

# AUTOMOTIVE TECHNOLOGY (AT)

---

## **AT 100 - Automotive Service Basics**

**Credit Hours: 2, Contact Hours: 2**

Division: Technical

This is the first course in the Automotive Service Program. Engine theory, cooling systems, and lube requirements will be covered. Bolts, micrometers and basic specialty tools are integrated into the class. Training in the use of acetylene torch equipment will be taught along with its use in the automotive field. Group 2 course.

Recommended Prerequisites: ENG 99/108

## **AT 110 - Automotive Brake Systems**

**Credit Hours: 5, Contact Hours: 7**

Division: Technical

This course covers theory, components, nomenclature, and service of automotive brake systems. Students will use standard skills to diagnose hydraulic systems, drum and disk brakes, power assist units and systems. The study and repair of modern ABS systems along with the replacement of associated parts such as wheel bearings will also be covered. Group 2 course. Critical Thinking - Direct.

Required Prerequisites: AT 100-may be taken concurrently

## **AT 120 - Automotive Electrical I**

**Credit Hours: 5, Contact Hours: 8**

Division: Technical

This course covers basic electricity, circuits, testing equipment, and solid state electronics. Group 2 course. Critical Thinking - Direct.

Required Prerequisites: AT 100-may be taken concurrently

## **AT 130 - Engine Performance I**

**Credit Hours: 5, Contact Hours: 8**

Division: Technical

This course is designed to familiarize the student with the theory and operation of the automotive ignition system and fuel system. Group 2 course. Critical Thinking - Direct.

Required Prerequisites: AT 220

## **AT 140 - Suspension and Steering**

**Credit Hours: 4, Contact Hours: 6**

Division: Technical

This course is designed to familiarize the student with the nomenclature, theory, and service techniques for the modern steering and suspension system. Group 2 course. Critical Thinking - Direct.

Required Prerequisites: AT 100-may be taken concurrently

## **AT 150 - Automatic Transmissions**

**Credit Hours: 6, Contact Hours: 9**

Division: Technical

This course is designed to familiarize the student with hydraulic theory, internal transmission powerflow, electronic control and torque converter operation. All aspects of transmission operation will be covered as well as removal, overhaul, and installation procedures. Students will remove, dyno-test, and install actual failed units in the lab. Group 2 course. Critical Thinking - Direct.

Required Prerequisites: Instructor signature required

## **AT 160 - Engine Repair**

**Credit Hours: 6, Contact Hours: 8**

Division: Technical

This course covers the theory, construction, and repair of the four stroke automotive engine. This will include the proper use of compression leakage and test equipment, precision measuring tools, special engine tools and valve grinding equipment. Group 2 course. Critical Thinking - Direct.

Required Prerequisites: AT 100-may be taken concurrently

## **AT 170 - Heating and Air Conditioning**

**Credit Hours: 4, Contact Hours: 6**

Division: Technical

This course covers the principles of refrigeration with emphasis on the particular problems of application to automotive air conditioning. The course also covers automotive heating systems which include heater cores, blower motors, vent systems and the electronic controls for them. The student will learn how to use refrigerant recovery and charging equipment and will have hands-on experience in the lab with that equipment. Group 2 course. Critical Thinking - Direct.

Required Prerequisites: AT 120

## **AT 180 - Manual Drivetrain and Axles**

**Credit Hours: 6, Contact Hours: 9**

Division: Technical

This course covers the basic operating principles, construction, power flow and repair of clutches, manual transaxles, and drive shafts. Differential theory and overhaul will be covered including ring and pinion replacement and set up. Group 2 course. Critical Thinking - Direct.

Required Prerequisites: AT 100-may be taken concurrently

## **AT 200 - Service Department Management**

**Credit Hours: 2, Contact Hours: 2**

Division: Technical

This course is designed to acquaint the student who plans a career in the automotive service industry with the duties, responsibilities, qualifications, and problems of service department manager. The student will learn general shop organization, types of service, and cost and returns by department. Time will be devoted to employer-employee and customer relations, and instruction in the use of the service manual. Group 2 course.

## **AT 210 - Hybrid Technology**

**Credit Hours: 5, Contact Hours: 8**

Division: Technical

This course provides a comprehensive systems overview of the operating principles, maintenance, and service of hybrid electric vehicles. Group 2 course. Critical Thinking - Direct.

Required Prerequisites: AT 130 or Certification in Electrical and Engine Tune Up.

## **AT 220 - Automotive Electrical II**

**Credit Hours: 5, Contact Hours: 8**

Division: Technical

This course covers advanced automotive electronics with the emphasis placed on operation, troubleshooting, and repair of lighting, gauges, accessories, and power option circuits. Body hardware is covered including diagnostics of modern systems with body control modules. Group 2 course. Critical Thinking - Direct.

Required Prerequisites: AT 120

**AT 230 - Engine Performance II**

**Credit Hours: 4, Contact Hours: 6**

Division: Technical

This course covers computerized engine controls including the latest emission control systems. The student will become proficient with the use of scanners, scopes, and the latest engine analyzers. The art of diagnostics and troubleshooting will be stressed. The student will have hands-on experience in this area including practice using the computer as a source of information. Group 2 course. Critical Thinking - Direct.

Required Prerequisites: AT 130

**AT 290 - Automotive Internship**

**Credit Hours: 3, Contact Hours: 3**

Division: Technical

The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in a technical field of study. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid, supervised on-the-job training experience.

In addition to the required 50 hours at a work site, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course.

Communications - Direct.

Required Prerequisites: 30 credits of program specific courses with a GPA of 2.0 or higher.