

Automotive Technology

Program Number: 10-602-3

Associate in Applied Science Degree

Transportation Program Cluster

Center for Construction, Manufacturing, Apprenticeship & Transportation

Program offered at Madison Campuses

For information call: (608) 246-6102 or (800) 322-6282 Ext. 6102

About the Program

Employment opportunities for automotive technicians include all aspects of automotive sales and service businesses. In the automotive service business, technicians and service writers are needed. With proper background and experience, advancement to shop foreman, service manager and other highly responsible positions is possible. Other employment opportunities include working in manufacturing as an engineering aid or as a sales representative for manufacturers of automotive tools and equipment or operating your own auto repair business.

Application Process

To apply to the program, students must submit a complete application. A completed application consists of (1) Application; (2) Application fee; and (3. High school transcripts – or - GED/HSED test scores – or – college transcript showing an Associate, Bachelor, or higher degree from an institution other than Madison College.

Unique Requirements for Admission

Applicants must have a 2.0 High school GPA, or college coursework with 2.0 GPA. Students without this requirement may either (1) Apply to the Auto Technician program and be admitted into the 3-year plan; or (2) Take 6 or more college credits and earn a 2.0 or higher GPA.

Unique Requirements for Graduation

Students must meet two 2.0 GPA requirements to graduate. (1) GPA for entire program must be 2.0 or above; (2) GPA of combined occupational courses (602) must be 2.0 or above.

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2011-2012 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program. Current/continuing students should consult their degree progress report available through their student center (myMadisonCollege) account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR

| First Semester | | Credits | Hrs/week Lec-Lab |
|-----------------------|-----------------------------------|-----------|---------------------|
| 10-602-102 | Service Repair Procedures* | 4 | 2-12 |
| 10-602-119 | Automotive Electronics | 3 | 1-2 |
| 10-602-156 | Comfort Control Systems* | 2 | 1-2 |
| 10-602-166 | Powertrain Management Technology* | 5 | 4-14 |
| 10-804-107 | College Mathematics | 3 | 3-0 |
| Semester Total | | 17 | |

Second Semester

| | | | |
|-----------------------|------------------------------------|-----------|------|
| 10-420-126 | Manufacturing Materials | 2 | 1-2 |
| 10-602-157 | Technical Braking Systems* | 4 | 2-12 |
| 10-602-163 | Technical Suspension and Steering* | 4 | 2-12 |
| 10-801-195 | Written Communication | 3 | 3-0 |
| 10-809-199 | Psychology of Human Relations | 3 | 3-0 |
| Semester Total | | 16 | |

SECOND YEAR

First Semester

| | | | |
|-----------------------|------------------------------|-----------|------|
| 10-602-153 | Manual Drive Train and Axles | 4 | 2-13 |
| 10-602-154 | Fluid Power Transmission | 4 | 2-13 |
| 10-602-162 | Automobile Accessories | 2 | 1-3 |
| 10-806-139 | Survey of Physics | 3 | 2-2 |
| 10-809-195 | Economics | 3 | 3-0 |
| Semester Total | | 16 | |

Second Semester

| | | | |
|-----------------------|------------------------------|-----------|------|
| 10-602-150 | Internal Combustion Engines* | 4 | 4-11 |
| 10-602-152 | Driveability Analysis* | 4 | 4-11 |
| 10-602-158 | Service Management* | 3 | 3-0 |
| 10-801-197 | Technical Reporting | 3 | 3-0 |
| 10-806-134 | General Chemistry | 4 | 3-9 |
| Semester Total | | 18 | |

*Meets for 9 weeks.

Notes:

- COMPASS test required upon program acceptance.
- College transfer courses available in lieu of existing courses (200 series) for individuals who desire continuing education. Always check receiving institution prior to enrollment.
- Safety procedures required in all labs.
- Prerequisites can be waived with center approval.
- Consult with the Program Director regarding advanced standing.
- Certain associate degree or higher post-secondary courses specific to the curriculum may substitute for courses upon approval of center dean.
- An end of program assessment is required. The cost of the assessment is part of program fees.

Note: Students are placed in English or mathematics courses based on their scores on the COMPASS or ASSET test or on completion of the appropriate prerequisite/s.



Program Courses

10-602-102 Service Repair Procedures 4 credits

Automobile engine theory, design and operation are studied. Other studies included are the diagnosis and repair procedures of the engine cooling, lubricating and exhaust systems. Batteries, starting and charging systems are covered in detail along with the proper use of meters and the latest test equipment. Shop safety and proper use of hand tools is emphasized. Pre- or Co-req: Auto Electricity (10-602-119).

