



8701
VEHICLE SYSTEMS PART 1
(12B)

40S/40E/40M

An Automotive Technology Course

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Course Description

A student wanting to develop skills in the automotive industry must have knowledge of the operation of the automotive electronic and control systems. Students' knowledge in electrical systems will be further enhanced by learning about the principles of ignition, control, and communications systems. The student will be able to diagnose, service, and repair ignition, control, and communications systems. This course does not focus on any of the units in the Apprenticeship Manitoba Level 1 technical training.

Goal 1: Describe and apply appropriate **health and safety** practices.

GLO 1.1: Describe and apply appropriate **health and safety** practices.

- SLO 12B.1.1.1 Adhere to safe practices and procedures for facilities, processes, materials, tools, and equipment.
 - SLO 12B.1.1.2 Identify the process for reporting injuries.
 - SLO 12B.1.1.3 Identify hazards and adhere to safe work practices pertaining to hoisting and lifting.
 - SLO 12B.1.1.4 Create and maintain a safe and organized working environment.
 - SLO 12B.1.1.5 Demonstrate the ability to follow safety information on supplier labels.
 - SLO 12B.1.1.6 Demonstrate the ability to locate first aid and eyewash stations.
 - SLO 12B.1.1.7 Identify hazards and describe safe work practices pertaining to the use of tools and equipment. (A3.1)
 - SLO 12B.1.1.8 Describe hybrid vehicle safety hazards. (A13.2)
 - properly tag out the vehicle
 - fire hazards
 - electrocution hazards
 - electrolyte hazards
 - use of hybrid identification markers
 - working environment
 - dry floor
 - with a partner
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GLO 1.2: Demonstrate awareness of safety as it pertains to the ***Trade Safety Awareness Curriculum for Level 1 Apprentices.***

No applicable SLOs.

Goal 2: Select, use, and manage **tools, equipment, materials, and consumables.**

GLO 2.1: Select, use, and manage **tools and equipment.**

SLO 12B.2.1.1 Demonstrate the ability to select, use, and maintain tools and equipment used in ignition systems, electronic control systems, and vehicle communication systems.

GLO 2.2: Select, use, and manage **materials and consumables.**

No applicable SLOs.

Goal 3: **Describe, inspect, diagnose, service, and repair** automotive components and systems.

GLO 3.1: Describe automotive components and systems.

SLO 12B.3.1.1 Demonstrate an understanding of the purpose of ignition systems.

SLO 12B.3.1.2 Demonstrate an understanding of the components of ignition systems.

SLO 12B.3.1.3 Demonstrate an understanding of the operation of ignition systems.

SLO 12B.3.1.4 Demonstrate an understanding of the purpose of vehicle control systems (e.g., supplemental restraint systems, ABS, traction control).

SLO 12B.3.1.5 Demonstrate an understanding of the components of vehicle control systems.

SLO 12B.3.1.6 Demonstrate an understanding of the operation of vehicle control systems.

SLO 12B.3.1.7 Demonstrate an understanding of the purpose of vehicle data communication systems (e.g., CANBUS, multiplexing).

SLO 12B.3.1.8 Demonstrate an understanding of the components of vehicle data communication systems (e.g., CANBUS, multiplexing).

GLO 3.2: Inspect and diagnose automotive components and systems.

SLO 12B.3.2.1 Demonstrate the ability to inspect and diagnose vehicle control systems (e.g., supplemental restraint systems, ABS, traction control).

SLO 12B.3.2.2 Demonstrate the ability to inspect and diagnose vehicle data communication systems (e.g., CANBUS, multiplexing).

SLO 12B.3.2.3 Demonstrate the ability to service, repair, or replace ignition system components.

GLO 3.3: Service and repair automotive components and systems.

SLO 12B.3.3.1 Demonstrate the ability to service or repair vehicle control systems (e.g., supplemental restraint systems, ABS, traction control).

SLO 12B.3.3.2 Demonstrate the ability to service or repair a variety of vehicle data communication systems (e.g., CANBUS, multiplexing).

Goal 4: Describe and apply transferable **cross-curricular** knowledge and skills.

GLO 4.1: Describe and apply knowledge and skills from **information and communication technologies**.

No applicable SLOs.

GLO 4.2: Describe and apply knowledge and skills from the **sciences**.

No applicable SLOs.

GLO 4.3: Read, interpret, and communicate information.

No applicable SLOs.

GLO 4.4: Describe and apply knowledge and skills from **mathematics**.

No applicable SLOs.

Goal 5: Demonstrate an understanding of **sustainability**.

GLO 5.1: Demonstrate an understanding of **sustainability**.

No applicable SLOs.

Goal 6: Demonstrate awareness of **ethical and legal standards**.

GLO 6.1: Demonstrate awareness of **ethical and legal standards**.

SLO 12B.6.1.1 Demonstrate awareness of liability concerns related to automotive systems and service.

Goal 7: Demonstrate **employability skills**.

GLO 7.1: Demonstrate **employability skills**.

SLO 12B.7.1.1 Demonstrate problem-solving skills.

SLO 12B.7.1.2 Demonstrate critical-thinking skills.

SLO 12B.7.1.3 Demonstrate regular attendance and punctuality.

SLO 12B.7.1.4 Demonstrate accountability by taking responsibility for their actions.

SLO 12B.7.1.5 Demonstrate adaptability, initiative, and effort.

SLO 12B.7.1.6 Demonstrate the ability to accept and follow directions and feedback.

SLO 12B.7.1.7 Demonstrate teamwork skills.

SLO 12B.7.1.8 Demonstrate the ability to stay on task and effectively use time in class and shop environments.

SLO 12B.7.1.9 Communicate respectfully and effectively with coworkers and customers.

GLO 7.2: Demonstrate an understanding of the **business operation** of a repair/service facility.

No applicable SLOs.

Goal 8: Demonstrate an understanding of **educational and career opportunities**.

GLO 8.1: Demonstrate an understanding of **educational and career opportunities**.

SLO 12B.8.1.1 Demonstrate awareness of specialized occupations related to vehicle systems.

SLO 12B.8.1.2 Demonstrate an understanding of changes in technology related to computerized vehicle systems.

Goal 9: Demonstrate awareness of the **evolution, technological progression, and emerging trends** in the automotive industry.

GLO 9.1: Demonstrate awareness of the **evolution, technological progression, and emerging trends** in the automotive industry.

No applicable SLOs.
