Auto Mechanics (AUT)

To register for courses and see a real-time listing of classes and sections offered, view the add/drop system *(*https://userve.uvu.edu/StudentRegistrationSsb/ssb/term/termSelection/?mode=search*).*

AUT 1000. Survey of Automotive Technology. (2 Credits)
Corequisite(s): AUT 1005
Presents basic automotive repair lessons on ignition and fuel systems, brakes, CV joints, and emissions for state inspections. Discusses electrical accessories, computerized engine controls, and chassis components.

AUT 1001. Automotive Skills and Safety Training. (1 Credit)
Introduces automotive shop safety, pollution prevention, hazardous waste handling, Internet-based electronic service information, diagnostic scan tools, ASE certifications, safety inspection certifications, emissions inspection certifications, developing job interview skills, and resume writing.

AUT 1005. Survey of Automotive Lab. (1 Credit)
Corequisite(s): AUT 1000
Introductory course for those interested in Automotive Technology. Offers basic automotive repair lab experiences on proper and safe equipment usage, vehicle construction, engine operation, steering and suspension components, brakes, measuring and diagnostic tools.
Tool room fee of $19 for equipment applies.

AUT 1010. Maintenance and Light Repair. (2 Credits)
Corequisite(s): AUT 1015 recommended
Studies the basics of automotive systems, and the basic maintenance of automotive care. Studies domestic and imported passenger cars and light trucks, including an overview of hybrid and electric vehicle technologies.

AUT 1015. Maintenance and Light Repair Lab. (1 Credit)
Corequisite(s): AUT 1010
Studies the basics of automotive systems, and the basic maintenance of automotive care. Studies domestic and imported passenger cars and light trucks, including an overview of hybrid and electric vehicle technologies.

AUT 1020. Automotive Service Skills. (2 Credits)
Corequisite(s): AUT 1025
Explores automotive systems, both mechanical and electrical. Emphasizes characteristics and components of steering, suspension, electrical, brakes, and drivetrain systems. Describes the proper removal and installation of the above-mentioned systems.

AUT 1025. Automotive Service Skills Lab. (1 Credit)
Corequisite(s): AUT 1020
Explores automotive systems, both mechanical and electrical. Emphasizes characteristics and components of steering, suspension, electrical, brakes, and drivetrain systems. Describes the proper removal and installation of the above-mentioned systems.

AUT 1110. Brake Systems. (2 Credits)
Corequisite(s): AUT 1110L Recommended
For automotive majors and other interested community members. Covers the principles of automotive braking including hydraulic theory, diagnosis, and service of brake systems. Studies drum, disc, and power units. Includes wheel bearing adjustments, packing, and troubleshooting. Discusses tire construction including both lateral and radial run out and wheel balancing techniques.
Software fee of $10 applies
Lab access fee of $15 for computers applies.

AUT 1110L. Brake Systems Lab. (1 Credit)
Pre- or Corequisite(s): AUT 1110
Provides hands on brake systems instruction, including drum, disc, and power units. Includes wheel bearing adjustments, packing, and troubleshooting. Labs include tire construction, both lateral and radial run out and wheel balancing techniques.
Tool room fee of $19 for equipment applies.
Course Lab fee of $17 for computers applies.

AUT 1120. Powertrain Systems. (2 Credits)
Corequisite(s): AUT 1125
Develops skills and knowledge about Manual and automatic transmission/transaxles. Develops skills and knowledge about driveline components. Covers the function, construction, operation, inspection, troubleshooting, and servicing of front, rear, and four-wheel drive power transmission devices used in passenger cars and light trucks. Introduces current safety procedures for EV vehicles and hybrid technology. Software fee of $10 applies. Lab access fee of $15 for computers applies.

AUT 1125. Powertrain Systems Lab. (1 Credit)
Pre- or Corequisite(s): AUT 1120
Explores basic diagnosis and repair of manual transmissions including transaxles, differentials, drive shafts, and four wheel drive components. Introduces proper operation of clutches with torque and gear application. Tool room fee of $19 for equipment applies. Course Lab fee of $16 for materials applies.

AUT 1130. Engine Mechanical. (2 Credits)
Corequisite(s): AUT 1135 Recommended
Explores the acquisition of practical skills needed for accurate internal combustion engine diagnosis and repair. Studies all phases of engine rebuilding and basic machine work. Teaches precision measurement techniques used in industry. Presents procedures for disassembly and reassembly of engine units, service, and technical data. Includes basic gasket technologies and fastener use. Software fee of $10 applies. Lab access fee of $15 for computers applies.

