

## **Automotive Technology**

### **AAS: Automotive Technology**

Upon completion of the program, the graduate can:

#### **General Education Competencies:**

Students should prepare for twenty-first century challenges by gaining:

- A. Knowledge of human cultures and the physical and natural worlds through study in the sciences and mathematics, social sciences, humanities, languages, and the arts.
- B. Intellectual and practical skills, including
  - Inquiry and analysis
  - Critical and creative thinking
  - Written and oral communication
  - Quantitative literacy
  - Information literacy
  - Teamwork and problem solving
- C. Personal and social responsibility, including
  - Civic knowledge and engagement (local and global)
  - Intercultural knowledge and competence
  - Ethical reasoning and action
  - Foundations and skills for lifelong learning
- D. Integrative and applied learning, including synthesis and advanced accomplishment across general and specialized skills.

#### **Technical Competencies/Learning Outcomes**

1. Perform basic automotive maintenance, such as lubrication, battery, cooling system, wheels and tires, spark plugs, wipers, lamps and bulbs, fuses, and other “quick service” items, including vehicle pre-delivery service.
2. Diagnose and repair problems such as unusual tire wear, noise, and vibration related to the suspension and steering systems.
3. Demonstrate basic hydraulic principles and design.
4. Demonstrate the construction and operation of various brake systems.
5. Diagnose and repair both drum and disk brakes, master cylinder, wheel cylinder, vacuum power booster, antilock brakes, and related component parts.
6. Communicate the electronic components of the automobile, including semiconductors, diodes, transistors, and other components.
7. Demonstrate how each component of the automobile interacts with the electronic circuit.
8. Demonstrate computer basics, actuators, and speed control devices in the automobile.
9. Maintain and repair conventional ignition systems, coils, distributors, ignition timing, electronic ignition, and distributorless ignition systems.
10. Demonstrate the principles of refrigeration and the refrigeration cycle.
11. Diagnose and repair automotive heating and air conditioning systems to produce maximum comfort to passengers.
12. Diagnose and repair problems involving power and fuel economy.
13. Diagnose and repair faults in electronic controls and circuitry, including how automotive computers receive, convert, process, compare and use various input data to control appropriate systems and components.
14. Diagnose, repair and adjust the carburetor, fuel injection, and other parts of the automotive fuel system.
15. Communicate the principles of the four-stroke engine.
16. Repair internal combustion engines according to manufacturer’s specifications using appropriate equipment, hand tools, and measuring instruments.
17. Demonstrate principles of operation, construction, and service of manual transmissions and related drive train components, differentials, clutches, u-joints, rear-wheel drive, and 4-wheel drive.

General Education Titles and Requirements Updated October 2011

18. Repair and reassemble rear-wheel-drive automatic transmissions and front-wheel-drive automatic transaxle, hydraulic principles and power flow.