



8695

INTRODUCTION TO  
AUTOMOTIVE TECHNOLOGY (9)

15S/15E/15M

10S/10E/10M

An Automotive Technology Course



# 8695 INTRODUCTION TO AUTOMOTIVE TECHNOLOGY (9) 15S/15E/15M 10S/10E/10M

## Course Description

This is an optional course intended for students wishing to sample automotive technology. It may be delivered as a half-credit or full-credit course. The emphasis is on hands-on activities. Students are introduced to safety, tools and equipment, automotive systems, and service procedures.

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

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

- SLO 9.1.1.1 Adhere to safe practices and procedures for facilities, processes, materials, tools, and equipment.
- SLO 9.1.1.2 Identify the process for reporting injuries.
- SLO 9.1.1.3 Identify hazards and adhere to safe work practices pertaining to hoisting and lifting.
- SLO 9.1.1.4 Create and maintain a safe and organized working environment.
- SLO 9.1.1.5 Demonstrate the ability to follow safety information on supplier labels.
- SLO 9.1.1.6 Demonstrate the ability to locate first aid and eyewash stations.
- SLO 9.1.1.7 Identify safety and health requirements. (A2.1)
  - overview of *The Workplace Safety and Health Act*
    - rights and responsibilities of employees under the *Act*
    - rights and responsibilities of employers under the *Act*
    - rights and responsibilities of supervisors under the *Act*
  - fourteen (14) regulations
  - codes of practice
  - guidelines
  - right to refuse
    - explanation of right to refuse process
    - rights and responsibilities of employees
    - rights and responsibilities of employers
    - rights and responsibilities of supervisors under the *Act*

- SLO 9.1.1.8 Identify personal protective equipment (PPE) and procedures. (A2.2) (TSA 16)
- employer and employee responsibilities as related to personal protective equipment
  - standards: ANSI (U.S.A. standards), etc.
  - work protective clothing and danger if it fits poorly
  - gloves—importance of proper glove selection (when handling chemicals, cold items, slivers, etc.)
  - headwear—appropriate protective headwear when required and the approved type of headwear
  - eye protection—comparison and distinction of everyday eyeglasses, industrial safety glasses, and safety goggles
  - foot protection—when required according to safety standards
  - hearing protection
    - hazards of various noise levels (hearing protection must be worn)
    - laws
    - types of hearing protection
  - respiratory protection—types, overview of proper selection
  - fall protection—Manitoba requirements standards guidelines
    - ANSI (U.S.A. standards), etc.
  - ladders and scaffolding
  - safety principles for working with or around industrial trucks site-specific (forklifts, pallet trucks, etc.)
- SLO 9.1.1.9 Outline the safety principles for working on and around electrical or energized equipment. (A2.3) (TSA 18)
- effects of electric current on the human body
  - three factors that affect the severity of an electric shock
  - the effects of ARC and blast on the human body and equipment
  - work with energized equipment

- SLO 9.1.1.10 Identify fire safety and outline workplace fire safety principles. (A2.4) (TSA 19)
- types of fires
  - types of firefighting equipment
  - classifications of fire extinguishers (A, B, and C)
  - location of fire extinguishers and fire exits
  - fire alarms and drills
- SLO 9.1.1.11 Identify ergonomics. (A2.5)
- definition of ergonomics and conditions that may affect the body
    - working postures
    - repetition
    - force
    - lifting
    - tools
    - identify tool and safety equipment
    - causes of hand-tool accidents
    - equipment
- SLO 9.1.1.12 Recognize, report, and control hazards. (A2.6)
- safe-work practices
  - basic risk assessment
  - injury prevention and control measures
  - identification of hazards involved in pneumatic tool use and explanation of how to guard against them
- SLO 9.1.1.13 Identify the hazards in confined spaces and the preparation needed to work in them. (A2.7) (TSA 20)
- identification of a confined space
  - hazards of a confined space
    - physical
    - biological
  - working in a confined space
  - emergency response plan
  - self-contained breathing apparatus (SCBA)

