

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-231, AUTO-233, AUTO-235L**Corequisites:** AUTO-243, AUTO-245L or AUTO-246L and AUTO-290**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-231, AUTO-233, AUTO-235L**Corequisites:** AUTO-241, AUTO-245L or AUTO-246L and AUTO-290**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**AUTO-246L Advanced Automotive Lab V****6 Credits****Lab:** 12 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; demonstrations by instructor, assigned tasks utilizing tools and equipment on various 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-231, AUTO-233, AUTO-235L**Corequisites:** AUTO-241, AUTO-243, AUTO-290**AUTO-290 Advanced Automotive Internship****1 Credit****Internship:** 3 hours per week**Offering:** Spring Only, All Years

This course is designed to apply the theory and practices discussed in pre/corequisite lecture courses through work experience in an on-the-job setting. This course is developed as a contract agreement between the student intern and host organization. This course provides supervised training in automotive repair and automotive organizational operations. The student must demonstrate a minimum of entry-level competence for an automotive repair technician as determined by the internship supervisor and must document 45 hours at the internship site. Course will be graded as Satisfactory/Unsatisfactory.

Prerequisites: AUTO-231, AUTO-233, AUTO-235L**Corequisites:** AUTO-241, AUTO-243, AUTO-246L