

# AUTOMOTIVE

The degree in automotive service provides training in all phases of automotive maintenance work for all types of vehicles. The specialty study covers the function, construction, operation, and servicing of automotive components including fuel systems, manual and automatic transmissions, suspension and brake systems, driveline units, heating and air conditioning, electrical systems, computer controls, and emission systems. Diagnosis and troubleshooting, shop safety, and shop procedures are also covered.

The certificates in automotive – electrical, brake and suspension, engine mechanical repair, transmission and drivetrain, engine performance, and auto heating and air conditioning – are ideal for building specialty skills and make nice enhancements to the degree.

## Entrance Requirements

None

## Program Requirements

ECC automotive students are required to provide their own hand tools, safety glasses, and protective clothing. Complete lists of special tools are available from ECC automotive instructors.

- Describe and demonstrate shop safety practices
- Demonstrate proficiency with various tools
- Identify components and describe the purpose and function of various systems
- Identify and describe basic operation of major systems
- Describe the importance of and perform basic preventative maintenance
- Perform diagnosis and repair on various systems

## Automotive Service Technology - Associate of Applied Science

Course	Title	Credit Hours
<b>First Semester</b>		
AUT 151	Automotive Engine Service & Repair	7
AUT 153	Manual Transmissions & Drivetrains	7
<b>Required Communication Course</b>		3
<b>Total</b>		<b>17</b>
<b>Second Semester</b>		
AUT 160	Automotive Electricity I	6
AUT 163	Automotive Electricity II	4
AUT 290	Auto Heating & Air Conditioning	5
<b>Required Communication Course</b>		3
<b>Total</b>		<b>18</b>
<b>Third Semester</b>		
AUT 171	Auto Suspensions & Wheel Alignment	5
AUT 172	Automotive Brake Systems	5
<b>Required Math or Science Course</b>		3-4
<b>Required Social or Behavioral Course</b>		3
<b>Total</b>		<b>16-17</b>

### Fourth Semester

AUT 180	Fuel & Ignition System Fundamentals	7
AUT 271	Diagnostics & Engine Performance	7
<b>Required Humanities/Fine Arts Course</b>		3
<b>Total</b>		<b>17</b>
<b>Program Total</b>		<b>68-69</b>

## Automotive Electrical Specialist - Basic Vocational Specialist

Course	Title	Credits
AUT 160	Automotive Electricity I	6
AUT 163	Automotive Electricity II	4
<b>Total Credit Hours</b>		<b>10</b>

## Brake and Suspension Specialist - Basic Vocational Specialist

Course	Title	Credits
AUT 171	Auto Suspensions & Wheel Alignment	5
AUT 172	Automotive Brake Systems	5
<b>Total Credit Hours</b>		<b>10</b>

## Engine Mechanical Repair Specialist - Basic Vocational Specialist

Course	Title	Credits
AUT 151	Automotive Engine Service & Repair	7
<b>Total Credit Hours</b>		<b>7</b>

## Engine Performance Specialist - Basic Vocational Specialist

Course	Title	Credits
AUT 180	Fuel & Ignition System Fundamentals	7
AUT 271	Diagnostics & Engine Performance	7
<b>Total Credit Hours</b>		<b>14</b>

## Transmission & Drivetrain Specialist - Basic Vocational Specialist

Course	Title	Credits
AUT 153	Manual Transmissions & Drivetrains	7
AUT 253	Automatic Transmissions	5
<b>Total Credit Hours</b>		<b>12</b>

## Auto Heating & Air Conditioning - Basic Vocational Specialist

Course	Title	Credits
AUT 290	Auto Heating & Air Conditioning	5
<b>Total Credit Hours</b>		<b>5</b>

## Automotive Courses

All AUT courses numbered 100 and above may be applied to the major field and elective requirement for the Associate in Arts and Associate in Science degrees.

All repeatable AUT courses can be counted only once toward GPA and graduation.

