AUTOMOTIVE (AUT)

AUT 120. Performance And Diagnosis I. 5 Credits.
Students will learn to use diagnostic test equipment for quick and efficient problem solving. Engine vacuum testing, compression testing, cylinder leak-down testing, and cylinder power balance testing will be required. Students will learn to use an infrared analyzer to understand the effects on pollution that an improperly running engine creates. Principles of doing a tune-up will be explored. Ignition systems including point type, electronic, and distributorless systems will be covered. Prerequisites: FYE 101, MAT 092 (or co-requisite), RDG 098, or placement. Fall.

AUT 121. Performance And Diagnosis II. 5 Credits.
This course is a continuation of AUT 120 Performance and Diagnosis I. Students will learn about the various fuels used today and the problems associated with them. Fuel delivery systems starting with the carburetor through today’s fuel injection systems will be studied. Emission control systems such as PCV, EGR, EFE, AIR, and the catalytic converter will be examined along with the pollutants they reduce. Computerized engine controls along with their sensors will be tested and examined for proper performance. On Board Diagnostics II will be discussed and explored. Students will complete sample questions in preparation for the ASE Certification exams. Prerequisite: AUT 120 or permission of division dean. Spring.

AUT 122. Brakes. 4 Credits.
This course is designed to teach students various brake systems and repair. Students will study master cylinders, proportioning valves, metering, and disc brake repair and diagnosis. Students will learn about power assist units and wheel bearing diagnosis and repair. Anti-lock brake systems will be studied and tested as well as brake fluids and brake bleeding. Prerequisites: FYE 101, MAT 092 (or co-requisite), RDG 098, or placement. Fall.

AUT 123. Electrical Systems I. 4 Credits.
This course covers the fundamentals of electricity and magnetism, along with exploring the relationship of volts, ohms, and amps. The course will apply these two series, parallel, and series-parallel circuits. Semiconductor components such as diodes and transistors will be explored. Students will learn to use digital volt-ohm meters and oscilloscopes. Battery design and testing will be explored along with starting and charging systems. Prerequisites: FYE 101, MAT 092 (or co-requisite), RDG 098, or placement. Fall.

AUT 124. Electrical Systems II. 4 Credits.
This course is a continuation of AUT 123 Electrical Systems I. Using wiring diagrams, students will examine headlights, taillights, and parking lights for proper operation. Stoplights, turn signals, hazard lights, and back-up light circuits will be examined and repaired. The operation of the power door locks and power windows will be examined. Electrical circuits associated with dashboards, gauges, printed circuits, and digital instrument clusters will be studied along with various other electrical circuits. Prerequisite: AUT 123 or permission of division dean. Spring.

AUT 125. Engine Repair. 5 Credits.
The lecture and lab periods for this course cover designs, nomenclature, and theory of operation of internal combustion engines, including valves and operating mechanism, piston and connecting rod assembly, crankshaft and bearing, lubrication system, cooling system, crankcase ventilation, engines, fuels, and lubricants. This course also includes an introduction to the study of the Wankel, diesel, and other propulsion systems. Prerequisites: FYE 101, MAT 092 (or co-requisite), RDG 098, or placement. Fall.

AUT 127. Suspension And Steering. 4 Credits.
This course is designed to teach students the various suspension components and systems. Students will learn how to inspect and replace steering components. Rack and pinion steering gears, vehicle riding height, body sway, front and rear end alignment, and tire problems will be studied. Prerequisites: FYE 101, MAT 092 (or co-requisite), RDG 098, or placement. Spring.

AUT 130. Automatic And Manual Drivetrains. 4 Credits.
Students will participate in lecture and lab sessions on the various components used in present day automatic and manual transmissions used in front, rear, four wheel, and all wheel drive automobiles. Operating system principles pertaining to hydrodynamics, fluid couplings, clutch assemblies, and shift controls will be discussed. Diagnostic techniques, component and system testing, as well as maintenance procedures, will be accomplished in the lab sessions. Ancillary drivetrain components such as driveshafts, CV joints, differentials, and transfer cases will be explored. Prerequisites: FYE 101, MAT 092 (or co-requisite), RDG 098, or placement. Spring.

AUT 204. Heating And Air Conditioning. 3 Credits.
This course is designed to teach students about the theory and operation of heating and air conditioning systems. Students will learn about heat transfer, temperature pressure relationships, and control systems. The course will cover the theory and operation of air conditioning systems, air management delivery systems, and electronic climate control systems. The course will prepare students to take the ASE test A-7 Heating and Air Conditioning Systems. Prerequisites: FYE 101, MAT 092 (or corequisite), RDG 098 or placement.