

I. COURSE DESCRIPTION:

Drive Train Systems is designed to provide the proper maintenance and repair procedures for students working on the Braking Systems of Commercial Vehicles and Equipment. On this course students will learn about the different types of wheel end assemblies used inner components that make up the of various type bearings and seals that make up the wheel end assemblies for disc and spoke wheel hubs. Students will learn the proper maintenance and repair and adjustment procedures for these types of wheel ends. Students will be taught Basic Principles of the Purpose, Construction and Operation of both Hydraulic and Pneumatic Braking Systems used on Heavy Equipment and On Road Truck and Trailers The students will also be taught how to safely and properly troubleshoot both Hydraulic and Pneumatic Systems for proper brake operation and adjustment.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. Define the purpose, construction and operation of Hydraulic and Pneumatic Braking Systems
2. Perform the required troubleshooting procedures for both Hydraulic and Pneumatic Brake Systems
3. Describe the purpose, construction and differences of the types of foundation brakes used for Hydraulic and Pneumatic Systems.
4. Perform proper brake adjustment Procedures for both Hydraulic and Pneumatic brake systems according to Manufacturer Specifications
5. Identify proper Safety Procedures for the safe handling of brake fluids, brake dust, found in Hydraulic brake systems.
6. Perform Proper Safety Procedures while raising, supporting and working on Heavy Equipment and Trucks using Hydraulic and Pneumatic Brake Systems.
7. Remove and Install wheel bearing assemblies in both Disc Wheel and Spoke wheel end hubs and perform proper adjustment according to Manufacturer and Industry standards outlined in the Commercial Vehicle Wheel Installation Manual.

III. TOPICS:

1. Basic Hydraulics
2. Basic Pneumatics
3. Hydraulic Brake System Components and operation
4. Pneumatic Brake System Components and operation
5. Servicing Hydraulic Brake Systems
6. Servicing Pneumatic Brake Systems
7. Wheel End Assemblies

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.

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.

The following semester grades will be assigned to students:

Grade	<u>Definition</u>	<i>Grade Point Equivalent</i>
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.	

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 only be granted admission to the room at the Instructors discretion.

Failure to show up for a Test either theory or practical will result in an "F" grade unless prior arrangements have been made with the Instructor.

Re-writes of theory tests are only allowed at the Instructors discretion and any Student that re-writes a test will be given a maximum of 60%.

VII. COURSE OUTLINE ADDENDUM:

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