- SLO 9.1.1.14 Identify first aid/CPR. (A2.8)
- overview of first-aid regulation
  - obligations of employers regarding first aid
    - Who is certified to provide first aid?
    - What to do while waiting for help?
    - Where is the first-aid kit?
  - describe basic first-aid requirements and techniques
    - scope and limits of first-aid intervention
    - specific interventions (cuts, burns, abrasions, fractures, suffocation, shock, electrical shock, etc.)
    - What is it?
    - interface with other services and agencies (e.g., Workers Compensation claims)
  - describe basic CPR requirements and techniques
    - How do you get certified?
    - scope and limits of CPR intervention (include varieties of CPR certification)
- SLO 9.1.1.15 Identify the safety requirements as they apply to WHMIS with emphasis on:. (A2.9) (TSA 13)
- WHMIS is a system
  - provincial regulation under *The Workplace Safety and Health Act*
    - each province has a WHMIS regulation
  - federal *Hazardous Products Act*
  - WHMIS generic training:
    - WHMIS defined and the format used to convey information about hazardous materials in the workplace
    - information found on supplier and workplace labelling using WHMIS
    - hazardous materials in accordance with WHMIS
    - compliance with government safety standards and regulations
  - description of WHMIS (include varieties of WHMIS certification)
    - typology of WHMIS labels, symbols, and classifications
    - scope and use of Materials Safety Data Sheets (MSDS)

- SLO 9.1.1.16 Identify and control hazards. (A2.10)
- basic control measures (injury prevention)
  - safe-work procedures
  - explanation on the importance of industrial housekeeping
  - employer responsibilities
  - how and where to store materials
  - safety measures related to walkways, stairs, and floor openings
  - explanation of how to protect the worker and others when working in traffic paths
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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.

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

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

SLO 9.2.1.1 Select, use, and manage tools and equipment used in automotive systems and service.

SLO 9.2.1.2 Identify, select, and operate tools and equipment.

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

No applicable SLOs.

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

**GLO 3.1:** **Describe** automotive components and systems.

SLO 9.3.1.1 Identify various systems related to automotive technology.

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**GLO 3.2:** **Inspect and diagnose** automotive components and systems.

SLO 9.3.2.1 Demonstrate the ability to identify service procedures.

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**GLO 3.3: Service and repair** automotive components and systems.

- SLO 9.3.3.1 Demonstrate the ability to service and repair automotive components and systems.
- SLO 9.3.3.2 Demonstrate the ability to check vehicle fluid levels.
- SLO 9.3.3.3 Demonstrate an awareness of the application of torque and the units used to measure torque in automotive fasteners.

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**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.

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

- SLO 9.4.2.1 Describe and apply knowledge and skills from the sciences.

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**GLO 4.3: Read, interpret, and communicate** information.

- SLO 9.4.3.1 Demonstrate the ability to read, interpret, and communicate information.

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

No applicable SLOs.

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

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

- SLO 9.5.1.1 Demonstrate awareness of the automotive service and repair industry's sustainability practices and impact on the environment.

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

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

- SLO 9.6.1.1 Demonstrate awareness of the ethical and legal expectations of automotive technicians.



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**Goal 7: Demonstrate employability skills.**

**GLO 7.1: Demonstrate employability skills.**

- SLO 9.71.1 Demonstrate problem-solving skills.
  - SLO 9.71.2 Demonstrate critical-thinking skills.
  - SLO 9.71.3 Demonstrate regular attendance and punctuality.
  - SLO 9.71.4 Demonstrate accountability by taking responsibility for their actions.
  - SLO 9.71.5 Demonstrate adaptability, initiative, and effort.
  - SLO 9.71.6 Accept and follow direction and feedback.
  - SLO 9.71.7 Demonstrate teamwork skills.
  - SLO 9.71.8 Stay on task and use time effectively.
  - SLO 9.71.9 Communicate respectfully and effectively.
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**GLO 7.2: Demonstrate an understanding of the business operation of a repair/service facility.**

No applicable SLOs.

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

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

- SLO 9.8.1.1 Demonstrate awareness of the employment and educational opportunities related to automotive technology.
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**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.**

- SLO 9.9.1.1 Demonstrate awareness of the evolution, technological progression, and emerging trends in automotive technology.
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