

## Automotive Technology

### AT 100 Automotive Fundamentals

#### 4.0 units

Acceptable for credit: Transfer CSU

Designed to teach the student complete car care, emphasizing the operating principles and service operations on all types of automobiles and light trucks. Includes investigation of the impacts that the automobile has on modern life, the economy and the environment. (Fall, Spring, Summer) (Letter Grade or Pass/No Pass)

### AT 117 Print Reading and Interpretation

#### 3.0 units

Acceptable for credit: Transfer CSU

An introductory class where students will learn to read engineering drawings, evaluate print specifications, recognize orthographic views and visualize the actual objects or projects shown in the illustration. This course is not open to students who are enrolled in or have received credit for AB 330, AT 330, ET 330, MT 330, or AB/ET/MT 117. (Letter Grade or Pass/No Pass)

### AT 133 Automotive Engine Rebuilding

#### 5.0 units

Acceptable for credit: Transfer CSU

C-ID Course Number: N/A

Limitations on Enrollment: Must take and pass the Lab Safety Test

Prerequisite: AT 100 - Automotive Fundamentals

The intent of this course is to introduce the student to the diagnosis and repair of automotive engines. Laboratory experiences will include engine evaluation, removal, disassembly, precision measurement, inspection and evaluation of engine components, cylinder head reconditioning, engine reassembly and installation. (Spring) (Letter Grade Only)

### AT 300 Shop Math and Measurement

#### 3.0 units

Acceptable for credit: D - Credit - Degree Applicable

An introduction to the mathematics used in the Industrial Technology programs. Students will learn to solve problems using fractions, decimals, percentage, ratios and basic geometric shapes. Students will learn about the Cartesian coordinate system and how to use a variety of basic and precision measuring tools from rulers and tape measures to calipers and micrometers. This course is not open to students who are enrolled in, or have received credit for AT 381, AB 381, ET 381, MT 381, WLDT 381, or AB/ET/MT/WLDT 300. (Fall, Spring) (Letter Grade or Pass/No Pass)

### AT 303 Automotive Electricity

#### 5.0 units

Acceptable for credit: D - Credit - Degree Applicable

C-ID Course Number: N/A

Limitations on Enrollment: Must take and pass the Lab Safety Test

Prerequisite: AT 100 - Automotive Fundamentals

Designed to give the student a strong background in basic automotive electricity and electronic concepts. Includes discussion

and hands on practice with basic theories, operation, diagnosis, and service of the electrical, electronic, and computer control systems with an emphasis on preparing the student for professional certification testing. (Fall, Spring, Summer) (Letter Grade Only)

### AT 306 Auto Air Conditioning Systems

#### 4.0 units

Acceptable for credit: D - Credit - Degree Applicable

Advisories: AT 303 - Automotive Electricity

Prerequisite: AT 100 - Automotive Fundamentals

In this course students study the theory, operation, diagnosis, and repair of automotive heating, air conditioning and engine cooling systems. (Fall, Spring) (Letter Grade Only)

### AT 313 Automotive Brakes

#### 4.0 units

Acceptable for credit: D - Credit - Degree Applicable

C-ID Course Number: N/A

Prerequisite: AT 100 - Automotive Fundamentals

A comprehensive examination of automotive and light truck brakes. Emphasis on repair and troubleshooting of domestic and import systems, drum and disc mechanical systems, power brake systems, anti-skid systems, and computerized brake systems. (Fall) (Letter Grade or Pass/No Pass)

### AT 314 Suspension and Alignment

#### 4.0 units

Acceptable for credit: D - Credit - Degree Applicable

Prerequisite: AT 100 - Automotive Fundamentals

Designed to familiarize the student with the theory of suspension design, and the repair and alignment of automotive suspensions including long and short arm suspension, McPherson Struts, Solid Axle, and Twin I Beam types. (Spring) (Letter Grade or Pass/No Pass)

### AT 323 Power Trains

#### 5.0 units

Acceptable for credit: D - Credit - Degree Applicable

An introduction and comprehensive examination of automotive drive lines and differentials; manual transmissions; manual transaxles; automatic transmission fundamentals; flywheel and clutch and 4-wheel drive. Extreme emphasis is placed on principles of operation, troubleshooting and intensive repair. (Fall) (Letter Grade or Pass/No Pass)

### AT 324 Automatic Transmissions

#### 5.0 units

Acceptable for credit: D - Credit - Degree Applicable

Advisories: AT 303 - Automotive Electricity

Prerequisite: AT 100 - Automotive Fundamentals

Theory and operation, diagnosis, service and repair of automotive automatic transmissions and transaxles. (Spring) (Letter Grade or Pass/No Pass)

### AT 334 Automotive Machining 1

#### 4.0 units

Acceptable for credit: D - Credit - Degree Applicable

Limitations on Enrollment: Must take and pass the Lab Safety Test.

