

# AM - AUTOMOTIVE (MCAP, IMPORT, AND SUBARU-U)

## AM103 Automotive Service Theory

Credits 2 Summer - odd years/Fall - even years

**Registration Requirement:** Acceptance to the Chrysler MCAP or IMPORT or Subaru U program; or instructor consent.

This course is the study of the basic theory and operation of automotive safety, tools and service procedures. Students study basic vehicle inspections and service processes, service manual usage, shop safety issues, precision tool usage, metric and standard measurement systems and general automotive shop procedures.

**Additional Course Fee:** \$60.00

## AM104 Automotive Service Lab

Credit 1 Summer - odd years/Fall - even years

**Registration Requirement:** Acceptance to the Chrysler MCAP or IMPORT or Subaru U program; or instructor consent.

Students perform basic vehicle inspections, oil changes, vehicle maintenance, service manual exercises, precision tool measurements, shop safety procedures and general automotive shop operations.

**Additional Course Fee:** \$35.00

## AM105 Chassis Basic Theory

Credits 3 Summer - odd years/Fall - even years

**Registration Requirement:** Acceptance to the Chrysler MCAP or IMPORT or Subaru U program; or instructor consent.

Students perform basic inspections, removal, replacement and repair of automotive braking, steering and suspension system components. Emphasis is on suspension and steering system inspections, tire and wheel service, basic wheel alignment and disc and drum brake system service.

**Additional Course Fee:** \$5.00

## AM106 Chassis Basic Lab

Credit 1 Summer - odd years/Fall - even years

**Registration Requirement:** Acceptance to the Chrysler MCAP or IMPORT or Subaru U program; or instructor consent.

Students perform basic inspections, removal, replacement and repair of automotive braking, steering and suspension system components. Emphasis is on suspension and steering system inspections, tire and wheel service, basic wheel alignment and disc and drum brake system service.

**Additional Course Fee:** \$35.00

## AM112 Electrical 1 Theory

Credits 3 Summer - odd years/Fall - even years

**Registration Requirement:** Acceptance to the Chrysler MCAP or IMPORT automotive program; or instructor consent.

In this course students study the basic principles of electricity including voltage, amperage, resistance, series circuits, parallel circuits, series-parallel circuits, Ohms Law, induction and measuring techniques. In addition, instruction is provided on the theory, function and application of electrical principles of components commonly found in automotive battery, charging, starting, lighting and accessory systems.

**Additional Course Fee:** \$5.00

## AM113 Electrical 1 Lab

Credits 2 Summer - odd years/Fall - even years

**Registration Requirement:** Acceptance to the Chrysler MCAP or IMPORT automotive program; or instructor consent.

This course is the study of basic electrical system operation, testing and diagnosis. Students use electrical testing equipment to measure and interpret voltage, resistance and amperage measurements from series, parallel and series/parallel circuits. In addition, students test, service and diagnose the battery, charging and starting systems.

**Additional Course Fee:** \$35.00

## AM114 Engines 1 Theory

Credits 2 Summer - odd years/Fall - even years

**Registration Requirement:** Acceptance to the Chrysler MCAP, IMPORT or Subaru U program; or instructor consent.

In this course students study the fundamental theory, construction and operation of automotive internal combustion engines. Instruction is provided on engine cooling systems, lubrication systems, basic engine service and basic engine component fit and measurements.

**Additional Course Fee:** \$5.00

## AM115 Engines 1 Lab

Credit 1 Summer - odd years/Fall - even years

**Registration Requirement:** Acceptance to the Chrysler MCAP or IMPORT program; or instructor consent.

In this course students perform basic tests, inspections, removal and replacement of internal combustion engine cooling system, lubrication system, cylinder head and valve timing components.

**Additional Course Fee:** \$35.00

## AM140 Drivetrains 1 Theory

Credits 3 Winter - even years/Spring - odd years

**Registration Requirement:** Acceptance in the MCAP, IMPORT, or Subaru U program or instructor consent

In this course students study basic principles and theory of hydraulically and electrically operated transmissions, transaxles, torque converters, manual transmissions and transaxles, differentials, drivelines, axles and clutches. Emphasis is on the general purpose and functions of each component working together within the assembly. Introduction to electronic controls and the hydraulic to electronic interaction is also discussed.

**Additional Course Fee:** \$5.00

## AM141 Drivetrains 1 Lab

Credit 1 Winter - even years/Spring - odd years

**Registration Requirement:** Acceptance in the MCAP, IMPORT, or Subaru U program or instructor consent

Students will perform basic inspection, service, and repair of automotive manual and automatic transmissions and transaxles, differentials, transfer case, axles, U-joints, and clutches.

