



# Walker Career Center

## Brake Systems

DOE# 7205



### Course Description and Outline

This course gives students an in-depth study of vehicle electrical systems. Students will study the fundamentals of electricity and automotive electronics in various automotive systems. Additionally it teaches theory, service and repair of automotive braking systems. This course provides an overview of various mechanical brake systems used on today's automobiles. This course will emphasize professional diagnosis and repair methods for brake systems

### Teacher Information and Student Supports

**Name:** Nathan Criswell  
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**Phone:** 317-532-6176

#### Course Supplies

- Online Textbook
- Work Shoes
- Work Clothes

#### Additional Supports

- Reteach and Enrichment activities in class every Thursday
- Individual help by appointment when necessary

### Journey of a Graduate Skills

#### Critical Thinking

- Identify proper shop safety practices while in the labs.
- Identify tools & fasteners used in automotive repair.
- Identify and perform basic service and maintenance procedures.
- Identify Electrical symbols and components.
- Calculate resistance, current, and voltage problems using Ohms Laws.
- Identify starting and charging system components and circuits.
- Diagnose if a differential seal is leaking.

#### Communication

- Identify and explain how the automotive repair industry is structured.
- Perform Disc Brake Inspection and recommend necessary repairs.
- Perform Drum Brake Inspection and recommend necessary repairs.
- Identify and explain operation of braking system components including hydraulic control devices.
- Explain friction principles and Newton's laws of Motion.

#### Resilience

- Attain readiness to be certified to use industry standard diagnostic equipment.
- Demonstrate resurfacing of drums and rotors including on-car brake lathes.
- Attain readiness to be ASE certified in Brakes and Electrical Systems.

#### Collaboration

- Students will work together to perform various tasks in the shop.
- Students will work together to use and identify tools used to repair brake systems.

#### Content Knowledge

- Understand driveline service including, differentials, axles, and driveline angles
- Understand anti-lock braking systems and perform diagnostic procedures: Pull ABS trouble codes; Bleeding ant-locking braking systems; How to use the multi-meter
- Adjust parking brakes.

## Citizenship

- Students are always considerate and respectful of other people's beliefs, practices, and cultures demonstrated through words and actions.
- Students are responsible for their own learning; get makeup work when they have been out, take necessary notes, stay engaged while in class.
- Students learn and demonstrate employability skills such as punctuality, dependability, and work ethic.
- Students learn the importance of honesty and ethical practices while working in the automotive field.
- 7205-D1.1 Demonstrate proper shop safety practices while in the labs.

## Grade Calculation

### MSD Warren Township Scale

Grade	Percentage
A	92.5 - 100
A-	89.5 - 92.4
B+	86.5 - 89.4
B	82.5 - 86.4
B-	79.5 - 82.4
C+	76.5 - 79.4
C	72.5 - 76.4
C-	69.5 - 72.4
D+	66.5 - 69.4
D	62.5 - 66.4
D-	59.5 - 62.4
F	Below 59.5

## Grading Policies

### Semester Grade

Your semester grade will be calculated in the following way:

50% Assessments (Tests, Quizzes, Projects)  
40% Labs, Homework and other assignments  
10% Final Project

### Warren Central Grading Policy

The high school grading policies will be explained here

### Warren Central Homework Policy

The high school homework policies will be explained here.

### Synergy Grades

Grades posted in Synergy reflect the students' academic performance in the course.

## Credits/Pathways

### CORE 40 Diploma

Course fulfills two credits of the elective requirement for the Core 40 diploma.

### Academic/Technical Honors Diploma

Has potential to fulfill academic/technical honors diploma. - see counselor

### CTE Graduation Pathway

**Recommended – Intro to Transportation**

**Principles – Principles of Automotive Services**

**Course A – Brake Systems**

**Course B – Steering and Suspension**

**Capstone – Automotive Service Capstone**

## Types of Assignments and Assessments

### Assignments

Assignments will include classwork, homework, labs, and bell work. These items are opportunities for students to practice the concepts learned in class.

### Labs

Each unit will have one or more laboratory experiments. Labs are designed to demonstrate "real world" applications of the class concepts and help students develop a deeper understanding of the learning objectives.

### Assessments

Tests/projects cover Indiana State Standards, and there will be one test per unit.

Quizzes may be given throughout a unit. There may or may not be a quiz for each unit.