

**SOUTHEAST COMMUNITY COLLEGE  
TRANSPORTATION OCCUPATIONS  
DIESEL-AG EQUIPMENT SERVICE TECHNOLOGY  
COURSE SYLLABUS**

**July 1, 2019**

[Syllabus Statements](#)

**I. CATALOG DESCRIPTION**

Course Number: AGST1344  
Course Title: Fuel Systems II  
Prerequisite(s): AGST1125

Catalog Description: Theory and design of diesel fuel injection systems, including fuels, nozzles, governors, fuel flow, filtering, handling, and storage. Diagnostics, testing, repair of pumps and nozzles, and common rail (hydraulic) and electronic operated systems. Fundamentals of safety while servicing and repairing fuel systems is emphasized.

Credit Hour: 3.0  
Class Hours: 30  
Lab Hours: 45  
Total Contact Hours: 75

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

- A. Define fuel combustion and fuel injection.
- B. Define pump and nozzle principles.
- C. Define multi-plunger fuel systems.
- D. Define distributor plunger fuel systems.
- E. Cover safely testing and adjusting injection nozzles.
- F. Define the various types of common rail fuel systems.
- G. Cover safety procedures related to the Hazard Communication and Globally Harmonized Systems as well as specific program rules for tool and equipment use.

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

**A. STUDENT LEARNING OUTCOMES:** *Student will be able to:*

- 1. Read and comprehend technical information found in textbooks, service manuals, and operating instructions used in the classroom and lab.
- 2. Use their basic hand tools to perform testing, servicing, and repairs in the lab.
- 3. Safely test, disassemble, adjust and reassemble nozzle assemblies.
- 4. Safely test, disassemble, adjust and reassemble injection pumps, in practical usage.
- 5. Perform diagnostics and repairs on live fuel systems.

**B. GENERAL EDUCATION LEARNING OUTCOMES**

**GELO 4: Problem Solving**

The student will demonstrate the ability to define a problem, develop a plan to solve the problem, collect and analyze information, solve the problem, evaluate results, and

define any need for further work.

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

- A. Fuel Systems Review
- B. Nozzle Review
- C. Fuel Injection Pumps Used on Present Equipment
- D. Common Rail Fuel Systems
- E. Fuel System Controllers

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

**Required Text(s):** Roosa Master Manual Package American Bosch Manual,  
Diesel Engine & Fuel System Repair 6<sup>th</sup> Edition, Dagel-Brady  
IHC Manual Covering Robert Bosch

#### **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
- 2. Quizzes
- 3. Tests
- 4. Lab grades
- 5. Class conduct

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

#### **VIII. SPECIFIC COURSE REQUIREMENTS**

- A. The student must complete all tests, projects, assignments, and notebook (if required).
- B. The student must earn a final grade of 70% (2.0) or higher.
- C. Perform necessary tool room duties.
- D. Program shop safety rules will be followed. Please see the course information document for any additional safety rules established by the instructor.
- E. **Attendance**
  - 1. Attendance is required for successful completion of this course. 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.

2. Each instructor will inform students by means of a Syllabus and Course Information Document of attendance requirements at the first class meeting.
3. It is expected that students be on time and present for all scheduled class/lab times unless PRIOR arrangements have been made with the instructor.
4. 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.
5. Students are responsible for all content missed, regardless of the reason for the absence.
6. Students must, whenever possible, notify the instructor if unable to attend any class/ lab session.
7. Emergency absences will be considered on an individual basis to determine if learning activities can reasonably be rescheduled during the current session.

#### **F. 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.

#### **G. Retention Alert Policy and Procedures**

Any student who is struggling or doing poorly in class because of attendance, grades, or quality of lab work may have a Retention Alert sent by the instructor to the Student Retention Specialist (SRS) on the SCC Milford Campus. The purpose of this retention alert is to facilitate communication between the instructor and the SRS so that the student can be contacted and offered appropriate help. Typically, the SRS will attempt to contact the student via phone call, text message, and e-mail in order to set up a time for a personal visit. During the visit, the SRS and the student will make plans or changes in student classroom strategies so that hopefully, the student will be successful in that class. Success strategies may be the suggestion of working with a tutor, improving study skills, test taking skills, note taking skills or time management skills. Any other problems that could be preventing the student from being successful in class can be discussed also.