### **AUT 151 Automotive Engine Service & Repair (7) 5,4**

A comprehensive course to provide knowledge in the operation and repair of the automotive engine. Classroom and hands-on experiences combine to provide skills in all areas of engine service, including engine disassembly, inspection, measurement, and reassembly. Training is also provided on machining practices common to the automotive engine. Topics include cylinder head valve guide and seat service, piston and cylinder service, crack detection and cleaning practices. This course is repeatable 1 time. (1.2) Proficiency Credit Available Pass/No Credit Not Available.

**In-District Tuition/Fees:** \$990 (effective 2024/25 academic year)

**In-district tuition rates are subject to change based on Board approval.**

**Prerequisite:** None

**Semester(s) Offered:** Fall and Spring

### **AUT 152 Intro to Auto Operation and Maint. (3) 2,2**

This course is designed to provide students an introduction to the operation and basic maintenance of the automobile. It requires no previous automotive experience or training, only a desire to learn more about how your car operates and what type of maintenance will help provide it a longer life with minimal problems. The parts and operation of each of the following systems will be discussed followed by hands-on lab activities reinforcing the inspection and basic maintenance each area requires. Systems included are the engine, cooling, lubrication, steering, suspension, brake, electrical, ignition, fuel and basic computer control. Preventive maintenance is stressed in each unit of instruction. Students desiring to perform inspection and maintenance on the vehicle of their choice are encouraged to have a basic set of tools available to them. (1.2) Proficiency Credit Available (2 LETSIR) Pass/No Credit Available.

**In-District Tuition/Fees:** \$430 (effective 2024/25 academic year)

**In-district tuition rates are subject to change based on Board approval.**

**Prerequisite:** None

**Semester(s) Offered:** Fall and Spring

### **AUT 153 Manual Transmissions & Drivetrains (7) 5,4**

Lab work and lecture combine to present service skills in the repair of manual transmissions and drivetrain components. Instruction includes servicing clutches, front-wheel drive manual transaxles, driveshafts, rear-wheel drive manual transmissions and axle assemblies. This course is repeatable 1 time. (1.2) Proficiency Credit Available (2 TFSEI) Pass/No Credit Not Available.

**In-District Tuition/Fees:** \$985 (effective 2024/25 academic year)

**In-district tuition rates are subject to change based on Board approval.**

**Prerequisite:** None

**Semester(s) Offered:** Fall

### **AUT 160 Automotive Electricity I (6) 4,4**

A course that will help unravel the mysteries that seem to surround electricity. Hands on experiences, demonstrations, and lecture are utilized to explore and understand electricity and electronics as they apply to the automobile. A working knowledge of basic electrical theory, electrical circuitry, wiring diagrams, electronics, and an understanding of automotive computer operation can be gained through this course. Use of test equipment, automobile body circuit, and accessory diagnosis are stressed. This course is repeatable 1 time. (1.2) Proficiency Credit Available Pass/No Credit Not Available.

**In-District Tuition/Fees:** \$855 (effective 2024/25 academic year)

**In-district tuition rates are subject to change based on Board approval.**

**Prerequisite:** None

**Semester(s) Offered:** Fall, Spring and Summer

### **AUT 163 Automotive Electricity II (4) 2,4**

An operation, diagnosis, and service approach is taken to provide knowledge of automotive batteries, starting, and charging systems. In-depth understanding of these systems can be gained from exposure to a wide variety of current test equipment and service techniques. Hands-on testing and repair is emphasized in the service of charging and starting systems. This course is repeatable 1 time. (1.2) Proficiency Credit Available Pass/No Credit Not Available.

**In-District Tuition/Fees:** \$580 (effective 2024/25 academic year)

**In-district tuition rates are subject to change based on Board approval.**

**Prerequisite:** AUT 160 or consent of instructor

**Semester(s) Offered:** Spring

**AUT 171 Auto Suspensions & Wheel Alignment (5) 3,4**

A comprehensive course providing service skills involving automotive suspension and steering systems. Shop exercises and lecture combine to provide knowledge regarding service procedures on front and rear suspension systems, wheels and tires, wheel balance, steering systems, and four-wheel alignment. Included is information on Macpherson struts, rack and pinion steering, and rear wheel alignment. This course is repeatable 1 time. (1.2) Proficiency Credit Available Pass/No Credit Not Available.

