Heavy Duty Equipment Technician

Course Title: Tires Wheels Brake Assemblies 40S
Instructor: Mr. Church
Contact Information:

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Prerequisites:

- Interests in mechanics
- Exploration and Introduction to HD Equipment Technology

Course Description:

A student wanting to develop skills in the heavy-duty equipment industry must have knowledge of tires, wheels, and brake assemblies. The student will be able to service tires, wheels, and brake assemblies and diagnose and repair problems with them. Rubber and steel track systems are also covered in this section.

General Objectives and Learning Outcomes

- Describe and apply appropriate safety practices for heavy-duty equipment technicians.
- Identify, select, use, and maintain tools, equipment, materials, and consumables.
- Describe various tire and brake system components and their uses.
- Diagnose and repair problems with heavy-duty equipment tires, wheels, and brake systems.
- Describe and demonstrate the transferable cross-curricular knowledge and skills pertaining to heavy-duty equipment technology.
- Demonstrate an awareness of sustainability as it pertains to heavy-duty equipment technology.
- Demonstrate an awareness of the ethical and legal standards as they pertain to the heavy-duty equipment service and repair industry.
- Demonstrate employability skills related to the heavy-duty equipment service and repair industry.
- Demonstrate an awareness of the evolution of heavy-duty equipment technology, including its technological progression and emerging trends.

Shop Rules and Policies:

- **Safety Glasses & CSA Approved Footwear:** Must be worn at all times in the shop.

- **Parts Pickup:** Students are not permitted to drive to town for parts during class. Customers provide parts for projects.
- **Safe Work Practices:** Students must follow the safe work practices outlined in the school and division policies. Failure to do so could result in removal from the course or program.
- **Phones:** Will not be aloud used in the classroom or shop.

Units of Study

- Tire and brake system safety
- Tire inspection and inflation safety
- Bias vs. radial tires
- Types of drive tires
- Types of steering tires
- Tire changing and repair procedures
- Tire balancing procedures
- Diagnosing tire wear issues
- Hydraulic brake systems
- Air brake systems
- Disc brake systems
- Drum brake systems
- Rubber and steel track components
- Future rubber track and tire concepts
- Using diagnostic tools for tire and brake systems
- Reading tire and brake system schematics
- Identifying worn or defective components

Evaluation:

- **Assignments:** All assignments must be handed in on time. Late assignments will be marked as "0 and missing." All assignments must be completed to pass the course.
- **Late Assignments:** Late submissions may incur a 20% deduction or may require a quiz to verify the student's understanding of the material.
- **Additional Assignments:** Occasionally, supplementary assignments may be given to reinforce specific learning outcomes.

Learning Behaviors:

Students will be evaluated on the following learning behaviors based on in-class and shop activities. These behaviors will be marked in the PowerSchool program as follows:

1. **Personal Management Skills**
2. **Active Participation in Learning**
3. **Social Responsibility**

Marking Criteria:

- **C** = Constantly demonstrates the behavior
- **U** = Usually demonstrates the behavior
- **S** = Sometimes demonstrates the behavior
- **R** = Rarely demonstrates the behavior

These marks will help assess how effectively students are managing their work and interactions in the class and shop settings.

Assessment Guidelines:

Formative Assessments will occur during the correction and class discussion of booklets.

- Quizzes will be graded by the instructor, and the answers will be discussed with the class.

Summative Assessments will take place at the end of the semester during the final exams.

Final Grade Weights:

- **Projects:** 50%
- **Quiz:** 20%
- **Classwork:** 15%
- **Demonstration:** 15%