Prerequisite: AT 133 - Automotive Engine Rebuilding

An intensified course in automotive machining, the course will emphasize student proficiency in machine operation. Designed to make the student proficient in all phases of automotive and industrial engine rebuilding, including crankshaft grinding, boring, honing, line boring, block and head resurfacing, crack repair, head reconditioning, precision measuring, balancing, and engine assembly. (Spring) (Letter Grade Only)

### **AT 336 Automotive Machining 2**

**4.0 units**

Acceptable for credit: D - Credit - Degree Applicable

Limitations on Enrollment: Must take and pass the lab safety test.

Prerequisite: AT 334 - Automotive Machining 1

An advanced course focused on precision and performance engine preparation. Topics to be covered include engine components selection, machining and measurement for maximum engine efficiency and output. (Fall, Spring) (Letter Grade or Pass/No Pass)

### **AT 341 Fuel Injection/Turbocharging**

**5.0 units**

Acceptable for credit: D - Credit - Degree Applicable

Advisories: AT 303 - Automotive Electricity ; or concurrent enrollment in AT 303; or high school automotive electrical study  
This course provides theory and application of automotive fuel supply and fuel injection systems. The course includes basic engine, fuel supply, fuel injection, turbocharging, and computerized engine controls diagnosis and repair. (Fall, Spring) (Letter Grade or Pass/No Pass)

### **AT 343 Engine Performance/Diagnosis**

**5.0 units**

Acceptable for credit: D - Credit - Degree Applicable

Advisories: AT 341 - Fuel Injection/Turbocharging ; or prior basic engine performance and fuel system training

This course is designed to give students a basic knowledge of engine diagnostic tools, and a working ability to diagnose engine performance problems. The course includes fuel, ignition, computerized engine controls, and emission controls related systems. (Fall, Spring) (Letter Grade or Pass/No Pass)

### **AT 344 Emission Control/BAR CAC**

**5.0 units**

Acceptable for credit: D - Credit - Degree Applicable

Advisories: AT 341 - Fuel Injection/Turbocharging ; and AT 343 - Engine Performance/Diagnosis

This course provides theory and diagnosis of automotive emission control systems. The course includes the BAR (Bureau of Automotive Repair) CAC (Clean Air Car) course preparation and certification. (Spring) (Letter Grade or Pass/No Pass)

### **AT 354 Selected Projects in Automotive Machining**

**1.0 unit**

Acceptable for credit: D - Credit - Degree Applicable

Advisories: AT 336 - Automotive Machining 2 ; ENGL 514 - Writing Skills 4

Limitations on Enrollment: Must take and pass the Lab Safety Test

A project based course with an emphasis on the practice and improvement of automotive machining skills. The approved student project is performed under the direct supervision of the responsible Automotive Technology faculty member. (Letter Grade or Pass/No Pass)

### **AT 370 SkillsUSA**

**3.0 units**

Acceptable for credit: D - Credit - Degree Applicable

Repeatable: 3.00

SkillsUSA is a partnership of students, teachers and industry working together to ensure America has a skilled workforce. This SkillsUSA course prepares students for employment and inter-collegiate competition in Career Technical Education. Students will learn to plan projects, work in teams, solicit community support and develop a range of skills valued by employers. Students registered for this class may not register for AB 370, ARCH 370, EL 370, ET 370, MT 370 or WLDT 370 during the same semester. Participation in the SkillsUSA competition is required. This course may be repeated up to three times for credit with different competitions. (Fall, Spring) (Letter Grade or Pass/No Pass)

### **AT 389 Independent Projects in Automotive Technology**

**1.0 - 3.0 units**

Acceptable for credit: D - Credit - Degree Applicable

AT 389 Independent Projects is for students capable of independent work who demonstrate the need or desire for additional study beyond the regular curriculum. Enrollment allows students to pursue activities such as directed field experience, search or development of skills and competencies under faculty advisement and supervision. Students wishing to enroll in AT 389 Independent Projects should contact the appropriate instructor identified in the class schedule. If the project proposed is acceptable to that instructor, a contract will be issued no later than the end of the second week of the semester. Units are awarded depending upon satisfying performance and the amount of time committed by the students to the course. Allowable units vary according to discipline, and are based on the following formula: 1 unit-48 hours per semester 2 units-96 hours per semester 3 units-144 hours per semester (Letter Grade Only)

### **AT 399A Special Topics in Automotive Technology**

**2.0 units**

Acceptable for credit: D - Credit - Degree Applicable

Prerequisite: AT 100 - Automotive Fundamentals ; and one additional AT course is recommended for enrollment

Designed to prepare trained students/technicians to pass specific Automotive Service Excellence (A.S.E) certification tests and retests. Students will select a minimum of four areas of study from the following speciality areas: Engine repair, Automotive Transmission/Transaxle, Manual Drive Train and Axles, Suspension and Steering, Brakes, Electrical Systems, Heating and Air Conditioning, Engine Performance, and Damage Repair, Structural Analysis and Damage Repair, Mechanical and

Electrical Components, Light Vehicle Compressed Natural Gas,  
and Parts Specialist. (Fall, Spring, Summer) (Letter Grade Only)