

## **AUTOMOTIVE TECHNOLOGY III**

5.0 Credits Grades 11-12

Pre-requisite: Automotive Technology I and Automotive Technology II

### **Course Outline**

The class is designed for a student with a strong desire to enter the Automotive Industry after graduation, as well as for students who have demonstrated their ability to work independently to solve problems/make repairs/diagnostics through the applications of math, science, technology. The course may be taken simultaneously with Automotive Technology II to allow for additional lab time so students can further develop hand-on practical experiences that will prepare the student for post-graduation experiences. Students will explore post-secondary educational opportunities via field trips and guest speakers that will further prepare them for ASE certification and entrance into the Automotive Industry, as well as gain first-hand experience with practice ASE testing sessions throughout the year. Students will be instructed on shop safety and how to properly maintain personal vehicle as well as those of the faculty staff and community members. A logical approach focused on patience and safety with both hand and power tools is strongly stressed.

- Module 1:
  - A. Shop Safety: "Safety is a State of Mind": hand tools, power tools, OSHA/DEP/EPA regulations, personal protective equipment (PPE)
  - B. Automotive Computers (Advanced): theory, parts, sensors, actuators, ECU/ECM basic designs, use of scan tools, use of diagnostic tools, maintenance, diagnostics and repairs, personal safety (PPE)
- Module 2:
  - A. Automotive Service Excellence Certification (ASE): description, rationale, industry requirements, sections of test, review of knowledge/skills/concepts, testing-taking skills, review sample questions/explanation of incorrect/correct answers.
  - B. Careers in the Automotive Industry: exploration, discussions, evaluation of current trends, industry wants and needs, requirements, education, tracks-to-success.
  - C. Technical School Guest Speakers/Visitations: Universal Technical Institute (U.T.I.), Automotive Training Center (A.T.C.), Ohio Technical College (O.T.C.)
- Module 3:
  - A. Automotive Service Excellence Certification (ASE): description, rationale, industry requirements, sections of test, review of knowledge/skills/concepts, testing-taking skills, review sample questions/explanation of incorrect/correct answers.
  - B. Careers in the Automotive Industry: exploration, discussions, evaluation of current trends, industry wants and needs, requirements, education, tracks-to-success.
- Module 4:
  - A. Automotive Service Excellence Certification (ASE): description, rationale, industry requirements, sections of test, review of knowledge/skills/concepts, testing-taking skills, review sample questions/explanation of incorrect/correct answers.
  - B. Careers in the Automotive Industry: exploration, discussions, evaluation of current trends, industry wants and needs, requirements, education, tracks-to-success.

### **Learning Objective:**

As students prepare for college and/or a career, they need to acquire the knowledge, skills, and attributes necessary to be a successful. This course will explore and help form the technical foundation in Automotive Technology with specific job skills for employment in the Automotive Industry and/or pursue additional technical education in a related postsecondary program. As they proceed through the course, they will demonstrate critical thinking and problem solving skills, learn to exercise sound reasoning in making complex choices regarding diagnostics and repairs, exhibit creative /innovative thinking reflective of STEM philosophies, and understand the attributes of physical safety and mental well-being by acting responsibly.

### **Grading Scale:**

Assignments: (Classwork/Participation) 30%  
Assessments: (Test/Projects/Quizzes) 60%  
Quarterly: (end of Marking Period Exam) 10%  
Total: 100%

### **Materials:**

Texts: Modern Automotive Technology.

Duffy, James E.

8<sup>th</sup> Ed.

The Goodheart-Wilcox Company, Inc. U.S.A.

2014.

Modern Automotive Technology – Student Workbook

Duffy, James E.

8<sup>th</sup> Ed.

The Goodheart-Wilcox Company, Inc. U.S.A.

2014.

Tools: Various hand tools

Various power tools

Various pneumatic tools / tool sets

Equip: Challenger Industries 9000lb electric-pneumatic garage lift

Launch Corp 10000lb electric-pneumatic garage lift

Quality Industries 9000lb 4-post electric-pneumatic garage lift

Hoffman pneumatic tire machine

Hoffman electric high-speed wheel balancer

Craftsman 5hp gross torque engines

Snap-on MODIS diagnostic tool

OTC II/EOBD & CAN scan tool