

# AUTOMOTIVE TECHNOLOGY (AUTO)

---

## **AUTO-102 Automotive Technology Fundamentals and Safety**

### **2 Credits**

**Lecture:** 2 hours per week

**Offering:** Fall Only, All Years

This course is an introduction to the automotive industry including safety practices, shop equipment and tools, vehicle subsystems, service publications, professional responsibilities and basic automotive maintenance.

**Corequisites:** AUTO-119L

## **AUTO-111 Manual Drive Trains and Axles**

### **2 Credits**

**Lecture:** 1 hour per week, **Lab:** 3 hours per week

**Offering:** Fall Only, All Years

This course discusses the theory and operation of current, manually-shifted transmissions, transaxles and transfer cases, as well as the theory and operation of drive shafts, axles and differentials as used with passenger cars and light trucks and SUVs.

**Corequisites:** AUTO-119L

**Recommended Corequisites:** AUTO-118

## **AUTO-118 Electrical Systems**

### **3 Credits**

**Lecture:** 2 hours per week, **Lab:** 3 hours per week

**Offering:** Fall Only, All Years

This course will cover basic electrical theory, wiring diagrams, test equipment, diagnosis, repair, replacement of electrical components, including battery, starting, charging, and lighting systems. Upon successful completion, the student should be able to properly use wiring diagrams and test equipment to diagnose, test, and repair wiring and lighting in accordance with Automotive Service Excellence (ASE) standards.

**Corequisites:** AUTO-119L

**Recommended Prerequisites:** AUTO-111

## **AUTO-119L Automotive Lab I**

### **7 Credits**

**Lab:** 14 hours per week

**Offering:** Fall Only, All Years

This course is designed to apply the theory and practices discussed in the corequisite lecture courses through hands-on tasks. Lab activities include, but are not limited to, demonstrations by instructor, assigned tasks utilizing tools, equipment on various mock up vehicles and components. Other lab activities may include familiarization of system operation, research of service information, service and repair procedures, as well as component and system diagnosis.

**Corequisites:** AUTO-111, AUTO-118

## **AUTO-124 Brakes, Suspension and Steering**

### **2 Credits**

**Lecture:** 1 hour per week, **Lab:** 3 hours per week

**Offering:** Spring Only, All Years

This course discusses the theory, operation, diagnosis, adjustment and repair of current braking, steering, and suspension systems as used on current automobiles, light trucks and SUVs. Antilock braking systems, stability control systems, tire pressure monitoring systems, tire service and wheel alignment will also be covered.

**Prerequisites:** AUTO-111, AUTO-118, AUTO-119L

**Corequisites:** AUTO-129L

**Recommended Corequisites:** AUTO-127

## **AUTO-127 Engine Repair**

### **3 Credits**

**Lecture:** 2 hours per week, **Lab:** 3 hours per week

**Offering:** Spring Only, All Years

This course will cover the theory, construction, inspection, diagnosis, and repair of internal combustion engines and related systems. Topics include fundamental operating principles of engines and diagnosis, inspection, adjustment, and repair of automotive engines using appropriate service information. Upon successful completion, a student should be able to perform basic diagnosis, measurement and repair of automotive engines using appropriate tools, equipment, procedures and service information in accordance with Automotive Service Excellence (ASE) standards.

**Prerequisites:** AUTO-111, AUTO-118, AUTO-119L

**Corequisites:** AUTO-129L

**Recommended Corequisites:** AUTO-124

## **AUTO-129L Automotive Lab II**

### **7 Credits**

**Lab:** 14 hours per week

**Offering:** Spring Only, All Years

This course is designed to apply the theory and practices discussed in the corequisite lecture courses through hands-on tasks. Lab activities include, but are not limited to, demonstrations by instructor, assigned tasks utilizing tools, equipment on various mock up and live vehicles and components. Other lab activities may include familiarization of system operation, research of service information, service and repair procedures, as well as component and system diagnosis.