10-602-119 Automotive Electronics 3 credits

Because of the rapid advancement of electrical/electronic controls and systems within the contemporary automobile, the need for more advanced training of these systems is essential. Upcoming technicians within the service industry must become better acquainted with the application of and diagnostic approaches to this complex subject area. Every system within the current and upcoming production vehicles will be electronically controlled or will be, at the very least, heavily influenced by this constantly evolving technology. This course will study the science of basic electricity through the application of advanced electronic controls. Sound basic diagnostic practices are studied and practiced in the laboratory setting. Must complete this course with a grade of C or better.

10-602-150 Internal Combustion Engines 4 credits

The internal combustion automotive engine is studied in detail by discussion, demonstration and laboratory experiments. The latest machining equipment is used to accurately diagnose, disassemble, repair, and reassemble an automobile engine. Diagnosis of engine related mechanical problems is covered. Pre-reqs: Auto Electricity (10-602-119); Service Repair (10-602-102); and Powertrain (10-602-166).

10-602-152 Driveability Analysis 4 credits

Practical application of principles, concepts and diagnostic abilities covered in the 2 prerequisite courses. Advanced electrical/electronic diagnostic applications will reinforce prior competency development. Pre-reqs: Auto Electricity (10-602-119); Service Repair (10-602-102); and Powertrain (10-602-166).

10-602-153 Manual Drive Train and Axles 4 credits

This automotive course focuses on developing the skills needed to diagnose, service and repair clutches, manual transmissions/transaxle, differentials, four wheel drive/all wheel drive, and drive axles. Pre- or Co-reqs: Auto Electricity (10-602-119); and Service Repair (10-602-102).

10-602-154 Fluid Power Transmission 4 credits

This automotive course focuses on developing the skills needed to diagnose, service and repair automatic transmission/transaxles including overhaul procedures. Pre- or Co-reqs: Auto Electricity (10-602-119); and Service Repair (10-602-102).

10-602-156 Comfort Control Systems 2 credits

Study includes basic principles of refrigeration and air conditioning including the component parts that make up the A/C units on passenger cars and light trucks. Heating and automatic temperature control are also studied. Students will receive State of Wisconsin AG 136.09 certification upon completion of this course. Pre- or Co-reqs: Auto Electricity (10-602-119).

10-602-157 Technical Braking Systems 4 credits

Topics include principles of drum and disc brake designs, inspection and diagnosis. Covers wheel and tire diagnosis and repair. Steering and suspension safety inspection is covered. Lab experiences including inspecting, troubleshooting and the repair and replacement of defective or worn parts of the complete brake system. The use of correct procedure and tools is stressed. Pre- or Co-req: Auto Electricity (10-602-119).

10-602-158 Service Management 3 credits

The principles of various types of business organizations are examined and applied to automotive wholesale and retail businesses, ultimately focusing on the automobile as part of the service department. Service department operation is covered in detail and depth from large organizations to small organizations. The conventional line method of management is stressed. Employment possibilities and job interviewing techniques are discussed. Pre-reqs: Service Repair (10-602-102); and Tech. Brakes Sys. (10-602-157).

10-602-162 Accessories 2 credits

Examines equipment supplied by both major manufacturers of automobiles and after-market suppliers. Classroom and lab activities help students to understand basic electricity, electric circuits and use of test equipment to troubleshoot problems in circuits such as lighting, windshield wipers, power windows, instruments and cruise control. Pre- or Co-req: Auto Electricity (10-602-119); and Service Repair (10-602-102).

10-602-163 Technical Suspension & Steering 4 credits

Principles of suspension designs, wheel alignment angles, inspection procedures, parts replacement, steering systems, shock absorbers/struts, sway bars and frame design. On-the-job experiences include inspecting and correcting suspension angles, parts replacement, adjusting steering gears. Covers four-wheel alignment. Pre- or Co-reqs: Auto Electricity (10-602-119).

10-602-166 Powertrain Management Technology 5 credits

All engine operating systems are studied: engine breathing, ignition systems, computer control and sensors, fuel and air management and emission systems. Students learn how these systems operate, how to test for proper operation of systems and components, and how to use test equipment. Pre- or Co-reqs: Auto Electricity (10-602-119); and Service Repair (10-602-102).

10-420-126 Manufacturing Materials 2 credits

Instructional units include safety, oxy-acetylene welding, brazing and cutting, shielded metal arc welding, gas metal arc welding, gas tungsten arc welding, flux cored arc welding, plasma arc cutting and conventional machining.

AG 136/EPA Certification

For more information on this four-hour course, call (608) 246-6831 or 243-4169.

Career Potential:

- Service Writer
- Diagnostic Specialist
- Service Manager
- Specialized Technician
- Equipment Sales
- Equipment Service and Training Technician
- Service Director
- Lab Technician
- Shop Owner
- Fleet Manager

More detailed and updated information on this program may be available at: madisoncollege.org. The college reserves the right to make changes in the regulations and courses announced in this publication without notice.

Madison Area Technical College provides equal opportunity in education and employment.

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