Course: Automotive Technologies

Instructor: Mike Johnson

Course Description: The Automotive Technologies course at ACTC is designed to provide students with the knowledge and skills required to perform basic maintenance tasks and minor repairs on automotive systems. Through a combination of classroom instruction and hands-on experience, students will develop the necessary competencies for entry-level positions in the automotive industry. The course will cover topics such as engine systems, electrical systems, brakes, suspension, steering, safety procedures, and industry standards.

Course Objectives: By the end of this course, students will be able to:

1. Apply safety procedures and practices in the automotive workshop.
2. Demonstrate an understanding of automotive systems and their components.
3. Utilize industry-standard tools and equipment for basic repairs.
4. Perform routine maintenance tasks, such as oil changes, tire rotations, and fluid checks.
5. Diagnose and troubleshoot common automotive issues.
6. Communicate effectively with customers and colleagues in an automotive setting.

Course Standards: The course will align with the following South Carolina Department of Education standards for Maintenance and Light Repair:

1. Apply safety practices and procedures in an automotive workshop.
2. Identify and explain the functions of automotive systems and components.
3. Perform routine maintenance tasks, including oil changes, filter replacements, and tire rotations.
4. Diagnose and repair common issues in automotive brake systems.
5. Diagnose and repair common automotive suspension and steering system issues.
6. Demonstrate knowledge of electrical systems in automotive vehicles.
7. Analyze and interpret automotive service manuals and technical information.
8. Communicate effectively with customers and colleagues in an automotive setting.

Syllabus:

Unit 1: Introduction to Automotive Maintenance and Repair

- Course overview and expectations
- Safety procedures and practices in the automotive workshop
- Introduction to automotive systems and components
- Automotive tools and equipment

Unit 2: Engine Systems and Maintenance

- Principles of engine operation
- Oil changes and filter replacements
- Fluid checks and replacements
- Basic engine diagnostics

Unit 3: Brake Systems

- Principles of braking systems
- Diagnosing and repairing brake issues
- Brake pad and rotor replacement
- Brake fluid flushing and bleeding

Unit 4: Suspension and Steering Systems

- Suspension and steering components
- Diagnosing and repairing suspension and steering issues
- Wheel alignment and tire balancing

Unit 5: Electrical Systems

- Principles of electrical systems in automotive vehicles
- Battery maintenance and testing
- Lighting and signaling systems
- Basic electrical diagnostics

Unit 6: Preventive Maintenance and Service

- Fluid checks and replacements (coolant, transmission, etc.)
- Belt and hose inspections and replacements
- Air filter and cabin filter replacements
- Tire rotations and balancing

Unit 7: Reading and Interpreting Service Manuals

- Analyzing automotive service manuals and technical information
- Understanding diagnostic codes and procedures
- Utilizing online resources for repair information

Unit 8: Communication and Customer Service

- Effective communication with customers and colleagues
- Professionalism and customer service in an automotive setting
- Documenting repairs and service recommendations

Assessment: Assessment in this course will be based on a combination of the following:

- Written tests and quizzes
- Hands-on performance assessments
- Class participation and engagement
- Completion of assignments and projects

Note: This syllabus is a general guide and may be subject to adjustments based on the specific needs and progress of the class.