UTAH SYSTEM OF HIGHER EDUCATION

Utah System of Higher Education
Automotive Maintenance and Light Repair
FY2028 / 8 Credits (240 Clock-Hours)

Foundational Courses

TEAU 1045 Maintenance and Light Repair **2 Credits / 60 Clock-Hours**

This course is an overview of automobile equipment and its operating systems. Emphasis will be placed on safety in the auto shop, common hand tools and equipment, lubrication and cooling systems, tire and wheel services, and basic brake repair. Students have the opportunity to complete minor repairs and preventative maintenance procedures. This course includes extensive hands-on experiences.

Objectives:
• Work safely in an automotive shop.
• Use general automotive tools.
• Service the lubrication system.
• Perform tire related maintenance and repair.

TEAU 1410 Suspension and Steering I **2 Credits / 60 Clock-Hours**

This course covers the suspension and steering systems of a modern automobile. Students will receive training on the diagnosis and maintenance of shock absorbers, tie rods, ball joints, tires, McPherson struts, along with conventional steering boxes and rack and pinion steering systems. Practices and principles of basic wheel alignment will be discussed.

Objectives:
• Properly service the power steering system.
• Properly service the drive belts.
• Inspect and diagnose steering components.
• Inspect and diagnose suspension components.
• Describe wheel alignment adjustment procedures.

TEAU 1510 Brakes I **2 Credits / 60 Clock-Hours**

This course covers the operation, maintenance, and some repair of the brake system in a modern automobile. Students will receive training on brake operation and repair of mechanical and hydraulic portions of the brake system. Students will also be introduced to the topics of electronic controls used in anti-lock brake and traction control systems.

Objectives:
• Demonstrate safe working habits and handling of hazardous materials.
• Perform hydraulic system diagnosis and repair.
• Perform drum brake diagnosis and repair.
• Perform disc brake diagnosis and repair.
• Learn diagnosis of power assist units.
• Demonstrate wheel bearing service.

TEAU 1610 Electrical I **2 Credits / 60 Clock-Hours**

This course covers the electrical system used in the modern automobile. The training covers electrical theory including Ohm's law and hands on application of that theory. Students will receive training on types of electrical circuits, wiring diagrams, circuit construction, and electrical diagnostic procedures. Students will learn the use of specialized test equipment such as a multimeter and ammeter.

Objectives:
• Use wiring diagrams to diagnose electrical circuits.
• Use a digital multimeter to verify electrical circuit operation.
• Use Ohm's Law do diagnose electrical circuits.
• Properly repair wiring using a soldering iron.
• Safely disable supplemental restraint system.

Supplemental Courses Varies by Institution

Bridgerland

TEAU 1335 Transmissions Manual/Automatic **2 Credits / 60 Clock-Hours**

This course covers the operation and maintenance of automatic/manual transmissions and transaxles. Students will receive training in diagnosing and repairing various types of clutches, drive axles, u-joints, and CV axles.

Objectives:
· Demonstrate safe working habits and handling of hazardous materials.
· Inspect and adjust fluids in manual and automatic transmissions.
· Properly service automatic and manual transmissions.
· Perform clutch diagnosis.
· Properly service differentials.

TEAU 1835 Engine Performance I **2 Credits / 60 Clock-Hours**

This course covers general engine diagnosis, tune-ups, and drivability repairs. Students will learn about diagnosing and maintaining the ignition, fuel, exhaust, and emission systems. Use of scan tools for diagnosis of engine control computers and related systems will also be covered.

Objectives:
· Demonstrate safe working habits and handling of hazardous materials.
· Perform general engine evaluation.
· Diagnose computerized engine controls on OBDII systems.
· Perform basic diagnostics and maintenance of the fuel system, ignition system, exhaust system, and emission system.

TEAU 2035 Maintenance and Light Repair II **2 Credits / 60 Clock-Hours**

This course provides an overview of automobile equipment and its operating systems. Emphasis will be placed on safety, precision tools in the auto shop, basic external engine repair, heating, ventilation, and air conditioning (HVAC). Students have the opportunity to complete minor repairs and preventative maintenance procedures on their personal vehicles, customer vehicles, or donated vehicles. This course is individualized and includes extensive hands-on experiences.