**Prerequisites:** AUTO-111, AUTO-118, AUTO-119L

**Corequisites:** AUTO-124, AUTO-127

## **AUTO-231 Engine Performance I**

### **3 Credits**

**Lecture:** 2 hours per week, **Lab:** 3 hours per week

**Offering:** Fall Only, All Years

This course discusses the theory, operation, diagnosis and repair of the mechanical, electrical/electronic, fuel, induction, exhaust and emission systems of the modern internal combustion engine as related to current automobiles, light trucks and SUVs.

**Prerequisites:** AUTO-111, AUTO-118, AUTO-119L, AUTO-124, AUTO-127, AUTO-129L

**Corequisites:** AUTO-235L

**Recommended Corequisites:** AUTO-233

**AUTO-233 Electrical Systems II and HVAC**

**2 Credits**

**Lecture:** 1 hour per week, **Lab:** 3 hours per week

**Offering:** Fall Only, All Years

This course discusses the theory, operation, diagnosis and repair of advanced electrical systems and electronic systems, as related to current automobiles, light trucks and SUVs. This course also includes the theory, diagnosis, service practices and repair of the current automotive air conditioning and automatic temperature control systems used with current automobiles, light trucks and SUVs.

**Prerequisites:** AUTO-111, AUTO-118, AUTO-119L, AUTO-124, AUTO-127, AUTO-129L

**Corequisites:** AUTO-235L

**Recommended Corequisites:** AUTO-231

**AUTO-235L Advanced Automotive Lab III**

**7 Credits**

**Lab:** 14 hours per week

**Offering:** Fall Only, All Years

This course is designed to apply the theory and practices discussed in the corequisite lecture courses through hands-on tasks. Lab activities include, but are not limited to, demonstrations by instructor, assigned tasks utilizing tools, equipment on various mock up and live vehicles and components. Other lab activities may include familiarization of system operation, research of service information, service and repair procedures, as well as component and system diagnosis.

**Prerequisites:** AUTO-111, AUTO-118, AUTO-119L, AUTO-124, AUTO-127, AUTO-129L

**Corequisites:** AUTO-231, AUTO-233

**AUTO-241 Automatic Transmissions/Transaxles**

**3 Credits**

**Lecture:** 2 hours per week, **Lab:** 3 hours per week

**Offering:** Spring Only, All Years

This course discusses the theory, operation, diagnosis and repair of current, electronically controlled automatic transmissions and transaxles.

**Prerequisites:** AUTO-111, AUTO-118, AUTO-119L, AUTO-124, AUTO-127, AUTO-129L, AUTO-231, AUTO-233, AUTO-235L

**Corequisites:** AUTO-245L

**Recommended Corequisites:** AUTO-243

**AUTO-243 Engine Performance II**

**2 Credits**

**Lecture:** 1 hour per week, **Lab:** 3 hours per week

**Offering:** Spring Only, All Years

This course focuses on advanced drivability issues that affect engine performance. Emphasis will be on diagnostic strategies. Discussions will involve the function, diagnosis and repair of current automobile systems that affect engine performance and emissions utilizing the diagnostic equipment available. This course is designed for students to prepare for the ASE L1 - Advanced Level Engine Performance Certification test.

**Prerequisites:** AUTO-111, AUTO-118, AUTO-119L, AUTO-124, AUTO-127, AUTO-129L, AUTO-231, AUTO-233, AUTO-235L

**Corequisites:** AUTO-245L

**Recommended Corequisites:** AUTO-241

**AUTO-245L Advanced Automotive Lab IV**

**7 Credits**

**Lab:** 14 hours per week

**Offering:** Spring Only, All Years

This course is designed to apply the theory and practices discussed in the corequisite lecture courses through hands-on tasks. Lab activities include, but are not limited to, demonstrations by instructor, assigned tasks utilizing tools, equipment on various mock up and live vehicles and components. Other lab activities may include familiarization of system operation, research of service information, service and repair procedures, as well as component and system diagnosis.

**Prerequisites:** AUTO-111, AUTO-118, AUTO-119L, AUTO-124, AUTO-127, AUTO-129L, AUTO-231, AUTO-233, AUTO-235L

**Corequisites:** AUTO-241, AUTO-243