* Introduction to Auto Repair

In this course, you’ll concentrate on essential components of an automotive repair technician. You’ll also review the parts that make up the lower-end and upper-end assembly and how they work.

By the end of this course, you’ll be able to:

* + Connect your goals to the automotive repair technician profession and its essential knowledge
  + Examine parts that make up the lower-end assembly and how they work
  + Examine parts that make up the upper-end assembly and how they work
* Automotive Repair Foundations

In this course, you’ll review safety in automotive repair technician, as well as maintenance. You’ll also review math used in auto repair.

By the end of this course, you’ll be able to:

* + Analyze work safety and equipment use
  + Apply preventive maintenance and service procedures
  + Relate how scientific principle and math aid in auto repair
* Engine Repair

In this course, you’ll learn about gasoline and engine operation. You’ll also review engine issues as well as how to remove, disassemble, measure, repair, assemble, and install an internal combustion gasoline-fueled engine.

By the end of this course, you’ll be able to:

* + Explain gasoline and diesel engine operation, including cooling and lubrication systems and intake and exhaust  
    systems
  + Define typical engine-related complaints and engine smoke diagnosis
  + Identify the detailed process of removing, disassembling, measuring, repairing, assembling, and installing an  
    internal combustion gasoline-fueled engine
* Electrical and Electronic Systems

In this course, you’ll explore electricity, as well as capacitance, electromagnetism, and electronics. You’ll then identify batteries. Finally, you’ll review interior and exterior safety and entertainment systems.

By the end of this course, you’ll be able to:

* + Describe the basics of electricity, including circuits, Ohm’s and Kirchhoff’s laws, the testing equipment used for diagnosis, service wiring repair, schematics, and testing
  + Analyze the fundamentals of capacitance, electromagnetism, and electronics, including solid state devices and the study of controller area networks
  + Explain how batteries work and servicing and operating the engine cranking and electrical charging systems
  + Describe the service and operation of interior and exterior safety and entertainment systems
* Heating, Ventilation, and Air Conditioning

In this course, you’ll cover the fundamentals of heating, ventilation, and air conditioning (HVAC), including heating and automatic air-conditioning systems operation. Then, you’ll review the industry procedures used to diagnose and repair HVAC customer concerns. Finally, you’ll discuss the various service procedures used for HVAC systems.

By the end of this course, you’ll be able to:

* + Describe the fundamentals of heating, ventilation, and air conditioning (HVAC), including heating and automatic air-conditioning systems operation
  + Explain the industry procedures used to diagnose, service, and repair HVAC customer concerns
* Engine Performance

In this course, you’ll cover details about gasoline, alternative fuels, and diesel fuels along with the fundamentals, diagnosis, and service of ignition systems.

By the end of this course, you’ll be able to:

* + Describe gasoline, alternative fuels, and diesel fuels along with the fundamentals, diagnosis, and service of engine ignition systems
  + Define fuel systems operation, including computer operation fundamentals, input sensors, fuel supply systems, fuel delivery systems, and fuel system diagnosis
  + Identify the many different systems used for engine emission control
  + Explain onboard diagnostics generation II (OBD-II) and strategy-based diagnosis
* Alternative Vehicles

In this course, you’ll learn how to identify the components and systems of a Hybrid Electric and Fuel Cell Vehicle and explain its operation.

By the end of this course, you’ll be able to:

* + Identify the very specific service procedures needed to maintain an HEV
* Automotive Brakes

In this course, your learners will learn how to Identify and interpret the operation of hydraulic brake systems and describe how to diagnose and repair malfunctions in all automotive brake systems.

By the end of this course, your learners will be able to:

* + Describe the components and function of hydraulic brakes and how to service them
  + Explain drum and disc brakes, how they work, and how to service them
  + Define antilock braking systems and electronic stability control and how they work
* Suspension and Steering

In this course, your learners will learn how to identify and interpret the operation of suspension and steering systems. They will also learn how to diagnose and repair malfunctions in steering and suspension systems.

By the end of this course, your learners will be able to:

* + Discuss the operation of wheels and tires and describe their diagnosis and repair
  + Describe the operation, diagnosis, and repair of suspension systems
  + Identify steering systems and how to perform an alignment
* Manual Drive Train

In this course, your learners will learn how to identify and interpret the construction and operation of manual transmissions/transaxles, rear axles, drive axles, and four-wheel drive units. They will also learn how to rebuild transmissions, transaxles, differentials, and transfer cases as well as perform in-vehicle routine maintenance, inspections, repairs, and external  
adjustments.

By the end of this course, your learners will be able to:

* + Discuss the operation, diagnosis, and repair of clutch and manual transmissions and transaxles
  + Describe the axles, differential, four-wheel drive, and all-wheel drive
* Automatic Transmissions and Transaxles

In this course, your learners will learn how to identify and interpret the construction and operation of automatic transmissions and transaxles. They will also learn how to rebuild transmissions/transaxles and perform in-vehicle routine maintenance, inspections, repairs, and external adjustments.

By the end of this course, your learners will be able to:

* + Define how automatic transmissions and transaxles operate
  + Explain how to diagnosis, service, and repair automatic transmissions and transaxles