**In-District Tuition/Fees:** \$720 (effective 2024/25 academic year)

**In-district tuition rates are subject to change based on Board approval.**

**Prerequisite:** None

**Semester(s) Offered:** Fall and Spring

**AUT 172 Automotive Brake Systems (5) 3,4**

A service-oriented course that will provide experiences in all areas of brake repair. Topics will include drum brakes, front and rear disc brakes, hydraulic system service, machining drums and rotors, and anti-lock brake systems. An emphasis is placed on hands-on experience. This course is repeatable 1 time. (1.2) Proficiency Credit Available Pass/No Credit Not Available.

**In-District Tuition/Fees:** \$720 (effective 2024/25 academic year)

**In-district tuition rates are subject to change based on Board approval.**

**Prerequisite:** None

**Semester(s) Offered:** Fall and Spring

**AUT 180 Fuel & Ignition System Fundamentals (7) 5,4**

An introductory course that will provide knowledge and service skills involving fuel and ignition systems. Included is instruction on fuel injection, infrared exhaust emission testing, electronic ignition systems, diagnostic engine analyzers, basic computer controls and an introduction to OBD II. Basic fuel injection service, oscilloscope testing, and ignition service will be part of the lab experiences. (1.2) Proficiency Credit Available Pass/No Credit Not Available.

**In-District Tuition/Fees:** \$990 (effective 2024/25 academic year)

**In-district tuition rates are subject to change based on Board approval.**

**Prerequisite:** AUT 160 or consent of instructor

**Semester(s) Offered:** Fall and Spring

**AUT 253 Automatic Transmissions (5) 3,4**

An introductory course that covers the operation, service and troubleshooting of front and rear-wheel drive automatic transmissions. Included are units on torque converters, transmission maintenance, basic overhaul, removal and installation. Disassembly and basic overhaul techniques are practiced on selected models of transmissions. This course is repeatable 1 time. (1.2) Proficiency Credit Available Pass/No Credit Not Available.

**In-District Tuition/Fees:** \$715 (effective 2024/25 academic year)

**In-district tuition rates are subject to change based on Board approval.**

**Prerequisite:** None

**Semester(s) Offered:** Fall and Spring

**AUT 271 Diagnostics & Engine Performance (7) 5,4**

A continuation of AUT 180, this course provides and integration of fuel and ignition systems to provide an advanced understanding of operation and service. Diagnosis of fuel injection, computer-controlled DI, EI, CNP and COP ignition systems, and computerized engine controls is included. Emphasis is placed on operation and diagnosis of on-board computers as they relate to engine performance. OBD II and IEPA vehicle testing and failure analysis is included along with advanced scan tool diagnosis. This course is repeatable 1 time. (1.2) Proficiency Credit Available Pass/No Credit Not Available.

**In-District Tuition/Fees:** \$985 (effective 2024/25 academic year)

**In-district tuition rates are subject to change based on Board approval.**

**Prerequisite:** AUT 160 and AUT 180 or consent of instructor

**Semester(s) Offered:** Spring

**AUT 290 Auto Heating & Air Conditioning (5) 3,4**

A lecture/lab approach provides a working knowledge of the automotive cooling, heating, and air conditioning systems. Hands-on experiences reinforce an understanding of system operation, diagnostic procedures, and service. Air conditioning system performance testing, evacuation, and recharging is emphasized. This course is repeatable 1 time; only five semester hours may apply toward a degree or certificate. (1.2) Proficiency Credit Available Pass/No Credit Not Available.

**In-District Tuition/Fees:** \$720 (effective 2024/25 academic year)

**In-district tuition rates are subject to change based on Board approval.**

**Prerequisite:** None

**Semester(s) Offered:** Spring and Summer