AUT 1135. Engine Mechanical Lab. (1 Credit)
Corequisite(s): AUT 1130
Explores the acquisition of practical skills needed for accurate internal combustion engine diagnosis and repair. Studies all phases of engine rebuilding and basic machine work. Teaches precision measurement techniques used in industry. Presents procedures for disassembly and reassembly of engine units, service, and technical data. Includes basic gasket technologies and fastener use. Tool room fee of $19 for equipment applies. Course Lab fee of $17 for materials applies.

AUT 1160. Automotive Electrical Systems. (2 Credits)
Corequisite(s): AUT 1165 Lab Recommended
Explores fundamental electrical principles and theories that are essential to understanding how electricity works in various applications. Includes the basics of electrical circuits in both series and parallel configurations, as well as key concepts such as voltage, current, resistance, capacitance, and inductance. Teaches Ohm's Law, the relationship between electricity and magnetism, and the theoretical underpinnings of circuit behavior. Covers the function and analysis of wiring diagrams, and the operation of relays in electrical circuits. Provides a foundation in electrical theory that is critical for developing a solid understanding of electrical systems in both automotive and industrial settings.

AUT 1165. Automotive Electrical Systems Lab. (1 Credit)
Pre- or Corequisite(s): AUT 1160
Applies the electrical theories learned in the classroom to hands-on experiments and diagnostics. Focuses on constructing and analyzing electrical circuits in both series and parallel configurations. Uses various testing tools, including Digital Volt Ohm Meters (DVOM) and test lights, to measure voltage, current, and resistance, as well as to troubleshoot electrical systems. Provides practical experience in reading and interpreting wiring diagrams, testing relays, and diagnosing common electrical issues. Includes hands-on experience that will help students develop the practical skills needed to work effectively with electrical systems in real-world applications. Tool room fee of $19 for equipment applies. Course Lab fee of $17 for materials applies.

AUT 1170. Engine Electrical Systems. (2 Credits)
Corequisite(s): AUT 1175 Recommended
Provides a comprehensive study of batteries, starting systems, and charging systems, focusing on their fundamental functions and fault diagnostics. Explores basic electrical system diagnostics, computer functions within electrical systems, and the principles of pulse width modulation. Introduces the use of oscilloscopes for diagnostics and cover safety procedures for working with electric and hybrid vehicle batteries.

AUT 1175. Engine Electrical Systems Lab. (1 Credit)
Corequisite(s): AUT1170
Applies hands-on training in diagnosing and repairing batteries, starting systems, and charging systems. Focuses on performing electrical system diagnostics using tools like oscilloscopes and will test relays, starting circuits, and charging systems. Focuses on the application of pulse width modulation in electrical circuits and emphasize safety protocols for handling electric and hybrid vehicle batteries.
Tool room fee of $19 for equipment applies. Course Lab fee of $17 for materials applies.

AUT 1210. Steering and Suspension Systems. (2 Credits)
Corequisite(s): AUT 1215 Recommended
Explores nomenclature, theory, and service procedures for passenger car and light-truck suspension and steering systems, including computer-controlled power steering and suspension systems. Provides instruction in two-wheel and four-wheel electronic systems and presents alignment methods, incorporating computerized tools. Covers advanced wheel and tire service topics. Explores advanced topics and service procedures for hybrid and electric vehicle steering and suspension systems, including ADAS.
Software fee of $10 applies. Lab access fee of $15 for computers applies.

AUT 1215. Suspension and Steering Systems Lab. (1 Credit)
Corequisite(s): AUT 1210
Provides a laboratory experience enhanced by following the Suspension and Steering ASE task list. Emphasizes demonstrations, observations and hands-on participation. Utilizes actual vehicle systems of major manufactures to supplement training. Explores advanced topics and service procedures for hybrid and electric vehicle steering and suspension systems, including ADAS through hands on application. Tool room fee of $19 for equipment applies. Course Lab fee of $17 for materials applies.

AUT 1220. Automatic Powertrain Systems. (2 Credits)
Corequisite(s): AUT 1225
Explores the operation, diagnosis, repair, and adjustment of automatic transmissions and transaxles. Covers planetary gearing, strategies for operation, and service procedures of passenger car, SUVs and light-trucks.
Software fee of $10 for applies.
Lab access fee of $15 for computers applies.

