

Automotive Powertrain Technician Certificate (APTC)

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The Automotive Powertrain Technician Certificate prepares students for starting or advancing their career in the automotive service industry as an engine, automatic transmission/transaxle, manual transmission/transaxle, and driveline repair technician.

Students who complete the program successfully are prepared to earn the Automotive Service Excellence (ASE) certifications for A-1 (Engine Repair), A-2 (Automatic Transmission/Transaxle), and A-3 (Manual Drive Train and Axles).

For more information, please contact the Business Technologies Division at (513) 569-1620.

To apply for this program at Cincinnati State, visit the Admissions (<http://www.cincinnati.state.edu/academics/admission/>) section of the College website.

Automotive Powertrain Technician Certificate (APTC)

Semester 1		Lec	Lab	Credits
AUTO 100	Introduction to Automotive Technology	2	3	3
AUTO 161	Electrical/Electronic Systems 1	2	3	3
AUTO 111	Engine Repair	2	3	3
Semester 2				
AUTO 175	Powertrain Systems and Service	2	3	3
Total Credits:		8	12	12

Courses

AUTO 100 Introduction to Automotive Technology

3 Credits. 2 Lecture Hours. 3 Lab Hours.

A course on foundation concepts of the automotive industry. Topics include: safety practices, shop equipment and tools, vehicle subsystems, service publications, fasteners, professional responsibilities, and automotive maintenance.

Prerequisites: None

AUTO 111 Engine Repair

3 Credits. 2 Lecture Hours. 3 Lab Hours.

A course on internal combustion engines. Topics include: engine classification, identification of parts, disassembly, inspection, and measurement; failure analysis; reassembly; and tools and procedures used in the engine rebuilding process.

Prerequisites: None

Corequisites: AUTO 100

AUTO 140 Suspension and Steering

3 Credits. 2 Lecture Hours. 3 Lab Hours.

A course on operation, diagnosis, service, and repair of steering and suspension systems. Topics include: wheels and tires, front and rear suspension systems for front-wheel drive and rear-wheel drive vehicles, and wheel alignment angles.

Prerequisites: AUTO 100 and AUTO 161

AUTO 150 Brakes

3 Credits. 2 Lecture Hours. 3 Lab Hours.

A course on operation, diagnosis, service, and repair of automotive braking systems. Topics include: hydraulic, mechanical, and anti-lock braking systems; power assist units; and machine operations of drums and rotors.

Prerequisites: AUTO 100 and AUTO 161

AUTO 161 Electrical/Electronic Systems 1

3 Credits. 2 Lecture Hours. 3 Lab Hours.

A course on systematic diagnosis and repair of basic automotive electrical circuits. Topics include: Ohm's law, interpreting wiring schematics, step-by-step testing procedures, starting and charging systems, and automotive component testing using a variety of hand-held equipment.

Prerequisites: None

Corequisites: AUTO 100

AUTO 162 Electrical/Electronic Systems 2

3 Credits. 2 Lecture Hours. 3 Lab Hours.

A continuation of AUTO 161. Topics include: wiring schematic interpretation, diagnosis, and repair of driver information systems, cruise control systems, motor driven accessories, heated glass, and electronic body control systems.

Prerequisites: AUTO 100 and AUTO 161

AUTO 170 Heating and Air Conditioning

3 Credits. 2 Lecture Hours. 3 Lab Hours.

A course on theory, diagnosis, service, and repair of automotive air conditioning and heating systems. Topics include: performance testing, pressure and leak testing, electrical and mechanical controls, compressors, clutches, safety devices, and ozone-safe service.

Prerequisites: AUTO 100 and AUTO 161

AUTO 175 Powertrain Systems and Service

3 Credits. 2 Lecture Hours. 3 Lab Hours.

A course on assessment and replacement of major powertrain components. Topics include: procedures for replacing and servicing engines, drivetrain components, automatic transmissions, manual transmissions, and differentials.

Prerequisites: AUTO 100 and AUTO 111 and AUTO 161

AUTO 181 Engine Performance 1

3 Credits. 2 Lecture Hours. 3 Lab Hours.

A course on engine performance diagnostics and fuel injection and ignition systems. Topics include: evaluation of basic engine mechanical system through vacuum, cylinder power balance, compression, and cylinder leakage testing.

Prerequisites: AUTO 111 and AUTO 161

AUTO 182 Engine Performance 2

3 Credits. 2 Lecture Hours. 3 Lab Hours.

A continuation of AUTO 181. Topics include: On-Board Diagnostics systems, oscilloscopes, scan tools that retrieve diagnostic codes and data, diagnostic flow charts, and testing and replacing computer sensor inputs and computer-controlled output components.

Prerequisites: AUTO 181

**AUTO 191 Part-Time Cooperative Education 1: Automotive
1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their first part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.
Prerequisites: BUS 190 (minimum grade C)

**AUTO 192 Part-Time Cooperative Education 2: Automotive
1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their second part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.
Prerequisites: AUTO 191

**AUTO 193 Part-Time Cooperative Education 3: Automotive
1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their third part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.
Prerequisites: AUTO 192

**AUTO 194 Part-Time Cooperative Education 4: Automotive
1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their fourth part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.
Prerequisites: AUTO 193

**AUTO 195 Part-Time Cooperative Education 5: Automotive
1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their fifth part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.
Prerequisites: AUTO 194

**AUTO 196 Part-Time Cooperative Education 6: Automotive
1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their sixth part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.
Prerequisites: AUTO 195

**AUTO 197 Part-Time Career Education Project: Automotive
1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree complete individual study or a special project related to their major field and pertaining to their career goals. Working with an assigned faculty mentor, students define the project goals, carry out project tasks, and evaluate the results. Grades issued are Satisfactory or Unsatisfactory.
Prerequisites: BUS 190 and coordinator consent
Instructor Consent Required

**AUTO 291 Full-Time Cooperative Education 1: Automotive
2 Credits. 1 Lecture Hour. 40 Lab Hours.**

Students seeking an associate's degree participate in their first full-time field learning experience related to their degree. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.
Prerequisites: BUS 190 (minimum grade C)

**AUTO 292 Full-Time Cooperative Education 2: Automotive
2 Credits. 1 Lecture Hour. 40 Lab Hours.**

Students seeking an associate's degree participate in their second full-time field learning experience related to their degree. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.
Prerequisites: AUTO 291

**AUTO 293 Full-Time Cooperative Education 3: Automotive
2 Credits. 1 Lecture Hour. 40 Lab Hours.**

Students seeking an associate's degree participate in their third full-time field learning experience related to their degree. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.
Prerequisites: AUTO 292

**AUTO 297 Full-Time Career Education Project: Automotive
2 Credits. 1 Lecture Hour. 40 Lab Hours.**

Students seeking an associate's degree complete individual study or a special project related to their major field and pertaining to their career goals. Working with an assigned faculty mentor, students define the project goals, carry out project tasks, and evaluate the results. Grades issued are Satisfactory or Unsatisfactory.
Prerequisites: BUS 190 and coordinator consent
Instructor Consent Required