

**SOUTHEAST COMMUNITY COLLEGE**  
**TRANSPORTATION OCCUPATIONS**  
**DIESEL –AG EQUIPMENT SERVICE TECH**  
**COURSE SYLLABUS**  
**October 16, 2020**  
[Syllabus Statements](#)

**I. CATALOG DESCRIPTION**

Course Number: AGST 1260  
Course Title: Hydraulic & Braking Systems  
Prerequisite(s): AGST1110, AGST1130, AGST1140

Catalog Description: Introduction to hydraulic systems and symbols: theory, design, principles, and applications of pumps, valves, actuators, reservoirs, lines, fittings, filters, and fluids. Theory and function of open, closed, PFC, and combination systems. Safety, diagnostics, testing and repair of hydraulic systems and components. Braking systems: principles of operation and use of components in modern Ag and construction equipment. This will include service, repair, adjustment and troubleshooting of air and hydraulic braking systems.

Credit Hour: 5.0  
Class Hours: 15  
Lab Hours: 180  
Total Contact Hours: 195

**II. COURSE OBJECTIVES: *Course will:***

- A. Teach how to write and recite Pascal's Law.
- B. Teach hydraulic principles necessary to understand how and why hydraulics operates.
- C. Show graphic ISO symbols.
- D. Teach preventive maintenance.
- E. Teach safety when using components and fluids.
- F. Teach the operation of hydrostatics.
- G. Teach flow rater operation.
- H. Teach problem solving using hydraulic simulator.

**III. STUDENT LEARNING OUTCOMES AND GENEARL EDUCATION LEARNING OUTCOMES**

**A. STUDENT LEARNING OUTCOMES: *The student will be able to:***

- 1. Read and comprehend technical information found in textbooks, manuals and operating instructions used in the classroom and lab.
- 2. Use basic hand tools to perform lab projects.
- 3. Safely operate test gauges and flow rater.
- 4. Test disassemble, measure and reassemble hydraulic components used in lab.

**B. GENERAL EDUCATION LEARNING OUTCOMES:**

**GELO #**

#### **IV. CONTENT/TOPICAL OUTLINE**

- A. Hydraulics introduction
- B. Pumps
- C. Valves and principles
- D. Actuators
- E. Reservoirs
- F. Filters
- G. Seals
- H. General maintenance
- I. Steering and brakes
- J. Flow rator operation
- K. Safety

#### **V. INSTRUCTIONAL MATERIALS**

**Required Text(s):** John Deere Service Publications-Fundamentals of Service/Hydraulics

**Other Resources:** Vickers Mobile Hydraulics Manual M-2990-S by Sperry Rand Corp

**Outside Reading/Research Required:**

#### **VI. METHODS OF PRESENTATION / INSTRUCTION**

**A. Methods of presentation typically include a combination of the following:**

1. Lecture
2. Small and large group discussion
3. Video presentation
4. Transparencies
5. Demonstrations
6. Project boards
7. Flip charts
8. Handouts
9. Observations
10. Assigned lab projects
11. Field trips

#### **VII. METHODS OF EVALUATION**

**A. Methods of evaluation typically include a combination of the following:**

1. Notebook (if required)
2. Quizzes
3. Tests
4. Lab grades
5. Attendance/class conduct

Letter grades will be based on the SCC Standard Grade Scale Policy. **Note:** See course outline for specific details on how the course grades will be calculated.

## VIII. SPECIFIC COURSE REQUIREMENTS

### A. Student must:

1. Complete all tests, projects, assignments, and notebook (if required).
2. Earn a final grade of 70% (2.0) or higher.

### B. Attendance:

1. **Attendance is required for successful completion of this course.**
2. This is an Engaged Learning course and students are expected to complete Pre-Class Preparation assignments/homework and attend sessions for Class, Lab, including assignments missed due to absence.
3. Each instructor will inform students by means of a Syllabus and Course Information Document of attendance requirements at the first class meeting.
4. It is expected that students will be on time and present for all scheduled class / lab times unless PRIOR arrangements have been made with the instructor.
5. Missed class or lab sessions, regardless of cause, reduces the opportunity for learning and may affect student achievement of course learning outcomes and the student's grades.
6. Students are responsible for all content missed, regardless of the reason for the absence.
7. Students must, whenever possible, notify the instructor if unable to attend any class/lab session.
8. Emergency absences will be considered on an individual basis to determine if learning activities can reasonably be rescheduled during the current session.

### C. Participation:

1. For every hour of classroom learning students are expected to perform two hours of related studies as homework or hands-on / simulated/on-line activities outside the classroom.
2. Students are expected to be responsible for meeting scheduled class/lab/ homework & assigned due dates unless prior arrangements have been made with the instructor 24 hours before the due date.
3. Students are expected to complete all exams, quizzes, lab activities and assignments / homework at the scheduled times unless PRIOR arrangements have been made with the instructor before the due date and time.
4. When reasonably possible, and only when prior arrangements have been made, students may ask the instructor to have a test or exam rescheduled prior to 24 hours before the activities scheduled date and time.
5. Unscheduled Quizzes may be given at any time and may not be repeated or taken at a later time, unless approved by the instructor.
6. Exceptions due to emergency absences will be considered on an individual basis.

### D. **Program shop safety rules will be followed. Please see the course outline for any additional safety rules established by the instructor.**

### E. **Perform necessary tool room duties.**