AUT 1225. Automatic Transmissions and Transaxles Lab. (1 Credit)
Pre- or Corequisite(s): AUT 1220
Provides a laboratory experience enhanced by following the Automatic Transmissions and Transaxles ASE task list. Emphasizes demonstrations, observations and hands-on participation. Utilizes actual vehicle systems of major manufactures to supplement training. Tool room fee of $19 for equipment applies. Course Lab fee of $19 for materials applies.

AUT 1230. Engine Performance. (2 Credits)
Corequisite(s): AUT 1235 Recommended
Studies electrical and fuel systems fundamentals found on passenger cars, light-trucks, and marine applications of theory, operation, and construction. Includes solid state electronic ignition systems. Teaches tune-up including diagnosis and troubleshooting.
Software fee of $10 applies.
Lab access fee of $15 for computers applies.

AUT 1235. Engine Performance Lab. (1 Credit)
Pre- or Corequisite(s): AUT 1010 and AUT 1020
Provides an in-depth study of internal combustion engines, with a focus on their electrical, ignition, and fuel systems. Focuses on conducting mechanical tests to evaluate engine performance, diagnoses issues, and performs repairs. Emphasizes engine design, system components, and compliance with modern efficiency and emissions standards.

AUT 1260. Tech Math for Mechanics. (3 Credits)
For students in Automotive, Collision Repair, and Diesel Mechanics technology majors. Covers principles of math as required by the industry. Studies pressures, measuring engine and horsepower output, hydraulics, torque, and electrical flow. Includes solving equations in percent, proportion, variation, formula rearrangement, function and graphs with right and oblique triangles. Successful completers should be able to solve problems on the job using technical and mathematical data.

AUT 2010L. Automotive Service Practicum Engine Performance and Steering Suspension. (2 Credits)
Prerequisite(s): AUT 1210, AUT 1230 with a grade of C- or better
Includes field type service work in an instructional setting. Emphasizes vehicle service needs which are most frequently required in modern commercial service centers. Requires the diagnosis and repair of computerized vehicle systems. Includes standards for quality and quantity of work produced. Studies parts procurement, estimates, repair orders, and customer relations. Follows ASE P2 Performance Tasks for Steering/Suspension and Engine Performance.
Tool room fee of $19 for equipment applies.
Course Lab fee of $17 for materials applies.

AUT 2120. Advanced Engine Performance II. (2 Credits)
Corequisite(s): AUT 2125 Recommended
Studies the development of electric sensors for engine systems to measure and adjust for operation and efficiency. Discusses benefits of mechanical and electronic vehicle systems working together. Explores indicator circuits and On-Board Diagnostics on modern vehicles along with manufacturer-standard recommended repairs.
Software fee of $10 applies.
Lab access fee of $15 for computers applies.

AUT 2125. Advanced Engine Performance II Lab. (1 Credit)
Corequisite(s): AUT 2120
Explores the development of electric sensors for engine systems to measure and adjust for operation and efficiency. Discusses benefits of mechanical and electronic vehicle systems working together. Explores indicator circuits and On-Board Diagnostics on modern vehicles along with manufacturer standard recommended repairs.

AUT 2130. Transportation Environmental Pollution Controls. (2 Credits)
Prerequisite(s): AUT 1130, AUT 1230, AUT 1160 with a grade of C- or better
Corequisite(s): AUT 2135 Recommended
Focuses on the operation, adjustment, diagnosis, and repair of emission control systems in hybrid and internal combustion vehicles and their impact on the environment. Explores electronic and non-electronic components of emission control systems including on-board diagnostics systems and monitors of the major vehicle manufacturers. Software fee of $10 applies. Lab access fee of $15 for computers applies.

AUT 2135. Transportation Environmental Pollution Controls Lab. (1 Credit)
Prerequisite(s): AUT 1230
Corequisite(s): AUT 2130
Focuses on implementing proper operation, adjustment, diagnosis, and repair of emission control systems in hybrid and internal combustion vehicles. Explores vehicle impact on the environment. Studies testing electronic and non-electronic components of emission control systems, including on-board diagnostics systems and monitors of the major vehicle manufacturers, for performance and efficiency.

AUT 2140. Chassis Electrical and Electronics Systems. (2 Credits)
Prerequisite(s): AUT 1160, AUT 1170 with a grade of C- or better
Corequisite(s): AUT 2145 Recommended
Explores modern automotive electrical systems, focusing on power distribution and ignition key circuits. Examines the basic design and operation of relay and switch circuits, reversible motor circuits, and simple series/parallel circuits. Emphasizes the use of wiring diagrams and electrical principles to diagnose and troubleshoot open circuit issues, providing a solid foundation in understanding and analyzing automotive circuits.

