SOUTHEAST COMMUNITY COLLEGE
TRANSPORTATION OCCUPATIONS
DIESEL-AG EQUIPMENT SERVICE TECH
COURSE SYLLABUS
October 16, 2020
Syllabus Statements

I. CATALOG DESCRIPTION

Course Number: AGST1110
Course Title: Shop Process & Safety/Power Trains
Prerequisite(s): Program entrance requirements

Catalog Description: General shop safety, hazard communication, and forklift operator training with certification. Safe and proper use of power tools, hand tools, and common measuring instruments used in the equipment shop. The theory of power transmission from the engine to the drive wheels, power take off and auxiliary drives. Includes power train efforts on engine output, levers, gears, chains, clutches, transmissions, final drives, drive lines, differentials. Procedures for safe disassembly, inspection, adjustment, and reassembly of standard mechanical shift transmissions and differentials will be practiced in the laboratory.

Credit Hour: 5.0
Class Hours: 30
Lab Hours: 135
Total Contact Hours: 165

II. COURSE OBJECTIVES: *Course will:*

A. Qualify students for certification under the College's Hazard Communication program.
B. Qualify students for certification under the College's Forklift Operator program.
C. Teach how to use and maintain measuring instruments commonly found in a repair shop.
D. Teach how to use and maintain common shop tools (hand/power).
E. Teach how to identify, install/remove, and repair metric and standard fasteners.
F. Teach how to identify, install/remove, and repair metric and standard tube and pipe fittings.
G. Demonstrate how to use a torque wrench and test it for accuracy.
H. Identify power train components and their functions.
I. Determine the mechanical advantage of all simple machines.
J. Show how to read, comprehend, and perform technical manual procedures.
K. Demonstrate how to disassemble, inspect, adjust, and reassemble a mock manual transmission.
L. Teach how to calculate gear ratios for PTO and all transmission speeds.
M. Show how to setup drive pinion and ring gear for proper pinion depth, pinion preload, differential carrier preload, and backlash.
N. Show how to setup endplay adjustment for transmission drive shaft and countershaft.

III. STUDENT LEARNING OUTCOEMS AND GENERAL EDUCATION LEARNING OUTCOMES

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

1. Safely handle and store hazardous materials found in the repair shop.

2. Demonstrate the ability to safely operate a lift truck.
3. Demonstrate the ability to use and maintain hand and power shop tools.
4. Use charts and measuring tools to identify common fasteners and fittings.
5. Perform extraction, thread repair, and proper assembly techniques for a variety of threaded fasteners and fittings.
6. Use hand tools, measuring instruments, and special tools during transmission overhaul.
7. Identify parts using a micro-fiche reader/printer for ordering.
8. Read, comprehend, and perform instructions and operations found in the technical manual.

B. GENERAL EDUCATION LEARNING OUTCOME:

GELO #3: Critical Thinking & Problem Solving

Outcomes:

1. Collect, identify, interpret and analyze data.
2. Synthesize information to arrive at reasoned solutions to problems.
3. Evaluate ideas presented in writing, medial, speech, or artistic presentations.
4. Evaluate the validity of arguments, alternatives, data, outcomes, and/or impacts of actions.
5. Acquire and integrate knowledge and construct relationships across disciplines.

IV. CONTENT/TOPICAL OUTLINE

A. Hazard communication
B. Lift truck operation
C. Measuring instruments (maintenance and use of)
D. Cutting tools
E. Fasteners
F. Tube/pipe fittings (metric/standard)
G. Introduction
H. Clutches
I. Transmissions
J. Differentials

V. INSTRUCTIONAL MATERIALS

Required Text(s):

Fundamentals of Service, Shop Tools – John Deere
Fundamentals of Service, Fasteners – John Deere
Repair Shop – Hazardous Materials Program – Safety Kleen
Coaching the Lift Truck Operator – National Safety Council
Fundamentals of Service, Power Trains – John Deere
Antifriction bearing maintenance manual
OTC puller handbook
Chicago Rawhide Seals self study guide

Other Resources:

Faster Tap Drill Charts
Micrometer Pocket Charts
Torque Charts
John Deere Technical Manual

Outside Reading/Research Required: 3 Technical Reports based on articles found in a trade journal related to Agricultural Transportation.
First quarter tool set
Safety glasses w/side shields (Z87 approved)
Leather work shoes
Pen & colored pencils

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

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. Please see the course outline for any additional attendance regulations established by the instructor.

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

F. Perform necessary tool room duties.