**Additional Course Fee:** \$35.00

**AM142 Chassis 2 Theory**

Credits 3

Fall/Winter

**Registration Requirement:** Acceptance to the Chrysler MCAP or IMPORT or Subaru U program; or instructor consent.

This is a continuation of the study of the terminology, theory, service, repair, diagnostic and testing procedures related modern passenger vehicle and light truck brakes, steering and suspension systems. Emphasis will be on the diagnosis and functions of ABS and traction control systems, alignments, vehicle handling, tire pressure monitoring, tire wear and tire balancing.

**Additional Course Fee:** \$35.00

**AM143 Chassis 2 Lab**

Credit 1

Fall/Winter

**Registration Requirement:** Acceptance to the Chrysler MCAP or IMPORT or Subaru U program; or consent.

In this course students will perform inspections, removal, replacement and repair of automotive braking system, steering and suspension systems. The focus will be on suspension and steering system repairs, alignments, Disc brakes repairs, and ABS brake system testing and service.

**AM154 Electrical 2 Theory**

Credits 3

Winter - odd years/Spring - even years

**Registration Requirement:** Acceptance in the MCAP, IMPORT, or Subaru U program or instructor consent.

Students study the basic terminology, theory, function, service, repair, diagnostic and testing procedures related to modern passenger vehicle and light truck engine performance systems. Emphasis is on basic electronic fuel injection inputs, ignition systems and the relationship of engine mechanical components to engine performance.

**Additional Course Fee:** \$5.00

**AM155 Electrical 2 Lab**

Credit 1

Winter/Spring

**Registration Requirement:** Acceptance to the Chrysler MCAP or IMPORT automotive program; or instructor consent.

In this course students perform basic service, repair and diagnostic In this course students perform basic service, repair and diagnostic tests on vehicle electrical circuits including lighting, battery, starting and charging systems. In addition, students measure, test and explore the function of basic vehicle communication and occupant restraint systems. This course emphasizes the use of digital multimeters to measure and explore vehicle electrical system components and introduces the use of lab oscilloscopes.

**Additional Course Fee:** \$35.00

**AM158 Engine Performance 1 Theory**

Credits 3

Winter/Spring

**Registration Requirement:** Acceptance to the Chrysler MCAP or IMPORT automotive program; or instructor consent.

Students study the basic terminology, theory, function, service, repair, diagnostic and testing procedures related to modern passenger vehicle and light truck engine performance systems. Emphasis is on basic electronic fuel injection inputs, ignition systems and the relationship of engine mechanical components to engine performance.

**Additional Course Fee:** \$5.00

**AM159 Engine Performance 1 Lab**

Credits 2

Winter/Spring

**Registration Requirement:** Acceptance in the MCAP, IMPORT, or Subaru U program or instructor consent.

This course emphasizes the use of digital multimeters to measure and explore vehicle electrical system components and introduces the use of lab oscilloscopes. Students measure, explore, analyze and perform basic diagnostic tests on engine performance components and devices. The focus is on engine mechanical components related to performance, ignition systems and electronic fuel injection inputs.

**Additional Course Fee:** \$35.00

**AM170 Automotive Project 1**

Credit 1

Winter - even years/Spring - odd years

**Registration Requirement:** Acceptance to the Chrysler MCAP or IMPORT automotive program; or instructor consent.

In this course students study, research, discuss, write and present on topics such as new automotive technologies, various light repair and maintenance techniques, and topics related to brakes, suspension, electrical, drivetrain, and engine system. In addition, students are required to participate in approved service projects, automotive marketing/recruitment events, automotive skill contests and/or other approved activities.

**AM171 Chrysler MCAP, IMPORT Subaru-U E-Learning Fundamentals 1**

Credit 1

Fall/Winter

**Registration Requirement:** Acceptance to the Chrysler MCAP or IMPORT or Subaru U program; or instructor consent.

This is an e-learning on line course where students study fundamental vehicle services and systems studied during the dealership experience. Students reinforce topics covered during the terms on campus. This course utilizes an online learning and assessment system to achieve proficiency relevant to future coursework and employment.

**AM224 Engines 2 Theory**

Credits 2

Summer - even years/Fall - odd years

**Registration Requirement:** Acceptance to the Chrysler MCAP or IMPORT automotive program; or instructor consent.

This course is a continuation of the study of automotive internal combustion engine theory, construction and operation. Each individual component is studied and analyzed with emphasis on services and repair process, detailed component fit and measurements and individual component function within the engine assembly.

