

AUTOMOTIVE TECHNOLOGY IN ELECTRONICS AND DIAGNOSTICS - ASSOCIATE OF APPLIED SCIENCE (AAS)

Description

The AAS Automotive Technology in Electronics and Diagnostics degree prepares students to enter the emerging field of service and diagnosis of vehicles powered by electricity generated by plug-in electric and hybrid-powertrain sources. Coursework includes technical skills in computer applications, electrical, electronic, mechanical, hydraulic and network systems. Students will learn theory as well as application, using the latest in computer skills and electronic testing equipment to diagnose and repair alternative fueled vehicles.

All courses for this program are offered on the Bend campus except the final five courses/20 credits (AUT 260 Diesel Performance II, AUT 270 Automotive Controller Systems I, AUT 271 Automotive Controller Systems II, AUT 280 Hybrid Electric Vehicles I, AUT 281 Hybrid Electric Vehicles II), which are offered on the Redmond campus.

Learning Outcomes

1. Communication - Demonstrate oral and written strategies for directing automotive employees to perform duties correctly and to communicate with managerial staff members clearly.
2. Certification - Substantiate knowledge of up-to-date automotive and service industry practices by successfully preparing for NATEF, and Master Automotive Service Excellence Certification (levels AI-A8, from Engine Repair to Engine Performance).
3. Preparation - Apply and maintain current skills in vehicle electrification systems diagnostics including extensive computer networking that includes automatic highway braking, driverless vehicles, LAN radar, and automatic parking.
4. Professionalism - Model professional practices of the automotive industry and the needs of a service environment, by demonstrating team attitude, displaying management behavior in regard to tasks, by behavior specific to management tasks related to the concern, and by keeping an orderly, task-based mindset of learned processes document.
5. Diagnose and Analyze Specialized Areas - Demonstrate how to use defined procedures to accurately assess problem solving in vehicle application issues, in personnel behaviors, and in addressing clients concerns, in a manner that is most likely to lead to a successful outcome.
6. Advanced Vehicle Training – Demonstrate skills in electric drive vehicle systems, by building competency in hybrid and electric vehicles, reprogramming and custom programming vehicle control systems, and application of clean diesel practices.

Entrance Requirements

While this program has no formal entrance requirements, individual courses may have prerequisites which must be met prior to enrollment.

Additional Program Costs (beyond standard tuition/fees and textbooks)

Material costs

- Materials (coveralls, safety glasses, work jacket, safety shoes, t-shirts): \$200
- ASE (Automotive Service Excellence) Certification – up to \$450 total for all eight areas of testing
- Cost of tools: \$1,500 to \$2,500 depending on the source

Enrollment fees

- All AUT prefix courses up to AUT 260 Diesel Performance II have a \$15 course fee
- All advanced AUT courses (AUT 260 Diesel Performance II and above) have a \$200 course fee

Course Requirements

Course	Title	Credits
Core Courses		
AUT 101	Basic Electricity for Automotive	2
AUT 102	Automotive Electric I	5
AUT 103	Automotive Electric II	2
AUT 104	Automotive Electric III	2
AUT 105	Diesel Performance I	2
AUT 106	Automotive Program Orientation	1
AUT 107	Mechanical Systems I	3
AUT 110	Small Gas Engines	3
AUT 111	Computerized Engine Controls	5
AUT 115	College Success for Automotive Technology	2
AUT 201	Automotive Engines	4
AUT 202	Manual Drive Trains I	3
AUT 203	Manual Drive Trains II	3
AUT 204	Steering and Suspension	3
AUT 205	Engine Performance I	2
AUT 206	Engine Performance II	2
AUT 208	Automotive Brakes	3
AUT 216A	CWE Automotive A ¹	4
AUT 216B	CWE Automotive B ¹	4
AUT 251	Automatic Transmissions - Rebuild	3
AUT 253	Automotive Air Conditioning	3
AUT 256	Automatic Transmissions Theory	2
AUT 260	Diesel Performance II	4
AUT 270	Automotive Controller Systems I	4
AUT 271	Automotive Controller Systems II	4
AUT 280	Hybrid Electric Vehicles I	4
AUT 281	Hybrid Electric Vehicles II	4

Other Required Courses

BA 214 or WR 121	Business Communications Academic Composition	3-4
CIS 120	Computer Concepts (or Computer Competency Test)	0-4
CIS 131	Software Applications	4
Human Relations: (https://catalog.cocc.edu/degree-certificate-overview/related-instruction/#rhr)		3-4
Choose one math course from the following:		3-4
BA 104	Business Math	
MTH 102	Applied Technical Mathematics	
Or one math course from the foundational requirements math list		
Total Credits		96-103

¹ Automotive CWE may be taken after 24 credits of automotive courses in addition to the basic skills courses, including summer. Students may not enroll in CWE without first being cleared by an instructor. Exceptions are based on individual student goals.

Advising Notes

Students must complete the following five courses prior to proceeding into other AUT courses: AUT 101 Basic Electricity for Automotive, AUT 106 Automotive Program Orientation, AUT 107 Mechanical Systems I, AUT 110 Small Gas Engines, and AUT 115 College Success for Automotive Technology.

Full-time students are discouraged from working more than 15 hours each week due to a heavy course load. It is recommended that the ASE (Automotive Service Excellence) certification test be taken as the student completes the program.

Performance Standards

- Academic Requirements:
 - Students must have a 2.0 cumulative GPA to earn a COCC certificate or degree.
 - All courses in the program must be completed with a grade of C or higher.

Sample Plan

First Year

Fall		Credits
AUT 106	Automotive Program Orientation	1
AUT 107	Mechanical Systems I	3
AUT 115	College Success for Automotive Technology	2
AUT 110	Small Gas Engines	3
AUT 101	Basic Electricity for Automotive	2
CIS 120	Computer Concepts	0-4
Choose one math course from the following list:		3-4
BA 104	Business Math	
MTH 102	Applied Technical Mathematics	
Or one math course from the foundational requirements math list		
Credits		14-19

Winter

AUT 102	Automotive Electric I	5
AUT 103	Automotive Electric II	2
AUT 205	Engine Performance I	2
AUT 251	Automatic Transmissions - Rebuild	3
BA 214 or WR 121	Business Communications Academic Composition	3-4
Credits		15-16

Spring

AUT 104	Automotive Electric III	2
AUT 111	Computerized Engine Controls	5
AUT 202	Manual Drive Trains I	3
AUT 206	Engine Performance II	2
CIS 131	Software Applications	4
Credits		16

Summer

AUT 216A	CWE Automotive A	4
AUT 253	Automotive Air Conditioning	3
Credits		7

Second Year

Fall

AUT 201	Automotive Engines	4
AUT 208	Automotive Brakes	3
AUT 280	Hybrid Electric Vehicles I	4
AUT 270	Automotive Controller Systems I	4
Credits		15

Winter

AUT 105	Diesel Performance I	2
AUT 203	Manual Drive Trains II	3
AUT 256	Automatic Transmissions Theory	2
Human Relations: (https://catalog.cocc.edu/degree-certificate-overview/related-instruction/#rhr)		3-4
AUT 281	Hybrid Electric Vehicles II	4
Credits		14-15

Spring

AUT 204	Steering and Suspension	3
AUT 216B	CWE Automotive B	4
AUT 260	Diesel Performance II	4
AUT 271	Automotive Controller Systems II	4
Credits		15
Total Credits		96-103