

**AUTO - 1109 Brakes, Steering & Susp Sys, 9.00 Credits**

Level: Lower

Applied Learning-Practicum

This course is designed to train students in the service and diagnosis of: automotive brake systems, suspension systems, vehicle alignment, tire changing, tire balancing, and vibration diagnosis.

**AUTO - 1124 Automotive Welding, 4.00 Credits**

Level: Lower

Applied Learning-Practicum, Course Fee \$66.00

This course covers all facets of welding as they apply to the servicing of cars and light trucks. Methods covered are: SMAW, GTAW, and GMAW. The safe use of the cutting torch and plasma cutter and "booth time" is supplemented by the use of various processes in the actual repair of vehicles and equipment. The students are required to do outside research for a written and oral report.

**AUTO - 1135 AutoBsc Elctrn & Compnt Overhl, 5.00 Credits**

Level: Lower

Applied Learning-Practicum

This course includes the construction and testing of electronic circuits, alternators, and starters. The student will also use Ohm's Law to calculate voltage drop, current and resistance in electrical circuits. Air bag, power window motor and power door lock actuator testing and diagnosis will be investigated.

**AUTO - 1149 Inspec, Main, AC Htng & Clng, 9.00 Credits**

Level: Lower

Applied Learning-Practicum

This course includes lecture and lab instruction on the diagnosis and repair of automotive cooling, heating, and air conditioning systems. In addition automotive preventive maintenance, exhaust system service, and annual safety inspection checks are also covered.

**AUTO - 1169 Auto Electric, Fuel & Emission, 9.00 Credits**

Level: Lower

Applied Learning-Practicum

This course begins with instruction on basic electrical theory and progresses through the operation and diagnosis of many of the advanced electrical and electronic systems used on modern vehicles. Topics covered include: basic electrical theory, circuit design, common electrical components, fuel, ignition, emission control and electronic engine controls systems.

**AUTO - 1219 Truck Brake, Steer & Sus Sys, 9.00 Credits**

Level: Lower

Applied Learning-Practicum

This course is designed to train students in the service and diagnosis of: automotive brake systems, suspension systems, vehicle alignment, tire changing, tire balancing, and vibration diagnosis.

**AUTO - 1224 Welding, 4.00 Credits**

Level: Lower

Applied Learning-Practicum, Course Fee \$67.00

This course covers all facets of welding as they apply to the servicing of cars and light trucks. Methods covered are: SMAW, GTAW, and GMAW. The safe use of the cutting torch and plasma cutter and "booth time" is supplemented by the use of various processes in the actual repair of vehicle and equipment. The students are required to do outside research for a written and oral report.

**AUTO - 1239 Trk Insp, Maint, AC, Clng/Htng, 9.00 Credits**

Level: Lower

Applied Learning-Practicum

This course includes lab application of vehicle preventive maintenance and mandated annual safety inspection. Repair techniques to insure driver comfort and engine efficiency through the control of heat are studied as they apply to the truck cooling, heating and air conditioning systems. Analyzing how refrigerated cargo is maintained is a part of this course.

**AUTO - 1245 Trk Bsc Elctrns & Compnt Ovrhal, 5.00 Credits**

Level: Lower

Applied Learning-Practicum

This course includes the construction and testing of electronic circuits, alternators, and starters. The student will also use Ohm's Law to calculate voltage drop, current and resistance in electrical circuits. Air bag, power window motor and power door lock actuator testing and diagnosis will be investigated.

**AUTO - 1306 Rust Repair, 6.00 Credits**

Level: Lower

Applied Learning-Practicum

Encompasses the causes, repair, and prevention of rust formation and develops an awareness in the student that it is his/her ethical duty to make rust repairs properly and economically.

**AUTO - 1313 Wrecker Operation & Estimating, 3.00 Credits**

Level: Lower

Applied Learning-Practicum

This course provides instruction and practical experience in wrecker operation including hook-ups, winching, dolly use, wheel lifts, and safety. It includes instruction and practical experience in auto body damage estimate writing and analysis.

