with manufactures’ procedures
Diagnose steering and suspension components to determine need for replacement
Remove and replace steering and suspension components
Remove and replace McPherson struts according to industry standards
Remove, inspect and service or replace front or rear wheel bearings
Demonstrate proper shop safety practices while using brake tools and equipment
Use and identify tools and equipment used to repair brake systems
Identify and explore operation and repair on and ABS and traction control systems