



**Copyright © 2016The Sault College of Applied Arts & Technology**

*Reproduction of this document by any means, in whole or in part, without prior written permission of Sault College of Applied Arts & Technology is prohibited.*

*For additional information, please contact the Dean, School of Community Services Interdisciplinary Studies, Curriculum & Faculty Enrichment*

*(705) 759-2554, Ext. 2737*

**I. COURSE DESCRIPTION:**

Upon successful completion of this course, the CICE student, with assistance from a Learning Specialist, will be able to identify and describe the various types of Off Road Equipment Design types and styles, be able to identify and describe the fundamental basics of crawler type undercarriages, be able identify and describe the various methods of Steering Systems as used on Off Road Heavy Duty Equipment, be able to identify and describe the various types and styles of Ground Engaging Implements as used on Heavy Duty Off Road Equipment. Further, with assistance, the CICE student will be able to explain, describe and perform inspection and testing procedures of/to Heavy Duty Equipment Vehicle Systems and be able to describe and perform regularly scheduled maintenance, all following manufacturers' recommendations, government regulations and safe work practices.

Students will be required to follow proper safety procedures when performing the above tasks according to both Sault College Motive Power Department Standards and Vehicle Manufacturers safety regulations and specifications.

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

Upon successful completion of this course, the CICE student, with the assistance of a Learning Specialist will demonstrate a basic ability to:

**1. *Visually Identify types and styles of Heavy Equipment*****Potential Elements of the Performance:**

- Identify different pieces of heavy equipment
- Identify major components in heavy equipment.

**2. *Perform service and maintenance inspections following manufactures recommendations*****Potential Elements of the Performance:**

- Be aware of safety hazards that exist in a heavy equipment repair shop and take proactive measures to address them.
- Be aware and take proactive measures to the safety hazards that exist in performing routine maintenance on heavy equipment.
- Perform safe lifting procedures with every lift.
- Perform safe climbing procedures when climbing is required.

- Safely block a machine so maintenance can be performed as per manufactures recommendations.
- Perform service and maintenance on heavy equipment as per manufactures recommendations.
- Complete assigned inspection reports.

**3. *Perform Cooling System testing and Service using the proper methods and coolant handling equipment according to Manufacturers Specifications and Safety Policies.***

Potential Elements of the Performance:

- Test antifreeze freeze protection
- Test PH and recommend the proper procedure to correct the problem
- Check water pump drive system and fan
- Check rad and hoses for condition, external leaks and cleanliness
- Check drive belt tension and condition

**4. *Equipment Operation***

Potential Elements of the Performance:

- Be able to safely operate at least one piece of heavy equipment to perform routine maintenance on it as per manufactures' recommendations.

**5. *Perform visual inspection, test and repair vehicle lighting systems.***

Potential Elements of the Performance:

- Check operation of all lighting systems
- Replace and repair lighting as required

**6. *Perform the applicable engine lube service and chassis lubrication service to a variety of on road vehicles and equipment.***

Potential Elements of the Performance:

- Change engine oil and filters
- Lube pins and bushings as required
- Lube steering linkage and driveline components as required

**III. TOPICS**

1. Visually Identify types and styles of Heavy Equipment
2. Perform service and maintenance inspections following manufactures recommendations
3. Cooling System testing
4. Equipment Operation
5. Lighting systems
6. Engine lube service

**IV. REQUIRED RESOURCES/TEXTS/MATERIALS:**

Pens, pencils, calculator, clip board

The following items are mandatory in the Shop:

- CSA approved steel toe boots (high top)
- CSA approved safety glasses
- Approved coveralls

**V. EVALUATION PROCESS/GRADING SYSTEM:**

- Assigned equipment service and maintenance inspection reports 50%
- Shop – 50% of the final grade is comprised of attendance, punctuality, preparedness, student ability, work organization and general attitude.

The following semester grades will be assigned to students:

<b>Grade</b>	<b><u>Definition</u></b>	<b><i>Grade Point Equivalent</i></b>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical	

U	placement or non-graded subject area. Unsatisfactory achievement in field/clinical placement or non-graded subject area.
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR	Grade not reported to Registrar's office.
W	Student has withdrawn from the course without academic penalty.

## VI. SPECIAL NOTES:

### Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

***It is the departmental policy that once the classroom door has been closed, the learning process has begun. Late arrivers will not be granted admission to the room.***

**Cell phones are not allowed to be on  
in the classrooms or shop areas.**

## VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline.

### **Addendum:**

Further modifications may be required as needed as the semester progresses based on individual student(s) abilities and must be discussed with and agreed upon by the instructor.

**CICE Modifications:****Preparation and Participation**

1. A Learning Specialist will attend class with the student(s) to assist with inclusion in the class and to take notes.
2. Students will receive support in and outside of the classroom (i.e. tutoring, assistance with homework and assignments, preparation for exams, tests and quizzes.)
3. Study notes will be geared to test content and style which will match with modified learning outcomes.
4. Although the Learning Specialist may not attend all classes with the student(s), support will always be available. When the Learning Specialist does attend classes he/she will remain as inconspicuous as possible.

**A. Tests may be modified in the following ways:**

1. Tests, which require essay answers, may be modified to short answers.
2. Short answer questions may be changed to multiple choice or the question may be simplified so the answer will reflect a basic understanding.
3. Tests, which use fill in the blank format, may be modified to include a few choices for each question, or a list of choices for all questions. This will allow the student to match or use visual clues.
4. Tests in the T/F or multiple choice format may be modified by rewording or clarifying statements into layman's or simplified terms. Multiple choice questions may have a reduced number of choices.

**B. Tests will be written in CICE office with assistance from a Learning Specialist.*****The Learning Specialist may:***

1. Read the test question to the student.
2. Paraphrase the test question without revealing any key words or definitions.
3. Transcribe the student's verbal answer.
4. Test length may be reduced and time allowed to complete test may be increased.

**C. Assignments may be modified in the following ways:**

1. Assignments may be modified by reducing the amount of information required while maintaining general concepts.
2. Some assignments may be eliminated depending on the number of assignments required in the particular course.

***The Learning Specialist may:***

1. Use a question/answer format instead of essay/research format
2. Propose a reduction in the number of references required for an assignment
3. Assist with groups to ensure that student comprehends his/her role within the group
4. Require an extension on due dates due to the fact that some students may require additional time to process information
5. Formally summarize articles and assigned readings to isolate main points for the student
6. Use questioning techniques and paraphrasing to assist in student comprehension of an assignment

**D. Evaluation:**

Is reflective of modified learning outcomes.