
COURSE PREFIX/NO:	AUT 158
COURSE TITLE:	AUTOMOTIVE DIAGNOSIS
LEC HRS/WEEK:	2.0
LAB HRS/WEEK:	3.0
CREDIT HRS/SEMESTER:	3.0

[Distance Learning Attendance/VA Statement](#)
[Textbook Information](#)

COURSE DESCRIPTION:

This course is a study of basic diagnosis procedures and the use of standard shop equipment.

COURSE COMPETENCIES:

Upon successful completion of this course, the student should be competent to perform the following tasks:

Module 1 No-Start Condition

1. Diagnose a no-start condition and determine the system that is causing the problem.
2. Diagnose a no-start condition that is a result of an ignition system failure.
3. Diagnose a no-start condition that is a result of a fuel system failure.
4. Diagnose a no-start condition that is a result of a lack of compression.

Module 2 Electrical Diagnosis

1. Diagnose a no-crank condition and determine the cause.
2. Diagnose a slow cranking condition using a voltage drop test.
3. Diagnose low alternator output using a voltage drop test.
4. Diagnose a low battery charge condition resulting from an alternator failure.
5. Diagnose noises that result from a failing alternator.
6. Diagnose noises resulting from starter failure or poor starter installation.
7. Diagnose battery condition with a hydrometer and volt meter.
8. Diagnose key-off battery drain using a test light or multi-meter.

Module 3 Engine Diagnosis

1. Diagnose abnormal engine noise or vibration concerns; determine necessary action. (A6-P2)
2. P2)
3. Research applicable vehicle and service information, such as engine management system operation, vehicle service history, service precautions, and technical service bulletins. (A3-P1)
4. Diagnose abnormal exhaust color, odor, and sound; determine necessary action. (A7-P2)
5. Perform cylinder cranking compression tests; determine necessary action. (A10-P1)
- 6.
- 7.

8. Perform cylinder leakage test; determine necessary action. (A12-P1)
9. Perform cylinder power balance test; determine necessary action. (A9-P1)
10. Diagnose engine mechanical, electrical, fuel, and ignition concerns with an oscilloscope
11. and/or engine diagnostic equipment; determine necessary action. (A13-P1)
12. Perform engine running compression test; determine necessary action. (A11-P2)
13. Identify and interpret engine performance concern; determine necessary action. (A2-P1)
14. Inspect engine assembly for fuel, oil, coolant, and other leaks; determine necessary
15. action. (A5-P2)
16. Perform engine absolute (vacuum/boost) manifold pressure tests; determine necessary
17. action. (A8-P1)
18. Verify correct camshaft timing. (A17-P2)

TOPIC / CONTENT OUTLINE

Module 1 No-Start Condition

1. Fuel pressure tests
2. Ignition systems
3. Fuel systems
4. Fuel pressure tests
5. Basic engine operation
6. Noid-lites
7. Spark testers

Module 2 Electrical Diagnosis

1. Multi-meters
2. Starters
3. Alternators
4. Batteries
5. Test lights
6. Wiring diagrams
7. Ignition system

Module 3 Engine Diagnosis

1. Engine operation
2. Compression tests
3. Cylinder leakage tests
4. Cylinder balance tests
5. Oscilloscopes
6. Vehicle tune-ups

METHODS OF INSTRUCTION

This course consists of two hours of classroom instruction and three hours of lab instruction. The classroom instruction includes lectures, discussions, problem solving sessions, and tests. The lectures are given while drawing on the blackboard, using overhead projections, videotapes, demonstrations, and other multimedia methods. The laboratory instruction includes proper safety procedures, instructions on the proper use of lab equipment, proper diagnosis of mechanical and electrical related problems, and hands on experience with live repair projects.

COURSE REQUIREMENTS

Students are responsible for attaining competencies through completion of the following course requirements:

ATTENDANCE:

Students will be bound by the policies stated in the York Technical College Student Handbook. Students must attend 90% of the hours assigned the class for a semester to receive credit for the course. In case a student does miss a class, the student is responsible for obtaining the material that was covered during the absence. If a student is aware that a class will be missed, then the student should notify the instructor at the earliest possible date. Students with unexcused absences during tests will be allowed to make up tests at the discretion of the instructor. The student has the burden to be sure that some arrangement has been made with the instructor for taking a make-up test.

ACADEMIC HONESTY

York Technical College adheres to the South Carolina Tech Student code, approved by the State Board for Technical and Comprehensive Education on March 13, 1974(revised last April, 25 1984). Copies of this code are available in the Library and from Student Services. Any student involved in cheating or any other academic dishonesty will be given a grade of zero and will be subject to further disciplinary action. See the student handbook section "Student Life" subheading "Student Conduct" for further details.

PARTICIPATION IN CLASS

Students will be expected to participate in class discussions, to demonstrate problem solving techniques, to complete tests, homework, lab experiments, lab reports and other assigned work.

EVALUATION STRATEGIES / GRADING

The grading scale will be as follows:

Grade Points

A	90-100
B	80-89
C	70-79
D	60-69
F	00-59

Evaluation Method

Tests may be written or oral and may contain questions that are true or false, short answer, multiple choice, fill in the blank and/or problems. Students should refer to the instructor for the number of tests to be given and the material to be covered on each test. Each test will be of equal weight unless otherwise indicated by the instructor. Lab grades will be based on the completion of the Course Competencies, team work, safety, class participation, and housekeeping.

Final grades will be determined as follows:

Module 1	Tests	16.66%
Module 1	Lab	16.66%
Module 2	Test	16.66%
Module 2	Lab	16.66%
Module 3	Test	16.66%
Module 3	Lab	<u>16.66%</u>
Total Grade		100%

ENTRY-LEVEL SKILLS

Students should demonstrate hand eye coordination, manual dexterity, and be able to work in an industrial environment.

PREREQUISITES: None

CO-REQUISITES: RDG 100

Disabilities Statement: Any student who feels s/he may need an accommodation based on the impact of a disability should contact the Special Resources Offices (SR) at 803-327-8007 in the 300 area of Student Services. The SRO coordinates reasonable accommodations for students with documented disabilities.