Objectives:
· Work safely in an automotive shop.
· Demonstrate proper use of precision measuring tools.
· Basic external engine repair
· Repair and maintain HVAC system

TEAU 2435 Suspension and Steering II **2 Credits / 60 Clock-Hours**

This course covers the suspension and steering systems of a modern automobile. Students will receive training in the diagnosis and maintenance of shock absorbers, tie rods, ball joints, tires, and McPherson struts, as well as conventional steering boxes and rack-and-pinion steering systems. Practices and principles of basic wheel alignment will be discussed.

Objectives:
· Properly service the power steering system.
· Properly service the drive belts.
· Inspect and diagnose steering components.
· Inspect and diagnose suspension components.
· Describe wheel alignment adjustment procedures.

TEAU 2515 Brakes II **2 Credits / 60 Clock-Hours**

This course covers the theory of brake operation and repair of mechanical and hydraulic portions of the brake system. Also covered are the diagnosis and repair of the electronic controls used in antilock brake systems.

Objectives:
· Demonstrate safe working habits and handling of hazardous materials.
· Perform hydraulic system diagnosis and repair.
· Perform drum and disc brake diagnosis and repair.
· Diagnose and repair power assist units.
· Demonstrate wheel bearing service.
· Diagnose and repair antilock brake systems.

TEAU 2635 Electrical II **2 Credits / 60 Clock-Hours**

This course continues to cover the electrical system used in modern automobiles. Students will receive training on starting, charging systems, lighting, general electrical systems, and accessories. Students will learn the use of specialized test equipment, such as a digital multimeter and an ammeter.

Objectives:
• Inspect, diagnose, and repair automotive batteries.
• Inspect, diagnose, and repair the automotive charging, starting, and lighting system.
• Demonstrate understanding of hybrid vehicle safety.

Mountainland

TEAU 2045 Maintenance and Light Repair II **2 Credits / 60 Clock-Hours**

Automotive Maintenance and Light Repair II builds upon the foundational knowledge established in Automotive Maintenance and Light Repair I. This course advances students' understanding of the theory and operation of suspension and steering systems, braking systems, and the fundamentals of heating, ventilation, and air conditioning (HVAC). Students will also continue developing skills in the maintenance and service of engine and drivetrain systems.

Objectives:
· Perform Engine Systems Inspection, Service and Repair.
· Describe engine system fundamentals, including 4-stroke cycle, engine sizes and performance.
· Demonstrate basic engine testing, service and maintenance procedures of engine systems.
· Retrieve and record diagnostic OBDII generic powertrain Diagnostic Trouble Codes (DTCS).
· Perform Automatic and Manual Transmission/Transaxle Inspection, fluid/filter service, and repair.
· Describe the Fundamentals of Automatic Transmission operation.
· Perform Maintenance, Diagnosis and Fluid Service Procedures on axles and differentials.
· Describe Transmission/Transaxle Fundamentals, including clutch operation.
· Perform Inspection, Maintenance, Diagnosis and Service Procedures.
· Explain basic electrical theory, types of circuits in the automobile.
· Demonstrate proper testing procedures using Digital Volt Ohmmeter (DVOM) as well as test lights.
· Perform battery tests and service procedures.
· Perform starter and alternator tests and service procedures.
· Describe lighting, gauges, horns, and wiper systems service and repair.
· Perform Flat repairs, mount and balance a tire.
· Evacuate and recharge A/C system.
· Replace brake fluid and bleed brakes.

TEAU 2055 Maintenance and Light Repair III **1 Credit / 30 Clock-Hours**

Automotive Maintenance and Light Repair III builds on concepts from Maintenance and Light Repair I and II, advancing students' knowledge of suspension, steering, braking, and HVAC systems. The course also reinforces skills in engine and drivetrain maintenance, aligning with ASE standards and preparing students for the ASE G1 certification exam.

Objectives:
· Inspect, service, and perform basic diagnostics on engine systems, including retrieving and recording OBDII powertrain codes.
· Diagnose, maintain, and repair transmission, transaxle, axle, and differential systems, demonstrating knowledge of automatic and manual operation fundamentals.
· Apply electrical theory to diagnose and service vehicle electrical systems, using appropriate testing tools and procedures on batteries, starters, alternators, and lighting systems.
· Perform essential maintenance tasks including tire service, brake fluid replacement, brake bleeding, and HVAC system evacuation and recharge.
· Demonstrate knowledge and skills necessary to pass the ASE G1 certification exam.

