

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.

Unique Requirements for Graduation

57 credits with a GPA of 2.0 (C) or above. 2.0 (C) or above required for all 404 and 420 courses.

Curriculum

FIRST YEAR		Credits	Hrs/week Lec-Lab
First Semester			
32-404-319	Automotive Electrical/Electronics	3	4-2
32-404-335	Powertrain Management Systems*	5	11-7
32-404-340	Service Repair Procedures*	5	6-12
32-420-330	Metal Processes 1	2	2-2
10-890-100	College Student Success OR	3	3-00
20-890-200	College Success	(3)	(3-0)
Semester Total		18	

Second Semester			
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		Credits	Hrs/week Lec-Lab
First Semester			
32-404-355	Automatic Transmissions***	5	1-16
32-404-356	Manual Drivetrain and Axles**	4	2-16
31-806-363	Science 1	2	2-2
10-104-189	Customer Relations	2	2-0
Semester Total		13	

Second Semester			
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	

*Meets for 9 weeks.

**Meets for 6 weeks.

***Meets for 12 weeks.

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.

Note:

- Safety procedures required in all labs.
- Prerequisites can be waived with Faculty Director approval.
- Advanced standing may be gained through center office.
- Certain associate degree or higher post secondary courses specific to the curriculum may substitute for courses upon approval of center deans.

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. Prerequisite: 32-404-319 or consent of instructor.

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. Prerequisite: 32-404-319 or concurrent enrollment.

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. Prerequisites: 32-404-340, 32-404-319 or concurrent enrollment.

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. Prerequisites: 32-404-340, 32-404-319, 32-404-335 or consent of instructor.

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. Prerequisites: 32-404-319 or concurrent enrollment.

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. Prerequisites: 32-404-319 or concurrent enrollment.

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. Prerequisite: 32-404-319 or concurrent enrollment.

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. Prerequisites: 32-404-340, 32-404-319 or consent of instructor.

32-404-356 Manual Drivetrain and Axles 4 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. Prerequisites: 32-404-340, 32-404-319 or consent of instructor.

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. Prerequisites: 32-404-340, 32-404-319, 32-404-335 or consent of instructor.

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: 32-420-330.

AG 136/EPA Certification

For more information on this four-hour course, call (608) 246-6822 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: matcmadison.edu. 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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