**Additional Course Fee:** \$5.00

**AM225 Engines 2 Lab**

Credit 1

Summer - even years/Fall - odd years

**Registration Requirement:** acceptance into the Chrysler MCAP, IMPORT, Subaru-U program.

In this course students remove, inspect, measure and replace internal combustion engine components. Emphasis is on determining component clearances, failure analysis and assembly process on cylinder heads, valve train components, blocks, camshafts, crankshafts and piston assemblies.

**Additional Course Fee:** \$35.00

**AM228 Engine Performance 2 Theory**

Credits 4

Summer/Fall

**Registration Requirement:** Acceptance to the Chrysler MCAP or IMPORT or Subaru U program; or instructor consent.

This is a continuation of the study of the terminology, theory, service, repair, diagnostic and testing procedures related to modern passenger vehicle and light truck engine performance systems. Emphasis is on electronic fuel injection inputs and outputs, intake air control systems, fuel supply systems and emission control devices.

**Additional Course Fee:** \$55.00

**AM229 Engine Performance 2 Lab**

Credits 2

Summer/Fall

**Registration Requirement:** Acceptance to the Chrysler MCAP or IMPORT or Subaru U program; or instructor consent.

In this course students measure, service, repair, analyze and perform diagnostic tests on engine performance components and devices. The focus is on fuel supply systems, intake air control systems, emission control devices and electronic fuel injection inputs and outputs.

**Additional Course Fee:** \$35.00

**AM232 Electrical 3 Theory**

Credits 3

Summer - even years/Fall - odd years

**Registration Requirement:** acceptance into the Chrysler MCAP, IMPORT, Subaru-U program.

Students study the theory, construction, operation and diagnosis of automotive computer-controlled components, accessory devices and vehicle communication systems. Instruction is provided on oscilloscope usage and advanced applications of electrical principles relating to electrical components and vehicle computer-controlled systems.

**Additional Course Fee:** \$5.00

**AM233 Electrical 3 Lab**

Credit 1

Summer - even years/Fall - odd years

**Registration Requirement:** Acceptance into the Chrysler MCAP, IMPORT, Subaru-U program.

In this course students measure and interpret various voltage, resistance and current values to explore the function and diagnosis of electrical and electronic circuits. Emphasis is on the advanced use of oscilloscope and digital multi-meters while performing service, repair and diagnostic procedures on electrical accessory, computer-controlled and vehicle communication systems.

**Additional Course Fee:** \$35.00

**AM238 Air Conditioning Theory**

Credits 3

Summer/Fall

**Registration Requirement:** Acceptance to the Chrysler MCAP or IMPORT or Subaru U program; or consent.

In this course students study the theory, function and operation of automotive air conditioning and heating systems and the related components. Instruction includes A/C certification and safety requirements, various testing methods and procedures, and proper service, repair, and diagnosis operations.

**Additional Course Fee:** \$5.00

**AM239 Air Conditioning Lab**

Credit 1

Summer/Fall

**Registration Requirement:** Acceptance to the Chrysler MCAP or IMPORT or Subaru U program; or instructor consent.

In this course students will perform automotive A/C and heating system inspection, testing, service and repair. Emphasis will be on performing system component identifications, performance testing, recovering, evacuation and recharging, component testings and diagnosis.

**Additional Course Fee:** \$35.00

**AM242 Electrical 4 Theory**

Credits 3

Winter - odd years/Spring - even years

**Registration Requirement:** Acceptance in the MCAP, IMPORT, or Subaru U program or instructor consent.

Students continue the study of the theory, operation and diagnostic procedures of electrical accessory, computer-controlled and vehicle communication systems. In addition, instruction is provided on the theory, service, repair and diagnosis of the supplemental restraint systems. This course emphasizes the theory and application of electrical testing equipment and data interpretation for troubleshooting and diagnosing electrical and electronic components and computer controlled systems. Students study various diagnostic methods, tests and processes to isolate malfunction in automotive computer controlled systems.

**Additional Course Fee:** \$5.00

**AM243 Electrical 4 Lab**

Credit 1

Winter - odd years/Spring - even years

**Registration Requirement:** Acceptance in the MCAP, IMPORT, or Subaru U program or instructor consent

Students perform service, repair and diagnostic procedures on advanced electrical accessory, computer-controlled and supplemental restraint systems. This course emphasizes using electrical testing equipment to collect data and the interpretation of that data to troubleshoot and diagnose electrical components, vehicle communications, supplemental restraint and computer-controlled systems. Students test, interpret and diagnosis vehicle engine performance, communication and accessory system faults. Emphasis is on the diagnostic process, use of testing equipment, interpreting test data and determining solutions.