AUT 2145. Chassis Electrical and Electronics Systems Lab. (1 Credit)
Prerequisite(s): AUT 1160
Corequisite(s): AUT 2140
Provides hands-on experience in diagnosing and troubleshooting automotive electrical systems. Teaches working with wiring diagrams to identify and resolve open circuit issues, test the functionality of relays, switches, series and parallel circuits, and electric motors. Includes practical exercises in diagnosing modern automotive circuits, such as power distribution and ignition key systems, using industry-standard tools and equipment.

AUT 2210. Brake Systems and Regenerative Braking. (2 Credits)
Prerequisite(s): AUT 1010, AUT 1160 with a grade of C- or better
Corequisite(s): AUT 2215
Explores the capture and recovery of energy and regenerative braking of hybrid and electric vehicles through brake theory of current and future technologies. Covers scan tool diagnostics, component inspection, systems servicing, systems operation, and special tools. Prepares students for a continually changing industry. Software fee of $10 applies. Lab access fee of $15 for computers applies.

AUT 2215. Brake Systems and Regenerative Braking Lab. (1 Credit)
Prerequisite(s): AUT 1010
Corequisite(s): AUT 2210
Analyzes brake systems on internal combustion, small diesel, EV and hybrid vehicles. Incorporates diagnostics and testing with scan tools and other required specialty tools. Explores best industry practices and current technology paths for transportation.

AUT 2220. Automatic Powertrain Systems. (2 Credits)
Prerequisite(s): AUT 1160 with a grade of C- or better
Corequisite(s): AUT 2225 Recommended
Explores operation, repair, diagnosis and adjustment of many automatic transmissions and transaxles, including planetary gearing, hydraulic theory, and strategies for operation. Analyzes computerized transmissions controls for shifting and diagnosis. Incorporates using electronic diagnostic and test equipment. Software fee of $10 applies. Lab access fee of $15 for computers applies.

AUT 2225. Automatic Powertrain Systems Lab. (1 Credit)
Prerequisite(s): AUT 1220
Corequisite(s): AUT 2220
Incorporates using electronic diagnostic and test equipment. Analyzes the operation, diagnosis, repair, and adjustment of many automatic transmissions and transaxles. Explores planetary gearing, hydraulic theory, and strategies for operation. Applies instruction on computerized transmissions controls for shifting and diagnosis.

AUT 2240. Transportation Heating Ventilation Air Conditioning and Refrigeration Theory. (2 Credits)
Prerequisite(s): AUT 1010, AUT 1160, AUT 1020
Corequisite(s): AUT 2245
Explores the fundamental design, function, and operation of automotive heating, ventilation, air conditioning (A/C), and refrigeration systems. Includes automatic temperature control systems, environmental safety practices, and compliance with EPA regulations. Studies refrigerant types such as automotive refrigerants, CFC recovery, and modern diagnostic technologies for evaluating HVAC system performance. Software fee of $10 applies. Lab access fee of $15 for computers applies.

AUT 2245. Transportation Heating Ventilation Air Conditioning and Refrigeration Lab. (1 Credit)
Prerequisite(s): AUT 1010, AUT 1160, AUT 1020
Corequisite(s): AUT 2240
Provides a hands-on lab experience focused on diagnosing, servicing, and repairing automotive HVAC systems. Provides an opportunity to work with electronic test equipment to troubleshoot issues in heating, A/C, and refrigeration systems. Emphasizes performing industry-standard procedures for refrigerant recovery, recharging systems, and ensuring compliance with environmental regulations, including the proper handling of R134a and R1234yf refrigerants. Course Lab fee of $17 for materials applies.

AUT 2250. Fuel Management. (2 Credits)
Prerequisite(s): AUT 1230, AUT 1160 with a grade of C- or better
Corequisite(s): AUT 2255 Recommended
Focuses on the intricate systems that manage fuel delivery in modern vehicles, which are increasingly reliant on electronic controls. Explores how these systems function, including components such as fuel injectors, electronic control units (ECUs), and sensors that monitor various parameters like air-fuel ratio and engine temperature. Engages in diagnostics and troubleshooting, using scan tool and manufacturer recommended processes. Explores automotive electronically controlled fuel delivery systems and components. Examines the options and benefits of alternate fuels. Investigates diagnostics and troubleshooting procedures, using scan tools and manufacturer recommended processes.