**AUTO - 1326 Body Welding, 6.00 Credits**

Level: Lower

Applied Learning-Practicum, Course Fee \$87.00

This course covers welding methods used for securing body sheet metal including the thinner, high-strength, low alloy steels. Some of the methods covered in depth are: arc, oxy-acetylene, MIG, and TIG welding. Emphasis is placed on proficiency in repairing steels found in panels and vehicle frames, the use of heat as a straightening medium is investigated, and choosing welding equipment for a body shop, sheet metal fabrication and fuel tank repairs are included.

**AUTO - 1343 Refinishing Basics, 3.00 Credits**

Level: Lower

Applied Learning-Practicum, Course Fee \$106.00

Develops in the student the basic skills of the refinishing industry and provides the technical knowledge of different types of finishes as well as the sequence of foundation coats.

**AUTO - 1344 Recondtng & MechancI Componts, 4.00 Credits**

Level: Lower

Applied Learning-Practicum

Designed to acquaint trainee with the proper process of reconditioning a vehicle before customer delivery. Students will learn how to remove and install seat upholstery as well as interior trim panels and hardware.

**AUTO - 2169 Truck Electrical, Fuel & Emiss, 9.00 Credits**

Level: Lower

Applied Learning-Practicum

This course begins with instruction on basic electrical theory and progresses through the operation and diagnosis of many of the advanced electrical and electronic systems used on modern vehicles. Topics covered include: basic electrical theory, circuit design, common electrical components, fuel, ignition, emission control and electronic engine controls systems.

**AUTO - 2309 Brakes, Susp & Structrl Anlys, 9.00 Credits**

Level: Lower

Applied Learning-Practicum

This unit of instruction is designed to train high school graduates and adult learners in the service and diagnosis of automotive brake and suspension systems as they relate to collision repair. Vehicle alignment, tire balancing, and vibration diagnosis are included. Students will be trained to operate a variety of brake, suspension, and alignment equipment while performing actual repairs, adjustments, and diagnosis. In addition, identification and analysis of structural damage, as well as frame and body measuring techniques are covered. This training will supplement the students' autobody education in preparation for entry-level employment.

**AUTO - 2365 Chassis Electrical, 5.00 Credits**

Level: Lower

Applied Learning-Practicum

This unit of instruction is designed to enable trainees to become proficient in chassis electrical testing, repair, and component replacement.

**AUTO - 2503 Prev Maint for Hvy Tk & Diesel, 3.00 Credits**

Level: Lower

Applied Learning-Practicum

This course is designed to teach scheduled preventive maintenance procedures as they apply to trucks and heavy equipment. Vehicle system checks include air brakes, tires, critical fluids and lubrication points. Training is focused on ensuring safety and reliability between scheduled Preventive Maintenance checks.

**AUTO - 3409 Engine Service, 9.00 Credits**

Level: Lower

Applied Learning-Practicum

Theory of operation and repair procedures of gasoline engine valve systems, crankshaft and bearings, connecting rods, cylinders, and pistons, diagnosis of engine malfunctions repair procedures, cooling system repairs and diagnosis, cylinder boring, piston pin fitting, connecting rod reconditioning, valve guide resizing and replacement, valve seat replacement, and other machine work and service procedures.

**AUTO - 3429 Adv Elctrn & Engine Perfmnc, 9.00 Credits**

Level: Lower

Applied Learning-Practicum

Lecture sessions cover most areas of the automobile except engine and drive train repairs. Designed to update and bring together earlier training with emphasis on diagnosing sophisticated automotive electrical, drivability and emission-related problems. This is an extremely critical area with enhanced inspection programs and OBDII systems.

**AUTO - 3504 Motorsport Fabrication I, 4.00 Credits**

Level: Lower

Applied Learning-Practicum, Course Fee \$138.00

This course is designed to teach the student the fundamental skills of complete chassis and roll cage fabrication. Major topics include principles of layout, bending, bead rolling, riveting and welding processes. Laboratory exercises emphasize technique and skill development to build race cars.

**AUTO - 3506 Introduction to Motorsports, 6.00 Credits**

Level: Lower

Applied Learning-Practicum

This course is designed to teach the student the fundamental skills of team organization and management. Major topics include introduction to motor sports, team structure, budgeting and finance. Laboratory exercises emphasize technique and skill development for success at the track. A sponsorship proposal is developed by each student.