TEAU 2405 Suspension and Steering II **2 Credits / 60 Clock-Hours**

This course provides in-depth instruction on the theory, operation, and service of suspension and steering systems. Topics include shock absorbers, tie rods, ball joints, tires, MacPherson struts, conventional steering gearboxes, and rack-and-pinion systems. The course culminates with the ASE A4 Suspension and Steering certification exam.

Objectives:
· Demonstrate safe working habits and handling of hazardous materials.
· Diagnose and repair manual, power, and electronic steering systems.
· Inspect and service suspension components to ensure proper function and ride quality.
· Explain alignment principles and perform wheel alignment adjustments to OEM specs.
· Analyze tire and wheel issues and conduct necessary repairs or replacements.
· Perform ADAS calibrations and code-link resets following manufacturer procedures.

TEAU 2505 Brakes II **2 Credits / 60 Clock-Hours**

This course provides comprehensive instruction in the theory, operation, and repair of both mechanical and hydraulic components of automotive brake systems. It also includes the diagnosis and servicing of electronic controls associated with anti-lock braking systems (ABS). Students will conclude the course by taking the ASE A5 Brake Systems certification exam.

Objectives:
· Demonstrate proper safety procedures and practices when working in a shop environment, including the correct handling and disposal of hazardous materials.
· Diagnose and repair hydraulic brake systems using industry-standard procedures and tools.
· Inspect, analyze, and service drum and disc brake systems to ensure proper function and safety.
· Evaluate the performance of power assist units and perform necessary repairs.
· Demonstrate correct procedures for servicing various types of wheel bearings.
· Diagnose, test, and repair anti-lock braking systems (ABS), ensuring electronic control integrity.
· Disable and enable high-voltage (HV) circuits safely to conduct electrical or mechanical repairs.
· Perform recalibration procedures for Advanced Driver Assistance Systems (ADAS) following manufacturer specifications.
· Analyze stability control and ADAS braking systems to diagnose faults and execute effective repairs.

TEAU 2610 Electrical II **2 Credits / 60 Clock-Hours**

This course covers the electrical system used in the modern automobile. The training covers electrical theory including ohm's law and hands on application of that theory. Students will receive detailed training on onboard electronic control computers and their associated systems, lighting, starting/charging systems, and general electrical systems and accessories. Students will learn the use of specialized test equipment such as digital multimeter and a lab scope.

Objectives:
• Demonstrate safe working habits and handling of hazardous materials.
• Diagnose and repair general electrical problems.
• Diagnose and repair onboard computer controls.
• Diagnose battery, starting, and charging systems.
• Utilize wiring diagrams.
• Diagnose and repair lighting systems.
• Demonstrate electrical accessory and warning systems repair.

TEAU 2655 Electrical III **1 Credit / 30 Clock-Hours**

This course builds upon foundational concepts introduced in Electrical I and II, focusing on mastering the concepts and skills of diagnosing and repairing real-world faults in modern automotive electrical and electronic systems. The course concludes with the ASE A6 Electrical/Electronic Systems certification exam.

Objectives:
· Interpret wiring diagrams to diagnose electrical and electronic circuit faults.
· Test, measure, repair, and replace electrical components, connectors, terminals, and wiring; perform soldering as needed.
· Service body electrical systems in accordance with OEM procedures.
· Test and repair electrical systems using industry-standard diagnostic equipment.
· Demonstrate knowledge and skills necessary to diagnose and repair all electronic/electrical systems in cars, SUVs, and light duty trucks according to the ASE Electronic/Electrical Systems (A6) standards.

USU - Eastern

TEAU 2515 Brakes II **2 Credits / 60 Clock-Hours**

This course covers the theory of brake operation and repair of mechanical and hydraulic portions of the brake system. Also covered are the diagnosis and repair of the electronic controls used in antilock brake systems.

Objectives:
· Demonstrate safe working habits and handling of hazardous materials.
· Perform hydraulic system diagnosis and repair.
· Perform drum and disc brake diagnosis and repair.
· Diagnose and repair power assist units.
· Demonstrate wheel bearing service.
· Diagnose and repair antilock brake systems.

