

## Overall Course Learning Objective

Students will develop an understanding and appreciation for the concepts associated with the commercial vehicles such as school buses and tractor-trailers that they interact with every day.

### Unit 5 – Case Study

Through a comprehensive case-study, students will explore a topic associated with the commercial vehicle industry. This will allow students to apply the learning in this course to a real-world scenario.

### Unit 4 – Emission Control

Students will examine SCR and EGR emission control technology and be able to explain the differences between the two systems.

### Unit 3 – Trailer Configurations

Students will learn about the different types of trailers and trailer configuration that are used to transport freight. This includes different trailer types and multi-trailer arrangements.

### Unit 2 – Air Brake and Hydraulic Brake Comparison

Students will compare and contrast the differences between air brakes and hydraulic brakes and explain the advantages of using air brakes in commercial vehicles.

### Unit 1 – Diesel versus Gasoline Engines

In this unit, students will compare and contrast gasoline and diesel engines. Pupils will learn why diesel engines are general used in heavy equipment.

#### Essential Prerequisite 1

Students should know some of the basic components of a gasoline engine such as pistons and spark plugs.

#### Essential Prerequisite 2

Students should have a working knowledge of the parts involved in an automotive braking system such as the calipers, rotors, brake pads and brake lines.

#### Supportive Prerequisite 1

Basic observations relating to commercial vehicles will be helpful to students in this course as they will be able to connect their learning to phenomena they have witnessed on the nation's roadways.

#### Supportive Prerequisite 2

Observations relating to the different trailer types semi-trucks utilize will assist the student with associating the content of the course to the methods used for transporting different types of freight.