



8672

EXPLORATION OF HEAVY
DUTY EQUIPMENT
TECHNOLOGY (9)

15S/15E/15M

10S/10E/10M

A Heavy Duty Equipment Technician Course

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Course Description

This is an optional course intended for students wishing to explore HDE technology. The emphasis is on hands-on experiences. Students are introduced to safety practices, tools, equipment, systems, and service procedures.

Goal 1: Describe and apply appropriate **safety** practices for heavy duty equipment technicians.

GLO 1.1: Describe and apply appropriate **safety** practices for heavy duty equipment technicians.

SLO 9.1.1.1 Demonstrate the ability to describe and apply appropriate health and safety practices.

SLO 9.1.1.2 Demonstrate the ability to create and maintain a safe and organized working environment.

A2 Trade Awareness (7 hours)

SLO 9.1.1.3 Identify safety and health requirements. (A2.1)

- overview of *The Workplace Safety and Health Act (the 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 9.1.1.4 Identify personal protective equipment (PPE) and procedures. (A2.2)
- employer and employee responsibilities as related to personal protective equipment
 - standards: Canadian Standards Association (CSA), American National Standards Institute (ANSI), and guidelines
 - 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 9.1.1.5 Identify electrical safety. (A2.3)
- 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 9.1.1.6 Identify fire safety. (A2.4)
- 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 9.1.1.7 Identify ergonomics. (A2.5)
- definition of ergonomics and conditions that may affect the body
 - working postures
 - repetition
 - force
 - lifting (simple safety procedures and precautions related to material handling procedures on how to lift, carry, and put down a load)
 - tools
 - identify tool and safety equipment
 - causes of hand tool accidents
 - equipment
- SLO 9.1.1.8 Hazard recognition and control. (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 9.1.1.9 Hazard of confined space entry. (A2.7)
- 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 9.1.1.10 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 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 Cardiopulmonary Resuscitation (CPR) requirements and techniques
 - How do you get certified?
 - scope and limits of CPR intervention (include varieties of CPR certification)
- SLO 9.1.1.11 Identify the safety requirements as they apply to WHMIS with emphasis on (A2.9)
- 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 9.1.1.12 Identifying and controlling 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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Goal 2: Identify, select, use, and maintain tools, equipment, materials, and consumables.

GLO 2.1: Identify, select, use, and maintain tools, equipment, materials, and consumables.

- SLO 9.2.1.1 Demonstrate the knowledge and skills required to identify, select, use, and maintain HDET tools, equipment, materials, and consumables.
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Goal 3: Maintain, diagnose, and repair HDE systems.

GLO 3.1: Perform maintenance on HDE systems.

- SLO 9.3.1.1 Demonstrate the knowledge and skills required to perform maintenance on HDE systems.
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GLO 3.2: Diagnose issues with HDE systems.

- SLO 9.3.2.1 Demonstrate an understanding of the importance of diagnosis in HDE systems.
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GLO 3.3: Repair HDE systems.

- SLO 9.3.3.1 Demonstrate an awareness of HDE systems and repair procedures.
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Goal 4: Describe and demonstrate the transferable **cross-curricular** knowledge and skills pertaining to HDE technology.

GLO 4.1: Read, interpret, and communicate information relevant to HDE technology.

No applicable SLOs.

GLO 4.2: Apply knowledge and skills from **mathematics** to HDE technology.

No applicable SLOs.

GLO 4.3: Apply knowledge and skills from the **sciences** to HDE technology.

No applicable SLOs.

GLO 4.4: Apply knowledge and skills from **information and communication technology** to HDE technology.

No applicable SLOs.

Goal 5: Demonstrate an awareness of **sustainability** as it pertains to HDE technology.

GLO 5.1: Describe the HDE industry's **sustainability practices** and its impact on the environment.

SLO 9.5.1.1 Demonstrate an awareness of the HDE industry's sustainability practices and impact on the environment.

GLO 5.2: Describe the impact of the HDE industry on **human health and well-being**.

SLO 9.5.2.1 Demonstrate an awareness of sustainability as it relates to human health and well-being.

GLO 5.3: Describe **sustainable business practices** within the HDE service and repair industry.

No applicable SLOs.

Goal 6: Demonstrate an awareness of **ethics** and **legal standards** as they pertain to the HDE industry.

GLO 6.1: Demonstrate an awareness of **ethics** as they pertain to the HDE industry.

SLO 9.6.1.1 Demonstrate an awareness of ethics.

GLO 6.2: Demonstrate an awareness of **legal standards** as they pertain to the HDE industry.

No applicable SLOs.

Goal 7: Demonstrate **employability skills** related to the HDE industry.

GLO 7.1: Demonstrate fundamental **employability skills**.

- SLO 9.71.1 Demonstrate regular attendance and punctuality.
 - SLO 9.71.2 Demonstrate the ability to take responsibility for own actions.
 - SLO 9.71.3 Demonstrate adaptability, initiative, and effort.
 - SLO 9.71.4 Demonstrate the ability to accept and follow direction and feedback.
 - SLO 9.71.5 Demonstrate the ability to work as a member of a team.
 - SLO 9.71.6 Demonstrate the ability to stay on task and to make effective use of time.
 - SLO 9.71.7 Describe the importance of effective communication. (A4.1)
 - customers
 - co-workers
 - related professionals
 - journeyperson/apprentice
 - SLO 9.71.8 Describe and demonstrate the methods of professional communication. (A4.2)
 - phone
 - email
 - instant messaging/texting
 - fax
 - other methods of communication
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GLO 7.2: Demonstrate an understanding of the **business operation** of an HDE service and repair facility.

No applicable SLOs.

GLO 7.3: Demonstrate the knowledge, skills, and attitudes required to **think critically** in order to **solve complex problems**.

No applicable SLOs.

GLO 7.4: Demonstrate an awareness of **cultural competence**, and its importance in the workplace.

No applicable SLOs.

Goal 8: Demonstrate an understanding of the **scope** of the HDET trades (along with associated occupations), including **working conditions**, and **training** and **career opportunities**.

GLO 8.1: Demonstrate an understanding of the **scope** of the HDET trades and associated occupations, including **working conditions**.

No applicable SLOs.

GLO 8.2: Demonstrate an understanding of **career** and **training opportunities** in HDE technology and associated professions.

SLO 9.8.2.1 Demonstrate an awareness of career and training opportunities in HDE technology and associated occupations.

Goal 9: Demonstrate an awareness of the **evolution** of HDE technology, including its **technological progression and emerging trends**.

GLO 9.1: Describe the evolution of HDE service and repair, including its **technological progression and emerging trends**.

SLO 9.9.1.1 Demonstrate an awareness of the evolution of HDE technology, including its technological progression and emerging trends.
