

AUTOMOTIVE TECHNOLOGY (AUTO)**101 Internal Combustion Engines I 4 credit hours**

Offered fall semester. Three hours lecture and three hours demonstration a week. Fee: \$155.00.

This course provides a fundamental presentation of the design, construction, and operation of automotive gasoline and diesel engine components, including valve adjustments, cylinder head reconditioning, tool identification, and lubrication systems. Costs incurred for parts and/or supplies are the responsibility of the student.

102 Internal Combustion Engines II 4 credit hours

Offered spring semester. Three hours lecture and three hours demonstration a week. Fee: \$155.00.

This course is a continuation of Automotive Technology 101 and will teach the reconditioning procedures of the automotive gasoline and diesel engine. Students in this course will gain continued experience with the internal components of engines, service procedures, and the tools used. Costs incurred for parts and/or supplies are the responsibility of the student.

Prerequisite: Automotive Technology 101.

103 Automotive Electricity I 4 credit hours

Offered fall semester. Three hours lecture and three hours demonstration a week. Fee: \$155.00.

This course provides the fundamentals of magnetism, electron theory, Ohm's Law, and the use and operating principles of meters. Skills in troubleshooting and tracing wiring diagrams, construction and maintenance of batteries, cranking motors, regulators, relays, solenoids, alternators, transistors, integrated circuits, and the testing procedures for these units will be developed through discussion, demonstration, and evaluation. Costs incurred for parts and/or supplies are the responsibility of the student.

Prerequisite: Automotive Technology students only.

104 Automotive Fuel Systems 3 credit hours

Offered spring semester. Two hours lecture and three hours demonstration a week. Fee: \$155.00.

The purpose of this course is to provide the student with the necessary technical and practical information on the types of fuels and air-fuel ratios for automotive gasoline and diesel engines. Construction and operation of electric fuel pumps, electronic fuel injection, fuel distribution, manifolds, carburetor systems, multiple carburetion, and supercharging and turbo-charging will be examined in the lab and classroom. Costs incurred for parts and/or supplies are the responsibility of the student.

Prerequisite: Automotive Technology 103.

105 Related Technical Automotive 2 credit hours

Offered fall semester. One-hour lecture and three hours demonstration a week. Fee: \$155.00.

This course includes the discussion and demonstration of the nomenclature functions, relationships, and operating principles of the various parts of the automobile, including body and accessories. Costs incurred for parts and/or supplies are the responsibility of the student.

Prerequisite: Automotive Technology students only.

106 Automotive Ignition Systems 2 credit hours

Offered spring semester. One-hour lecture and three hours demonstration a week. Fee: \$155.00.

This course provides the operating principles, construction, troubleshooting, and maintenance of breaker point ignition systems, electronic ignition systems, and computer spark control systems. Diagnosis of malfunctions using computer analyzer and oscilloscope

is covered both in theory and practice. Costs incurred for parts and/or supplies are the responsibility of the student.

Prerequisite: Automotive Technology 103.

107 Basic Automotive Service 4 credit hours

Six hours lecture/lab per week. Fee: \$155.00.

This course is designed to develop knowledge and skills required for many general automotive underhood and undercar service areas. Topics include, but are not limited to: belts, hoses, fluids, oil and filters, tires, and multi-point inspections. Costs incurred for parts and/or supplies are the responsibility of the student.

109 Basic Engine Service 4 credit hours

Six hours lecture/lab per week. Fee: \$155.00.

This course is designed to develop knowledge and skills required for entry-level technicians to perform general service on automotive engines. Topics include, but are not limited to: engine mounts, gaskets and seals, cooling systems, lubrication systems, and timing components. Costs incurred for parts and/or supplies are the responsibility of the student.

110 Basic Transmission and Driveline Service 4 credit hours

Six hours lecture/lab per week. Fee: \$155.00.

This course is designed to develop knowledge and skills required for the general service of automobile transmissions and driveline components. Topics include, but are not limited to: automatic transmissions, manual transmissions, drive axles, and differentials. Costs incurred for parts and/or supplies are the responsibility of the student.

112 Basic Chassis and Brakes 4 credit hours

Six hours lecture/lab per week. Fee: \$155.00.

This course is designed to develop knowledge and skills required to service automotive chassis, steering and suspension, and brake components. Topics include, but are not limited to: steering components, chassis systems, drum brakes, disc brakes, and parking brakes. Costs incurred for parts and/or supplies are the responsibility of the student.

114 Automotive Brakes 2 credit hours

Offered fall semester. One-hour lecture and three hours demonstration a week. Fee: \$155.00.

This course studies the construction and operation of base brake systems: hydraulic systems, servo and non-servo drum brake systems, power brake systems and front and rear disc brakes systems. Rotor and drum machining and servicing of all of the components of the brake system is included. Costs incurred for parts and/or supplies are the responsibility of the student.

Prerequisite: Automotive Technology students only.

201 Automotive Transmissions 4 credit hours

Offered fall semester. Three hours lecture and three hours demonstration a week. Fee: \$155.00.

This course is a study of gears, gearing, and power train components. Emphasis is on construction, theory of operation, troubleshooting, and maintenance of various automatic transmissions, transaxles, transfer cases, torque converters, and manual transmissions. Costs incurred for parts and/or supplies are the responsibility of the student.

Prerequisite: Automotive Technology students only.