**AUTO - 3514 Racing Suspension Dynamics, 4.00 Credits**

Level: Lower

Applied Learning-Practicum

This course is designed to teach the student advanced skills in race car chassis. Major topics include principles of suspension set-up, development and weight transfer. Laboratory exercises emphasize technique and skill development in modified suspension and steering geometry to build race cars to meet different track demands.

**AUTO - 3524 Hgh Prfmnce Tune-up/Electrnics, 4.00 Credits**

Level: Lower

Applied Learning-Practicum

This course is designed to teach the student the advanced skills of tuning the race car for optimum performance at the track. Major topics include principles of handling modified race fuels and modified delivery. Laboratory exercises emphasize techniques and skills to modify fuel and ignition systems.

**AUTO - 3534 Hgh Permnce Sternng/Bks/Chasis, 4.00 Credits**

Level: Lower

Applied Learning-Practicum

This course is designed to teach the student the formulas and concepts of race car brakes and steering. Major topics include the principles of modifying chassis, brakes, and steering. Laboratory exercises emphasize technique and skill development in the different modified demands.

**AUTO - 3535 Hgh Prfmnce Engine Building, 5.00 Credits**

Level: Lower

Applied Learning-Practicum

This course is designed to teach the student the advanced skills for reconstruction of high performance engines. Major topics include modified engine building and dynamometer testing. Laboratory exercises emphasize technique and skill development in engine assembly and dynamometer testing.

**AUTO - 3544 Motorsports Aerodynamics, 4.00 Credits**

Level: Lower

Applied Learning-Practicum

This course is designed to teach the student the fundamental principles of aerodynamics for racing and performance cars. Major topics include principles of aerodynamic effects on braking, handling, lift and drag coefficient. Laboratory exercises emphasize technique and skill development to build race cars.

**AUTO - 3545 Motorsport Fabrication II, 5.00 Credits**

Level: Lower

Applied Learning-Practicum

This course is designed to teach the student the advanced skills of complete chassis, cage, and suspension fabrication. This course and its laboratory exercises evaluate the actual process of fabricating a complete racecar.

**AUTO - 3609 Heavy Duty Drive Train, 9.00 Credits**

Level: Lower

Applied Learning-Practicum

This course consists of the service and repair of heavy duty clutches, transmissions, drive line and rear axle, leaf, torsion bar, and air suspensions, the alignment of front and rear axle, also alignment of trailer suspension and on-vehicle tire balancing. This will include Eaton and Meritor clutches, Mack and Eaton transmissions, and Meritor, Eaton and Mack rear axles. Also covered are Road Ranger auto shift transmissions.

**AUTO - 3623 Air Brake Service, 3.00 Credits**

Level: Lower

Applied Learning-Practicum

This course consists of maintenance and repair of air brake systems including compressors, valves, tubing, and circuitry. This course will also include troubleshooting of foundation brakes and related components. Also covered is air ABS brake components, operation and troubleshooting.

**AUTO - 3649 Diesel Engine Service, 9.00 Credits**

Level: Lower

Applied Learning-Practicum

This nine credit hour course covers the procedures needed to understand, test, repair, and overhaul diesel engines and their related components. Major emphasis is placed on the mid-range and heavy duty diesels of the following makes: Cummins, Caterpillar, Detroit Diesel, Mack, John Deere, and Navistar. Covered is the use of special tools and equipment necessary to troubleshoot, maintain, and overhaul these engines and their related components.

**AUTO - 3809 Inspec, Gen Alignment & AC, 9.00 Credits**

Level: Lower

Applied Learning-Practicum

Includes lab application of body panel alignment and mandated annual safety inspection, repair techniques to ensure customer satisfaction with component fit and operation, keeping customer safety in mind when components are replaced, and techniques to ensure customer comfort and engine efficiency through control of heat as they apply to auto cooling, heating and air conditioning systems.

**AUTO - 3819 Auto Body Skis/Computrzed Est, 9.00 Credits**

Level: Lower

Applied Learning-Practicum, Course Fee \$106.00

Includes the different states of repair: metal analysis, metal straightening, filling and metal finishing, glass replacement, alignment problems, fender and door replacement, any and all small, quick, one or two day jobs. Also includes how to make manual and computerized estimates.

