

Automotive Technician

Program Number: 32-404-2

Two-Year Technical Diploma

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 qualified trained technicians continue to increase. This program is designed to provide students with skills necessary to enter or advance in many automotive industry positions. The technology, diagnosis and repair of automotive and light truck electrical, mechanical and hydraulic systems are studied. Considerable time is spent developing hands-on skills that are used on the job. Skills learned in the program are valuable to individuals choosing to enter professions other than automotive technician.

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

2.0 High school GPA, or college coursework with 2.0 GPA. Students without this requirement will be admitted into the 3-year program, and must complete general/support courses the first year with a 2.0 GPA or higher before they can take occupational core courses.

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 (404) 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 account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR		Hrs/week	
First Semester	Credits	Lec	Lab
32-404-319 Automotive Electrical/Electronics	3	4	2
32-404-335 Powertrain Management Systems*	5	7	11
32-404-340 Service Repair Procedures*	5	6	12
32-420-330 Metal Processes 1	2	2	2
20-890-200 College Success*	1	1	0
Semester Total	16		

Second Semester		Hrs/week	
32-404-318 Heating and Air Conditioning*	2	1	2
32-404-339 Braking Systems*	5	5	13
32-404-341 Suspension and Steering Systems*	5	5	13
32-420-331 Metals Processes 2	2	2	2
31-804-379 Vocational Mathematics 1	1	2	0
Semester Total	15		

SECOND YEAR

First Semester		Hrs/week	
32-404-355 Automatic Transmissions*	5	5	13
32-404-356 Manual Drivetrain and Axles*	5	5	13
31-806-363 Science 1	2	2	2
10-104-189 Customer Relations	2	2	0
Semester Total	14		

Second Semester		Hrs/week	
32-404-316 Accessories*	2	1	3
32-404-336 Engine Rebuilding*	5	5	13
32-404-357 Drivability Diagnosis*	5	6	12
Semester Total	12		
Total credits	57		

*Meets for 9 weeks.

Notes:

- Safety procedures are 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 deans.
- 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

32-404-316 Accessories 2 credits

Students study equipment supplied by both the major manufacturers of automobiles and after-market suppliers. Classroom and lab activities help students understand basic electricity, electric circuits and use of test equipment to troubleshoot problems in circuits such as lighting, windshield wipers, power windows, instruments and sound systems. Pre- or Co- req: Auto Electricity (32-404-319); and Service Repair (32-404-340).

32-404-318 Heating and Air Conditioning 2 credits

Covers the basic principles of heating and air conditioning. Detailed studies of heating systems, air conditioning systems, including vacuum and electrical controls, and automatic temperature control systems are carried out in the classroom and the lab. Diagnosis and typical service jobs are done in the lab using up-to-date tools and diagnostic equipment. Students will receive State of Wisconsin AG 136.09 certification upon completion of this course. Pre- or Co- req: Auto Electricity (32-404-319).

32-404-319 Automotive Electricity/ 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.

32-404-335 Powertrain Management Systems 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-req or Co-req: Auto Electricity (32-404-319); and Service Repair (32-404-340).

32-404-336 Engine Rebuilding 5 credits

Students become familiar with the tools, machines and equipment used to repair automotive engines. Emphasis is placed upon the development of diagnostic ability and work skills. Pre-reqs: Auto Electricity (32-404-319); Service Repair (32-404-340); and Powertrain (32-404-335).

32-404-339 Braking Systems 5 credits

This course covers fundamentals of automotive brake systems including drum brakes, disc brakes, hydraulic systems, power brakes and anti-skid systems. Covers wheel and tire diagnosis and repair. Steering and suspension safety inspection is covered. Laboratory work stresses brake overhaul and component reconditioning and troubleshooting of brakes. Pre- or Co- req: Auto Electricity (32-404-319).

32-404-340 Service Repair Procedures 5 credits

The theory, design and operation of the automobile engine, along with maintenance, light-duty repair and safety inspection are studied. Engine lubricating, cooling, exhaust systems and headlight aiming are studied and serviced. Theory and proper use of hand tools, test equipment, sealants, and fasteners are emphasized. Pre- or Co- req: Auto Electricity (32-404-319).

32-404-341 Suspension and Steering Systems 5 credits

Covers basic principles of passenger car construction, suspension, and wheel alignment angles. Laboratory work stresses inspection, correction or replacement of all suspension parts and the role they play in proper vehicle handling and operation. Alignment procedures and the use of modern wheel alignment machines and troubleshooting are stressed. Pre- or Co- req: Auto Electricity (32-404-319).

32-404-355 Automatic Transmissions 5 credits

Students study the electrical, mechanical and hydraulic systems of the modern automatic transmission and transaxle. Demonstrations and practice provide the opportunity to become proficient in diagnosis, service and complete rebuilding of these systems. Pre- reqs: Auto Electricity (32-404-319); and Service Repair (32-404-340).

32-404-356 Manual Drivetrain and Axles 5 credits

Clutches, standard transmissions, manual transaxles, drivelines and differentials are studied. Demonstrations and practice provide the opportunity to become proficient in diagnosis, service and complete rebuilding of these systems. Pre - reqs: Auto Electricity (32-404-319); and Service Repair (32-404-340).

32-404-357 Driveability Diagnosis 5 credits

Practical application of principles, concepts and diagnostic abilities covered in the three-prerequisite course. Advanced electrical/electronic diagnostic applications will reinforce prior competency development. Pre-reqs: Auto Electricity (32-404-319); Service Repair (32-404-340); and Powertrain (32-404-335).

32-420-330 Metal Processes 1 2 credits

This basic metalworking course is designed to provide the student with instruction in metalworking processes. Instructional units include safety, layout and measuring, machining, oxy-acetylene welding, brazing and cutting, arc welding and properties of metals.

32-420-331 Metal Processes 2 2 credits

This study of metals provides instruction in sheetmetal work, soldering and brazing, forging and heat treatment, grinding, tool sharpening, metal casting, MIG and TIG welding, metal fabrication and the repair of metal objects. Prerequisite: Metals 1 (32-420-330).

AG 136/EPA Certification

For more information on this four-hour course, call (608) 246-6831 or 243-4269.

Career Potential:

- Automotive Service Technician
- Auto Electronics Specialist
- Transmission and Drive Train Specialist
- Alignment Specialist
- Automotive Machine Specialist
- Service Manager or Assistant Service Manager
- Service Writer

With additional education and/or work experience, graduates may find employment as:

- Shop Foreman
- Specialty Technician
- Fleet Dispatcher
- Specialty/Repair Shop Owner

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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