203 Engine Testing 4 credit hours

Offered spring semester. Three hours lecture and three hours demonstration a week. Fee: \$155.00.

This course provides the means of diagnosing and locating problems encountered in the operation of the automotive engine. It involves the use of various types of testing equipment to diagnose problems in the following engine systems: mechanical components, ignition systems, charging

systems, starting systems, fuel systems, emission controls, and computer engine control systems. Costs incurred for parts and/or supplies are the responsibility of the student.

Prerequisite: Automotive Technology 103.

205 Body Repair and Refinishing 3 credit hours

Offered fall semester. Three hours lecture and three hours demonstration a week. Fee: \$155.00. Body PPE Fee (Personal Protection Equipment): \$125.00.

This course provides students with the necessary technical and practical information on the types of hand and power tools, the principles of metal straightening, sanding, and patching rusted areas. Other topics covered will include various types of body plastics and fiberglass, masking and preparing surfaces for painting, spray-painting with automotive finishes, and body welding. Students in this course will gain experience performing the bodywork and painting of an automobile. Costs incurred for parts and/or supplies are the responsibility of the student.

Prerequisite: Automotive Technology students only.

206 Air Conditioning 2 credit hours

Offered spring semester. One-hour lecture and three hours demonstration a week. Fee: \$155.00.

This course is a study of the construction, operation, and maintenance of the automobile air conditioner, which includes R12 and R134A. Emphasis is placed on the practical problems which occur in the servicing of air conditioners, as these problems relate to the total functioning of the engine and electrical system. Costs incurred for parts and/or supplies are the responsibility of the student.

Prerequisite: Automotive Electricity 103 or consent of instructor or advisor.

209 Automotive Diesel 4 credit hours

Offered spring semester. Three hours lecture and three hours demonstration a week. Fee: \$155.00.

This course provides an introduction to automotive diesel engines and systems concentrating on domestic light-duty diesels. It involves the use of various types of testing equipment to diagnose problems in common systems such as Duramax, Cummins and PowerStroke. Studies include but are not limited to mechanical components, lubrication, air management, turbochargers, charging systems, starting systems, fuel systems, emission controls, and computer engine control systems. Costs incurred for parts and/or supplies are the responsibility of the student.

Prerequisite: Must be an Automotive Technology Student.

210 Automotive Parts Management 4 credit hours

Three hours lecture and three hours demonstration a week. Fee: \$155.00.

This course includes such topics as automotive parts familiarization, cataloging and pricing, inventory control, and basic principles of parts management. Also included will be the use of computers in inventory control, entering daily purchases and sales, and order production. This course covers the personal qualities needed by an automotive parts salesperson, such as courtesy and personal appearance, as well as effective marketing and merchandising methods.

Prerequisite: Automotive Technology students only.

211 Introduction to Diesel 3 credit hours

Offered summer session. Two hours lecture and three hours lab per week. Fee: \$155.00.

This course deals with the basic principles of the diesel engine. The diesel cycle and its application to modern power units will be emphasized. Topics include diesel air, fuel, cooling, and lubrication systems. Other topics will include maintenance, troubleshooting, and basic repair procedures. The course also introduces the basics of modern Cummins, Duramax, and Ford Powerstroke engine systems. Costs incurred for parts and/or supplies are the responsibility of the student.

Prerequisite: consent of the Instructor.

212 Automotive Internship 1 credit hour

Offered summer session. 2 hours a week lecture and 20 hours a week internship for ten weeks.

Application of knowledge acquired from lecture and laboratory instruction to gain relevant, practical on-the-job experience in repairing customer vehicles in an actual automotive service facility. An experienced service employee within the business supervises the student/apprentice and works with the automotive program coordinator in developing goals and evaluating performance. Students are required to work a minimum of 120 hours (an average of 20 hours a week) over the ten-week semester. Students will be placed into a service facility by the instructor. Students are able to pick a repair facility of their choice; however, it will be the responsibility of the student to find a repair facility willing to take on as an intern.

A.A.S. students must be entering their second year of study. Certificate students must be graduates of the certificate curriculum and will participate in a voluntary capacity.

215 Steering and Suspension 4 credit hours

Offered fall semester. Three hours lecture and three hours demonstration a week. Fee: \$155.00.

Study of the construction, operation, and maintenance of the various suspension and steering units, steering gears, constant velocity joints, front and rear axle assemblies; includes the theory, service and troubleshooting of computerized suspension systems and traction control systems; also covers computerized 4-wheel alignment. Costs incurred for parts and/or supplies are the responsibility of the student.

Prerequisite: Automotive Technology students only.

216 Automotive Electricity II 4 credit hours

Offered spring semester. Three hours lecture and three hours demonstration a week. Fee: \$155.00.

This course reviews the fundamentals of electricity, operating principles of meters and emphasizes the oscilloscope as a diagnostic tool. Oscilloscope voltage and current ramping forms are taught and practiced. Skills in troubleshooting and tracing wiring diagrams are further developed and practiced. Specific computer circuits and multiplexed systems such as body computer circuits, air bag, and traction control are analyzed and diagnosed. Digital dashes, driver information centers, and power train management systems will be analyzed and diagnosed; use of computer based test equipment will be initiated. Costs incurred for parts and/or supplies are the responsibility of the student.

Prerequisite: Automotive Electricity 103.