AUT 2255. Fuel Management Lab. (1 Credit)
Prerequisite(s): AUT 1230
Corequisite(s): AUT 2250 or AUT 2350
Explores automotive electronically controlled fuel delivery systems and components. Examines the options and benefits of alternate fuels. Investigates diagnostics and troubleshooting procedures, using scan tools and manufacturer recommended processes.

AUT 2260. EV/Hybrid and ADAS Vehicle Systems. (2 Credits)
Studies Advance Vehicle Systems focusing on computer-controlled systems and how they differentiate from mechanical-based systems, with emphasis on troubleshooting and diagnostic procedures. Teaches ADAS (advanced driver aid systems) and how they are used to aid the driver in addition to being the basis for autonomous driving systems. Explores the principles of calibrating sensors for ADAS use along with the use of CAN BUS network communication used in EV, hybrid, and ICE vehicles. Analyzes Advanced HVAC systems including Computer controlled systems, Advanced AC motor driven systems as standard equipment on EV and HEV vehicles, and non-refrigerant based systems.

AUT 2265. EV/Hybrid and ADAS Vehicle Systems Lab. (1 Credit)
Corequisite(s): AUT 2260
Provides an in-depth study of computer-controlled automotive systems, with a focus on Advanced Driver Assistance Systems (ADAS), driver aid technologies, and CAN BUS network communication in electric, hybrid, and internal combustion engine (ICE) vehicles. Teaches how to calibrate ADAS sensors, troubleshoot network communication issues, and explore advanced HVAC systems, including both computer-controlled and non-refrigerant-based technologies used in modern EV and HEV vehicles.

AUT 2270. Advanced Electrical Diagnosis. (2 Credits)
Explores modern automotive electrical systems, focusing on complex circuit reading and understanding. Covers computer-controlled starting and charging systems, as well as interior and exterior lighting systems. Examines advanced infotainment and navigation systems. Emphasizes diagnostic procedures and troubleshooting of computer- and network-controlled circuits.

AUT 2275. Advanced Electrical Diagnosis Lab. (1 Credit)
Corequisite(s): AUT 2270
Provides students with hands-on learning and understanding of complex automotive circuits. Focuses on computer-controlled starting and charging systems, as well as interior and exterior lighting systems. Covers advanced infotainment and navigation systems. Emphasizes diagnostic procedures and troubleshooting of computer- and network-controlled circuits through hands-on application.

AUT 2350. Electronic Diesel Fuel Management Systems. (2 Credits)
Corequisite(s): AUT 2355 Recommended
Explores automotive diesel fuel control systems, with a focus on microprocessor-controlled systems. Covers the function and operation of both electronic and mechanical sensors in diesel fuel and ignition systems, as well as alternative fuel systems like bio-diesel. Studies the design, function, and integration of these systems in modern vehicles, preparing them to understand the complexities of diesel fuel controls.

AUT 2355. Electronic Diesel Fuel Management Systems Lab. (1 Credit)
Corequisite(s): AUT 2350
Provides hands-on experience in diagnosing and servicing automotive diesel fuel systems. Uses electronic test equipment to troubleshoot microprocessor-controlled diesel systems and evaluate the performance of both electronic and mechanical sensors. Covers alternative diesel fuel systems such as biodiesel, with a focus on real-world diagnosis, service, and repair techniques.

AUT 2810R. Cooperative Work Experience. (1-8 Credits)
Corequisite(s): AUT 2850R
Designed for Automotive Technology majors. Provides paid, on-the-job work experience in the student's major. Work experience, the correlated class, and enrollment are coordinated by the Cooperative Coordinator. Includes student, employer, and coordinator evaluations, on-site work visits, written assignments, and oral presentations. Provides experience in writing and completing individualized work objectives that improve present work performance. May be repeated as desired for interest. May be graded credit/no credit.

AUT 2850R. Cooperative Correlated Class. (1 Credit)
Corequisite(s): AUT 2810R
Designed for Automotive Technology majors. Identifies on-the-job problems and provides remediation of those problems through in-class discussion and study. Includes the study of identifying and maximizing service opportunities. Students register for this class with approval of the Coop coordinator. Included lecture, guest speakers, video tapes, role playing, case analysis, oral presentations, and written assignments. Completers should be better able to perform in their field of work or study. May be repeated as desired for interest.

AUT 2990R. SkillsUSA. (1 Credit)
Designed for Automotive Technology majors. Supports and facilitates the goals and objectives of SkillsUSA. SkillsUSA is a pre-professional student organization that develops social awareness, civic, recreational, and social activities. Students may participate in local, state, and national contests. May be repeated as desired for interest.