



8672

EXPLORATION OF HEAVY DUTY
EQUIPMENT TECHNOLOGY (9)

15S/15E/15M

10S/10E/10M

A Heavy Duty Equipment Technician Course

8672: EXPLORATION OF HEAVY DUTY EQUIPMENT TECHNOLOGY (9) 15S/15E/15M 10S/10E/10M

Course Description

Exploration of Heavy Duty Equipment Technology is an optional course intended for students wishing to sample heavy duty equipment technology. The emphasis is on hands-on activities. Students are introduced to safety practices, tools and equipment, and heavy duty equipment systems and service procedures.

Cross-curricular learning outcomes, or essential skills from subject areas including, but not limited to, information and communication technologies, science, English language arts, and mathematics, are to be integrated into the authentic learning activities of the course.

The curriculum is not sequential. For instructional purposes, the sequence of learning outcomes can vary based on the learning activities within the course.

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 Describe and apply appropriate health and safety practices for heavy duty equipment technicians.
- SLO 9.1.1.2 Create and maintain a safe working environment as it applies to heavy duty equipment technology.
- SLO 9.1.1.3 Describe safety practices, Workplace Hazardous Material Information System (WHMIS), and preventative maintenance. (A1.01)
- SLO 9.1.1.4 Describe cab, canopy, and ROP/FLOP components, and their operation, inspection, repair, and replacement procedures. (A1.02)
- SLO 9.1.1.5 Describe the servicing of fire suppression systems. (A1.03)
- SLO 9.1.1.6 Describe forklift operation and safety. (A1.04)
- SLO 9.1.1.7 Describe restraint systems and their components, and inspection procedures, manufacturers' tests, and repair/replacement of them. (A1.05)
- SLO 9.1.1.8 Demonstrate safety procedures for hydraulic hydrostatic system servicing.

SLO 9.1.1.9	Demonstrate safety procedures for HVAC system servicing.
SLO 9.1.1.10	Describe the importance of using personal protective equipment (PPE). (TSA 16)
SLO 9.1.1.11	Describe safety procedures when handling wheels, tires, and hubs. (F1.04)
SLO 9.1.1.12	Maintain a safe and organized work environment.
SLO 9.1.1.13	Document an understanding of the safe use of heavy duty tools and equipment.
SLO 9.1.1.14	Describe and apply the appropriate health and safety practices as they pertain to transmission systems, drivelines, transfer cases, and power takeoffs.

GLO 1.2: Demonstrate knowledge of the *Trade Safety Awareness Manual*.

No applicable SLOs.

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	Identify, select, use, and maintain tools, equipment, materials, and consumables used in diesel engine fundamentals and heavy duty equipment technology.
SLO 9.2.1.2	Describe and use basic hand tools, basic shop tools, and fasteners. (D1.01)

Goal 3: Describe and demonstrate equipment **access/transport** procedures.

GLO 3.1: Describe and demonstrate equipment **access/transport** procedures.

No applicable SLOs.

Goal 4: **Diagnose and repair** problems with heavy duty equipment systems.

GLO 4.1: **Diagnose** problems with heavy duty equipment systems.

SLO 9.4.1.1	Demonstrate an understanding of the importance of diagnosis in heavy duty equipment systems.
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GLO 4.2: Describe and repair problems with heavy duty equipment.

SLO 9.4.2.1 Describe heavy duty equipment systems and repair procedures.

GLO 4.3: Perform maintenance on heavy duty equipment systems.

SLO 9.4.3.1 Perform maintenance on heavy duty equipment systems.

Goal 5: Describe and demonstrate the transferable **cross-curricular** knowledge and skills pertaining to heavy duty equipment technology.

GLO 5.1: Read, interpret, and communicate information relevant to heavy duty equipment technology.

No applicable SLOs.

GLO 5.2: Apply knowledge and skills from **mathematics**.

No applicable SLOs.

GLO 5.3: Apply knowledge and skills from **the sciences**.

No applicable SLOs.

GLO 5.4: Apply knowledge and skills from **information and communication technology**.

No applicable SLOs.

Goal 6: Demonstrate an awareness of **sustainability** as it pertains to heavy duty equipment technology.

GLO 6.1: Describe the heavy duty equipment industry's **sustainability practices** and its impact on the environment.

SLO 9.6.1.1 Identify the heavy duty equipment service and repair industry's sustainability practices and impact on the environment.

GLO 6.2: Describe the impact of the heavy duty equipment industry on **human health and well-being**.

SLO 9.6.2.1 Demonstrate an understanding of sustainability as it relates to human health and well-being.

GLO 6.3: Describe **sustainable business practices** within the heavy duty equipment service and repair industry.

No applicable SLOs.

Goal 7: Demonstrate an awareness of the **ethical and legal standards** as they pertain to the heavy duty equipment service and repair industry.

GLO 7.1: Demonstrate an awareness of the **ethical and legal expectations** of heavy duty equipment technicians.

SLO 9.7.1.1 Identify the ethical and legal expectations of heavy duty equipment technicians.

Goal 8: Demonstrate **employability skills** related to the heavy duty equipment service and repair industry.

GLO 8.1: Demonstrate fundamental **employability skills**.

SLO 9.8.1.1 Demonstrate problem-solving skills.
SLO 9.8.1.2 Demonstrate critical thinking skills.
SLO 9.8.1.3 Demonstrate regular attendance and punctuality.
SLO 9.8.1.4 Demonstrate accountability by taking responsibility for own actions.
SLO 9.8.1.5 Demonstrate adaptability, initiative, and effort.
SLO 9.8.1.6 Demonstrate the ability to accept and follow direction and feedback.
SLO 9.8.1.7 Demonstrate teamwork skills.
SLO 9.8.1.8 Demonstrate the ability to stay on task and to make effective use of time in class and shop environments.
SLO 9.8.1.9 Demonstrate the ability to communicate respectfully and effectively with coworkers and customers.

GLO 8.2: Demonstrate an understanding of the **business operation** of a heavy duty equipment service and repair facility.

No applicable SLOs.

Goal 9: Understand **career opportunities** in heavy duty equipment technology and associated professions.

GLO 9.1: Demonstrate an understanding of **career opportunities** in heavy duty equipment technology and associated professions.

SLO 9.9.1.1 Identify employment and educational opportunities related to heavy duty equipment technology.

Goal 10: Demonstrate an awareness of the **evolution** of heavy duty equipment technology, including its **technological progression and emerging trends**.

GLO 10.1: Describe the **evolution** of heavy duty equipment service and repair, including its **technological progression and emerging trends**.

SLO 9.10.1.1 Demonstrate an awareness of the evolution of heavy duty equipment technology, including its technological progression and emerging trends.