TEAU 2415 Suspension and Steering II **2 Credits / 60 Clock-Hours**

This course covers the suspension and steering systems which include shock absorbers, tie rods, ball joints, tires, McPherson struts, along with conventional steering boxes and rack and pinion steering systems.

Objectives:
· Demonstrate safe working habits and handling of hazardous materials.
· Perform steering system diagnosis and repair.
· Perform suspension system diagnosis and repair.
· Explain wheel alignment theory and perform adjustment and repair.
· Perform wheel and tire diagnosis and repair.

TEAU 2610 Electrical II **2 Credits / 60 Clock-Hours**

This course covers the electrical system used in the modern automobile. The training covers electrical theory including ohm's law and hands on application of that theory. Students will receive detailed training on onboard electronic control computers and their associated systems, lighting, starting/charging systems, and general electrical systems and accessories. Students will learn the use of specialized test equipment such as digital multimeter and a lab scope.

Objectives:
• Demonstrate safe working habits and handling of hazardous materials.
• Diagnose and repair general electrical problems.
• Diagnose and repair onboard computer controls.
• Diagnose battery, starting, and charging systems.
• Utilize wiring diagrams.
• Diagnose and repair lighting systems.
• Demonstrate electrical accessory and warning systems repair.

TEAU 2660 Electrical III **2 Credits / 60 Clock-Hours**

Train in advanced aspects of automotive electricity and electronics. Apply electrical theory, use Ohms law, troubleshooting, diagnosis, and functions of all automotive advanced electrical/electronic systems and circuits.

Objectives:
· Inspect diagnose, and service electrical systems using a Picoscope
· Inspect and identify safety practices when working around high voltage batteries and wiring
· Inspect diagnose, and service advanced starting and charging systems
· Inspect diagnose, and service CAN bus and LAN systems
· Inspect diagnose, and service ADAS systems

TEAU 2675 Electrical IV **2 Credits / 60 Clock-Hours**

Automotive Electrical IV is a capstone course integrating Electrical I–III, emphasizing diagnosis, testing, and analysis of automotive electrical systems. Students master wiring diagrams, sensors, actuators, and diagnostic tools while preparing through labs for the ASE A6 Electrical/Electronic Systems certification exam.

Objectives:
· Analyze and diagnose complex automotive electrical and electronic systems using industry-standard diagnostic strategies
· Explain and evaluate the operation of common automotive sensors and actuators, including input/output relationships within control modules
· Integrate knowledge and skills from Automotive Electrical I–III to perform advanced system-level diagnostics
· Accurately interpret wiring diagrams, schematics, and network communication layouts (CAN, LIN, etc.)
· Utilize digital multimeters, oscilloscopes, scan tools, and other diagnostic equipment to test circuits and components
· Diagnose faults related to powertrain, body, and chassis electrical systems
· Apply proper repair procedures based on manufacturer specifications and industry best practices
· Demonstrate readiness for entry-level employment and certification testing
· Successfully complete the ASE A6 Electrical/Electronic Systems certification exam

TEAU 2050 Maintenance and Light Repair II **2 Credits / 60 Clock-Hours**

Automotive Maintenance and Light Repair II is a continuation of Automotive Maintenance and Light Repair I and carries you forward in basic theory and function of suspension and steering systems, braking systems and heating ventilation and air conditioning fundamentals. During this course, you will continue to explore maintenance and servicing of engines and drivetrain systems.

Objectives:
· Engine Systems Inspection, Service and Repair:
· Describe engine system fundamentals, including 4-stroke cycle, engine sizes and performance.
· Demonstrate basic engine testing, service and maintenance procedures of engine systems. o Retrieve and record diagnostic OBDII generic power train Diagnostic Trouble Codes (DTCS).
· Automatic and Manual Transmission/Transaxle Inspection, Service, and Repair
· Describe the Fundamentals of Automatic Transmission operation.
· Perform Maintenance, Diagnosis and Service Procedures.
· Describe Transmission/Transaxle Fundamentals, including clutch operation.
· Perform Inspection, Maintenance, Diagnosis and Service Procedures.
· Electrical:
· Explain basic electrical theory, types of circuits in the automobile.
· Demonstrate proper testing procedures using Digital Volt Ohmmeter (DVOM) as well as test lights.
· Perform battery tests and service procedures.
· Perform starter tests and service procedures. o Describe lighting, gauges, horns, and wiper systems service and repair.