**Additional Course Fee:** \$35.00

**AM244 Drivetrains 2 Theory**

Credits 2

Winter - odd years/Spring - even years

**Registration Requirement:** Acceptance in the MCAP, IMPORT, or Subaru U program or instructor consent.

This is a continuation of the study of principles and theory of hydraulically and electrically operated transmissions, transaxles, torque converters, manual transmissions and transaxles, differentials, drivelines, axles and clutches. Emphasis is on the detailed purpose and functions of each component working together within the assembly. Electronic controls and the hydraulic to electronic interaction are discussed and related to vehicle diagnosis. Students also study NVH principles, measurement methods and diagnostics.

**Additional Course Fee:** \$5.00

**AM245 Drivetrains 2 Lab**

Credits 3 Winter - odd years/Spring - even years

**Registration Requirement:** Acceptance in the MCAP, IMPORT, or Subaru U program or instructor consent.

In this course students service, repair and rebuild automatic transmissions and transaxles, differentials, and transfer cases. Students also inspect, measure and diagnose noise and vibrations concerns related to engines, chassis and transmission systems.

**Additional Course Fee:** \$35.00

**AM246 Engine Performance 3 Theory**

Credits 3 Winter - odd years/Spring - even years

**Registration Requirement:** Acceptance in the MCAP, IMPORT, or Subaru U program or instructor consent.

Students study the advanced terminology, theory, service, repair, diagnostic and testing procedures related to modern passenger vehicle and light truck engine performance systems. Emphasis is on the diagnosis of electronic fuel injection systems, OBDII systems and emission controls systems. Introductory Hybrid and Diesel service and repair materials will be covered.

**Additional Course Fee:** \$5.00

**AM247 Engine Performance 3 lab**

Credit 1 Winter - odd years/Spring - even years

**Registration Requirement:** Acceptance in the MCAP, IMPORT, or Subaru U program or instructor consent

This course is a continuation of the measurement, service, repair, analyzing and performing diagnostic tests on engine performance components and devices. The focus is on diagnosing OBDII systems, emission control systems and electronic fuel injection control modules. Introductory Diesel will also be covered.

**Additional Course Fee:** \$35.00

**AM248 Electric Vehicle Theory**

Credits 2 Winter - odd years/Spring - even years

**Registration Requirement:** Recommended Requisite: Acceptance in the MCAP, IMPORT, or Subaru U program or instructor consent.

Students will learn the theory on how to safely identify, work on and diagnose Hybrid and Electric Vehicles.

**AM249 Electric Vehicle Lab**

Credit 1 Winter - odd years/Spring - even years

**Registration Requirement:** Recommended Requisite: Acceptance in the MCAP, IMPORT, or Subaru U program or instructor consent.

The student will learn how to perform hands-on tasks and diagnosis tests on Hybrid and Electric Vehicles.

**AM281 Automotive Dealership Experience 1**

Credits 6 Fall/Winter

**Registration Requirement:** Acceptance into the Chrysler MCAP or IMPORT program.

In this course the student will work a minimum of 200 hours with a mentoring technician in an automotive repair facility. The goal is to gain experience in oil and filter changing, shop processes, and basic vehicle service and repair procedures. In agreement with specific employers, a program instructor will coordinate the student's placement and work experience.

**AM282 Automotive Dealership Experience 2**

Credits 6 Summer - odd years/Spring - even years

**Registration Requirement:** Acceptance into the Chrysler MCAP, IMPORT or Subaru-U program.

The student will be employed a minimum of 200 hours per term in an automotive repair facility. Through agreement with the employer, a program instructor coordinates the student's work experience with his/her college studies. The expectation in each dealership experience is for the student to complete increasingly complex tasks and work with increasing independence.

**AM283 Automotive Dealership Experience 3**

Credits 6 Fall - even years/Winter - even years

**Registration Requirement:** Acceptance into the Chrysler MCAP, IMPORT or Subaru U program.

The student will be employed a minimum of 200 hours per term in an automotive repair facility. Through agreement with the employer, a program instructor coordinates the student's work experience with his/her college studies. The expectation in each dealership experience is for the student to complete increasingly complex tasks and work with increasing independence.

**AM284 Automotive Dealership Experience 4**

Credits 6 Summer - even years/Spring - odd years

**Registration Requirement:** Acceptance into the Chrysler MCAP or IMPORT program.

The student will be employed a minimum of 200 hours per term in an automotive repair facility. Through agreement with the employer, a program instructor coordinates the student's work experience with his/her college studies. The expectation in each dealership experience is for the student to complete increasingly complex tasks and work with increasing independence. During this final Co-op phase, students will need to take and pass a minimum of 4 automotive ASE tests. Proof of completion will need to be submitted to your instructor prior to the final day of the term.

*Course fees are subject to change. Additional section fees (web, hybrid, etc.) may apply.*