**AUTO - 4363 Heavy Duty Elec/Hydr Special, 3.00 Credits**

Level: Lower

Applied Learning-Practicum

This three credit hour course consists of the service and troubleshooting of electrical systems as they pertain to heavy equipment, truck and diesel. This will include series parallel circuits including 12 and 24 volt systems. Included in this course is the service and troubleshooting of hydraulic systems as found in heavy equipment, truck and diesel. This will include pumps, valves, actuators, accumulators and other related components in today's hydraulic systems.

**AUTO - 4439 Shop Management & Enhanced Sys, 9.00 Credits**

Level: Lower

Applied Learning-Practicum

This course will provide insight into other aspects of the automotive trade. Covered in shop management is repair order writing, duties of a shop adviser, customer relations, customer communications, questioning and follow-up, estimating repair costs, checking for recalls, searching for technician service bulletins, researching new product information, motorist's bill of rights, lemon laws and understanding the nature of the automotive business and reviewing Hybrid vehicles information. The lab portion allows the student to perform as a service manager in one of our many automotive shops. Work scheduling, quality control, maintenance, and record keeping are stressed as part of this program.

**AUTO - 4449 Drive Train Service, 9.00 Credits**

Level: Lower

Applied Learning-Practicum

Study and actual repair of standard, automatic, and automatic transmissions and transaxles with emphasis on overdrives and electronically controlled units. Full coverage of clutches, axles, drivelines, C-V joints, and 4 x 4 transfer cases, as well as open, limited-slip, and front drive differentials. Extensive hands-on work in a busy "line shop" situation. This is a seven and one-half (7 1/2) week course.

**AUTO - 4603 Heavy Duty Electrical Systems, 3.00 Credits**

Level: Lower

Applied Learning-Practicum

This course covers the service and troubleshooting of electrical equipment pertaining to heavy equipment, truck, and diesel. This will include 12-48 volt electrical systems, multiplexing, GPS guidance, and traction motors

**AUTO - 4613 Heavy Duty Hydraulic Systems, 3.00 Credits**

Level: Lower

Applied Learning-Practicum

This course consists of the service and troubleshooting of hydraulic systems pertaining to heavy equipment, truck and diesel. This will include operation of open center and closed center systems, pumps, valves, actuators, accumulators, and the relation of electrical multiplexing and today's hydraulic systems. This course will also include preventative maintenance of hydraulic systems.

**AUTO - 4623 Heavy Duty HVAC, 3.00 Credits**

Level: Lower

Applied Learning-Practicum

This course consists of the service and troubleshooting of HVAC (Heating Ventilation & Air Conditioning) as they pertain to heavy equipment, truck and refrigeration trailers for commercial usage. This will include MACS (Mobile Air Conditioning Society) certification review and testing for a national recognized Section 609 certification and basic HVAC systems used in refrigeration trailers.

**AUTO - 4629 Major Refinishing, 9.00 Credits**

Level: Lower

Applied Learning-Practicum

This course is designed to further the student's knowledge and practical experience in the use of painting and refinishing equipment, blending paints, metallic finishes, and hard to match colors, correcting paint failures, custom refinishing and how to solve their problems.

**AUTO - 4639 Major Collision Repair, 9.00 Credits**

Level: Lower

Applied Learning-Practicum

Provides instruction in the repair procedures of vehicles considered by appraisers to be totals, or near totals. Study and repair of frame and uni-body damage, suspension repairs. This includes computerized measuring systems, plastic welding, use of structural adhesives, and complete vehicle refinishing.

**AUTO - 4669 Diesel Fuel System Service, 9.00 Credits**

Level: Lower

Applied Learning-Practicum

This nine credit hour course is intended for heavy equipment, truck and diesel mechanic majors. Coverage will include the fundamentals of diesel fuel systems, both mechanical and computer-controlled will be covered. Engine tune-up procedures, and diesel fuel system troubleshooting and computer usage will be included. Injection pumps, governors, injectors, emission control devices, automatic advance units and transfer pumps of the following systems will be covered: American Bosch, Caterpillar, Detroit Diesel, Cummins and Navistar.