



**I. COURSE DESCRIPTION:**

Drive Train Systems is designed to provide the proper maintenance and repair procedures for students working on Commercial Vehicles and Equipment. On this course students will learn about the different types of drive trains used the components that make up the drive train of various types of vehicles and equipment and their proper maintenance and repair procedures. Students will be taught how to safely and properly diagnose, disassemble, re-assemble and repair or replace clutches and clutch components, transmissions and components, drive shaft components and single reduction drive axle assemblies and components according to Manufacturer Specifications.

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

Upon successful completion of this course, the student will demonstrate the ability to:

- Define the purpose, construction and operation of push type clutches and flywheels.
- Perform the required diagnosis, repair procedures and adjustments for push- type clutch assemblies.
- Define the purpose, construction and operation of the types of gears and gearing reductions used in CVE applications.
- Describe the purpose, construction and operation of single countershaft transmissions used in CVE applications.
- Describe the purpose, construction and operation of the single reduction drive axle assemblies used in CVE applications.
- Perform the proper maintenance procedures for single countershaft transmissions and drive axle assemblies.
- Identify the proper type of lubricants and lubrication methods used in the drive train systems and assemblies according to Manufacturers' Specifications.
- Perform disassembly and assembly of single countershaft transmissions and single reduction drive axles using Manufacturer Specifications and Manuals.

**III. TOPICS:**

1. Push-Type Clutch and Flywheel assemblies
2. Fundamentals of Gears and Gearing
3. Single Countershaft Manual Transmissions
4. Drive Shafts, Power Take-Off Shafts and Universal Joints
5. Single Reduction Drive Axle Assemblies
6. Transmission Lubricants and Service Procedures
7. Rear Axle Lubricants and Service Procedures

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

Hand outs provided by instructor as well as text books requested by department as per booklist.

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

***Students will be tested on the material covered per apprenticeship curriculum by multiple choice questions, assignments, and practical tests. The weigh factor for each area of testing will be as follows:***

Theory Tests	50 %
Practical Tests	30 %
Assignments	20 %

This evaluation can change depending on the emphasis placed on each of the above testing procedures.

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%	
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	49% and below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	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.	

If a faculty member determines that a student is at risk of not being successful in their academic pursuits and has exhausted all strategies available to faculty, student contact information may be confidentially provided to Student Services in an effort to offer even more assistance with options for success. Any student wishing to restrict the sharing of such information should make their wishes known to the coordinator or faculty member.

## **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.

## **VII. COURSE OUTLINE ADDENDUM:**

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