COURSE PREFIX /NO: **AUT 156**
COURSE TITLE: **AUTO DIAGNOSIS AND REPAIR**
LEC HRS/WEEK: **2.0**
LAB HRS/WEEK: **6.0**
CREDIT HRS/SEMESTER: **4.0**

Distance Learning Attendance/VA Statement
Textbook Information

COURSE DESCRIPTION

This is a basic course for general diagnostic procedures and minor repairs.

COURSE COMPETENCIES

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

Module 1 Engine Analysis
1. Check engine compression; determine necessary action.
2. Check engine oil pressure; determine necessary action.
3. Check engine for unusual noise or vibration; determine necessary action.
4. Make engine diagnostic circuit check using a SCANN tool.

Module 2 Fuel Systems
1. Check system fuel pressure; determine necessary action.
2. Check system fuel filter; determine necessary action.
3. Diagnose drivability problems relating to fuel systems.

Module 3 Electrical/Ignition Systems
1. Check starter current draw; determine necessary action.
2. Make battery load test; determine necessary action.
3. Perform charging system check; determine necessary action.
4. Perform voltage drop checks; determine necessary action.
5. Check engine for miss; determine necessary action.
6. Check engine for no start condition; determine necessary action.

Module 4 Automotive Clutches/Standard Transmissions/Differentials
1. Check clutch adjustment; determine necessary action.
2. Check clutch slippage; determine necessary action.
3. Check clutch/transmission assembly for noise; determine necessary action.
4. Check manual transmission linkage; determine necessary action.
5. Check manual transmission fluid level; determine necessary action.
6. Check rear differential fluid level; determine necessary action.
7. Check rear axle bearings; determine necessary action

Module 5 Automatic Transmission

1. Check fluid level; determine necessary action.
2. Check fluid color/odor; determine necessary action.
3. Service transmission; determine necessary action.

Module 6 Heating/Air Conditioning

1. Make system performance check of heat system; determine necessary action.
2. Make system performance check of air conditioning system; determine necessary action.

Module 7 Lighting System

1. Make exterior/interior lighting system performance check; determine necessary action.
2. Headlamp inspection/replacement; determine necessary action.
3. Small bulb inspection/replacement; determine necessary action.
4. Check headlight adjustment; determine necessary action.

PERFORMANCE OBJECTIVES:

Module 1 Engine Analysis

1. Given a vehicle, the student will check engine compression; determine necessary action according to NATEF standards.
2. Given a vehicle, the student will check engine oil pressure; determine necessary action according to NATEF standards.
3. Given a vehicle, the student will check engine for unusual noise or vibration; determine necessary action according to NATEF standards.
4. Given a vehicle, the student will make engine diagnostic circuit check using a SCANN tool according to NATEF standards.

Module 2 Fuel Systems

1. Given a vehicle, the student will check system fuel pressure; determine necessary action according to NATEF standards.
2. Given a vehicle, the student will check system fuel filter; determine necessary action according to NATEF standards.
3. Given a vehicle, the student will diagnose drivability problems relating to fuel systems according to NATEF standards.

Module 3 Electrical/Ignition Systems

1. Given a vehicle, the student will check starter current draw; determine necessary action according to NATEF standards.
2. Given a vehicle, the student will make battery load test; determine necessary action according to NATEF standards.
3. Given a vehicle, the student will perform charging system check; determine necessary action according to NATEF standards.
4. Given a vehicle, the student will perform voltage drop checks; determine necessary action according to NATEF standards.
5. Given a vehicle, the student will check engine for miss; determine necessary action according to NATEF standards.
6. Given a vehicle, the student will check engine for no start condition; determine necessary action according to NATEF standards.

Module 4 Automotive Clutches/Standard Transmissions/Differentials

1. Given a vehicle, the student will check clutch adjustment; determine necessary action according to NATEF standards.
2. Given a vehicle, the student will check clutch slippage; determine necessary action according to NATEF standards.
3. Given a vehicle, the student will check clutch/transmission assembly for noise; determine necessary action according to NATEF standards.
4. Given a vehicle, the student will check manual transmission linkage; determine necessary action according to NATEF standards.
5. Given a vehicle, the student will check manual transmission fluid level; determine necessary action according to NATEF standards.
6. Given a vehicle, the student will check rear differential fluid level; determine necessary action according to NATEF standards.
7. Given a vehicle, the student will check rear axle bearings; determine necessary action according to NATEF standards.

Module 5 Automatic Transmission

1. Given a vehicle, the student will check fluid level; determine necessary action according to NATEF standards.
2. Given a vehicle, the student will check fluid color/odor; determine necessary action according to NATEF standards.
3. Given a vehicle, the student will service transmission; determine necessary action according to NATEF standards.

Module 6 Heating/Air Conditioning

1. Given a vehicle, the student will make system performance check of heat system; determine necessary action according to NATEF standards.
2. Given a vehicle, the student will make system performance check of air conditioning system; determine necessary action according to NATEF standards.

Module 7 Lighting System

1. Given a vehicle, the student will make exterior/interior lighting system performance check; determine necessary action according to NATEF standards.
2. Given a vehicle, the student will do a headlamp inspection/replacement; determine necessary action according to NATEF standards.
3. Given a vehicle, the student will do a small bulb inspection/replacement; determine necessary action according to NATEF standards.
4. Given a vehicle, the student will check headlight and make adjustment; determine necessary action according to NATEF standards.

TOPIC/CONTENT OUTLINE:

Module 1 Engine Analysis

1. Compression
2. Oil pressure
3. Noise
4. Diagnostic check

Module 2 Fuel Systems

1. Fuel pressure
2. Fuel filter
3. Drivability

Module 3 Electrical/Ignition Systems

1. Current draw
2. Battery load
3. Charging system
4. Voltage drop
5. Miss
6. No start

Module 4 Automotive Clutches/Standard Transmission/Differential

1. Adjustment
2. Slippage
3. Assembly
4. Linkage
5. Fluid level
6. Differential
7. Axle bearings

Module 5 Automatic Transmissions

1. Fluid level
2. Color/odor
3. Service

Module 6 Heating/Air Conditioning

1. Heat performance check
2. AC performance check

Module 7 Lighting System

1. Performance check
2. Headlamp
3. Bulb replacement
4. Adjustment

METHODS OF INSTRUCTION

This course consists of two hours of classroom instruction and six 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 vehicle system 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	7.14%
Module 1	Lab	7.14%
Module 2	Tests	7.14%
Module 2	Lab	7.14%
Module 3	Tests	7.14%
Module 3	Lab	7.14%

Module 4	Tests	7.14%
Module 4	Lab	7.14%
Module 5	Tests	7.14%
Module 5	Lab	7.14%
Module 6	Tests	7.14%
Module 6	Lab	7.14%
Module 7	Tests	7.14%
Module 7	Lab	7.14%
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.