

# AUTOMOTIVE TECHNOLOGY (AUTO)

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## **AUTO 101. Introduction to Automotive Technology**

Credits: 3

Typically Offered: FALLSPR

This course is a study of basic terms, principles, operation and testing of the eight major operating systems of the automobile. The major automotive systems include electrical, brakes, engine repair, air conditioning, suspension and steering, engine performance, manual transmissions and automatic transmissions.

## **AUTO 108. Mechanical and Shop Orientation**

Credits: 1

Typically Offered: FALLSPR

A course in safety and shop procedures applied specifically to the automotive field. Students will become familiar with safety equipment, hoists, and shop operating procedures. Included are hazardous waste handling, disposal, and use of material safety data sheets. This course is based on a satisfactory/unsatisfactory basis.

## **AUTO 128. Automatic Transmissions and Transaxles**

Credits: 5

Prerequisites: AUTO 161 and AUTO 108 or departmental approval.

Typically Offered: FALL

This course concentrates on study of basic principles of operation in automatic transmission hydraulic control systems, planetary gear systems, and torque converters through classroom lecture and demonstration. The diagnosis of problems and methods of repair are actual hands-on projects in the shop on live vehicles and trainers.

## **AUTO 131. Clutches, Drive Trains and Axles**

Credits: 3

Prerequisites: AUTO 161 and AUTO 108 or departmental approval.

Typically Offered: SPRING

This course concentrates on a study of the mechanical transmission of torque through clutches, gear boxes, drive lines and front diving axles. The diagnosis of problems and methods of repair and actual hands-on projects in the shop on live vehicles and trainers.

## **AUTO 132. Manual Transmissions and Transaxles**

Credits: 3

Prerequisite: AUTO 161 and AUTO 108 or departmental approval.

Typically Offered: SPRING

This course concentrates on a study of the transmission of torque through manual transmissions and transaxles. Course content includes a study of bearing and gear types. A variety of gear boxes on hand allows hands-on projects in the shop class.

## **AUTO 148. Suspension and Steering**

Credits: 4

Prerequisites: AUTO 161 and AUTO 108 or departmental approval.

Typically Offered: SPRING

This course concentrates on a study of the principles of operation and design of suspension systems on modern cars and light trucks. Actual hands-on work in the shop on live vehicles and new trainers complements the classroom training.

## **AUTO 151. Brake Fundamentals**

Credits: 2

Prerequisites: AUTO 161 and AUTO 108 or departmental approval.

Typically Offered: SPRING

The study of automotive braking systems and theory and operation. Included are hydraulic fundamentals, brake system construction, and antilock brake system fundamentals. The course consists of classroom theory, demonstration and lab application.

## **AUTO 152. Brake Repair**

Credits: 3

Prerequisites: AUTO 151, AUTO 161 and AUTO 108 or departmental approval.

Typically Offered: SPRING

This course will be a study of brake components, application, testing and repair. The use of trainer and live vehicles will be used to develop proper service techniques in the lab.

## **AUTO 161. Electronics**

Credits: 2

Prerequisite: AUTO 108 or departmental approval.

Typically Offered: FALLSPR

This course develops an understanding of the concepts using Ohms Law relationships and how they are applied to circuits and component operation. The use of meter testing and calculation methods will be used to develop problem solving skills.

**AUTO 163. Starting and Charging Systems**

Credits: 3

Prerequisites: AUTO 161 and AUTO 108 or departmental approval.

Typically Offered: FALL

The theory of operation for batteries, starting motor systems, and charging systems is covered. An in-depth review of types of components, their construction and how they are tested is done using bench units and live cars. Extensive use of manuals, test equipment and proper tools is stressed for doing proper service, repair and replacement of system components.

**AUTO 164. Instruments and Accessory Systems**

Credits: 4

Prerequisites: AUTO 161 and AUTO 108 or departmental approval.

Typically Offered: FALL

This course will familiarize the student with the lighting systems used on today's automobiles. It will introduce the major manufacturers use of different types of instrumentation systems and their operation. The use of power accessory systems and component interrelationship, testing procedures and service procedures to maintain operation to specification are dealt with. Extensive use of manuals and test equipment are needed.

**AUTO 211. Engine Fundamentals**

Credits: 4

Prerequisites: AUTO 161 and AUTO 108 or departmental approval.

Typically Offered: FALL

A course in gasoline engine theory and basic diagnosis. Common mechanical engine problems and diagnostic techniques are covered in the classroom and lab. Students will learn the proper use of measuring tools and fastener methods so critical to engine repair work as well as all automotive work.

**AUTO 212. Engine Repair**

Credits: 4

Prerequisites: AUTO 161, AUTO 108 and AUTO 211 or departmental approval.

Typically Offered: FALL

Class and laboratory practice devoted to disassembly and assembly of automotive engines. This will include measuring and fitting components such as bearings, pistons, and rings. Cylinder head reconditioning work will include guide repair, valve and seat machining operations.

**AUTO 271. A/C Heating Theory and Operation**

Credits: 3

Prerequisites: AUTO 161 and AUTO 108 or departmental approval.

Typically Offered: FALL

This course will familiarize the student with terms, how heat is transferred, pressure-temperature relationships, system components, and how they operate to provide heat or cooling. Extensive use of manuals is needed to understand the varied methods used by the industry in today's automobiles.

**AUTO 272. A/C & Heating Diagnosis**

Credits: 4

Prerequisites: AUTO 108, AUTO 161 and AUTO 271 or departmental approval.

Typically Offered: FALL

This course will familiarize the student with the safe handling of coolants and refrigerants. An in-depth use of special tools and testing equipment is used in the servicing of both the systems and the components.

**AUTO 282. Ignition Systems**

Credits: 3

Prerequisites: AUTO 161 and AUTO 108 or departmental approval.

Typically Offered: SPRING

This course is the study of the types of ignition systems in use by major automotive manufacturers. Theory and lab classes will cover operation and service procedures, including the use of basic and specialized test equipment.

**AUTO 283. Fuel Delivery Systems**

Credits: 6

Prerequisites: AUTO 161 and AUTO 108 or departmental approval.

Typically Offered: SPRING

A course consisting of theory, diagnosis and repair of basic fuel delivery systems. These systems will include various types of gasoline fuel injection and carburetion.

**AUTO 284. Emission Control Systems**

Credits: 6

Prerequisites: AUTO 161 and AUTO 108 or departmental approval.

Typically Offered: SPRING

A course consisting of theory, diagnosis and repair of emission control systems used on automotive gasoline engines. Systems covered will include evaporative, crankcase and exhaust emission controls.