Southwest Wisconsin TECHNICAL COLLEGE

1800 Bronson Blvd., Fennimore, WI 53809 | 608.822.3262 | Toll Free: 800.362.3322 | www.swtc.edu

Automotive Technician Program

Course Curriculum

Semester 01 (Tuition: $2,770)

Course #	Course Title	Credits
31-804-305	Applied Mathematics	2

Credits: 2 Lecture Hours: 72
Students compute with rational numbers. They make and convert various measurements. Students use formulas to solve problems. They compute dimensions of geometric shapes. Students use statistical tools to represent and analyze data. They analyze various financial situations. Students use basic right triangle trigonometry to solve problems. In each topic area, students solve application problems.

32-404-310	Auto Electrical I	3

Credits: 3 Lecture Hours: 36 Lab Hours: 72
Students focus on developing the skills needed to diagnose, service, and repair electrical and electronic systems. Students learn the fundamental concepts of electrical systems and understand wiring schematics. Learners utilize basic and digital test equipment, and apply Ohm's Law to electrical circuit diagnosis. Prerequisites: Automotive Maintenance (32-404-314) and Automotive Service Fundamentals (32-404-334)

32-404-314	Automotive Maintenance	3

Credits: 3 Lecture Hours: 36 Lab Hours: 72
Students perform routine maintenance of the automobile including new and used car preparation, fluid checks and service, interior and exterior considerations, replacing filters and small parts, repairing tires, replacing belts, replacing wiper blades, and other repairs to maintain acceptable automobile performance.

32-404-334	Automotive Service Fundamentals	3

Credits: 3 Lecture Hours: 54 Lab Hours: 54
Students practice basic skills encountered as a technician servicing automobiles and light trucks including metal work; handtool, powertool, and fastener usage; measuring techniques, hoist operation, gasket/sealer application; and oxyacetylene and mig welding techniques. Students' skills are improved through practice in a safety conscious manner. Students examine employment opportunities, employer and customer expectations, and policies and procedures related to the operation of an auto service shop.

32-404-335	Automotive Brakes	3

Credits: 3 Lecture Hours: 36 Lab Hours: 72
Students service and repair brake system problems using knowledge of brake system operation. Students use proper service tools and equipment to perform safe and quality brake system repair including disc brakes, drum brakes, parking brakes, and the brake hydraulic system. Students diagnose antilock brake system problems and perform necessary repairs.

32-404-336	Advanced Braking Systems	1

Credits: 1 Lecture Hours: 12 Lab Hours: 24
Students diagnose, service, and repair electrical and electronic systems relating to anti-lock brakes and electronic stability control systems. Students will learn the theory of operation, perform diagnostic procedures and practice problem-solving methods. Corequisites: Automotive Brakes (32-404-335)

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Semester 02 (Tuition: $2,770)

Course #	Course Title	Credits
32-404-311	Auto Electrical II	3

Credits: 3 Lecture Hours: 36 Lab Hours: 72
Students focus on developing the skills needed to diagnose, service, and repair electrical and electronic systems, including batteries, starting, charging, lighting, and computer control systems. Students utilize advanced techniques to diagnose and repair circuit faults. Prerequisites: Auto Electrical I (32-404-310)

32-404-315	Engine Repair	5

Credits: 5 Lecture Hours: 36 Lab Hours: 144
Students apply information and skills in repairing automotive engines, including in-car repairs, removal and replacement of parts, and cylinder head rebuilding. Complete engine disassembly is discussed and performed. Prerequisites: Auto Electrical I (32-404-310)

32-404-322	Suspension & Steering	5

Credits: 5 Lecture Hours: 36 Lab Hours: 144
Students learn the fundamental concepts of suspension geometry and will analyze, diagnose, and repair automotive suspension and steering systems. Learners diagnose driving and handling concerns caused by steering and suspension system problems and misalignment concerns. Students operate computerized alignment equipment to perform four-wheel alignments on automobiles and operate wheel balancing equipment. Prerequisites: Auto Electrical I (32-404-310)

32-806-303	Science of Mechanics	2

Credits: 2 Lecture Hours: 72
Students compute work, power, acceleration, heat, pressure, and other physical quantities. They explore simple machines and their applications. Students apply those physical quantities to automotive and agricultural power situations.

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Semester 03 (Tuition: $330)

Course #	Course Title	Credits
32-404-350	Auto Tech Occupational Internship	2

Credits: 2 Lecture Hours: 0 Occupational Hours: 144
Students apply technical theory & skills, by maintaining, diagnosing and repairing automobiles and light trucks. Students practice the necessary personal and professional skills essential to be successful as an Automotive Technician.

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Semester 04 (Tuition: $2,440)

Course #	Course Title	Credits
32-404-312	Auto Electrical III	3

Credits: 3 Lecture Hours: 36 Lab Hours: 72
Students focus on developing the skills needed to diagnose and repair automobile electrical accessories,

including cruise control, windshield wipers, electric windows, electric door locks, instrumentation and power antennas. Students utilize test lights, digital test equipment and wiring schematics to employ a logical diagnostic procedure for determining electrical system problems. Prerequisites: Auto Electrical II (32-404-311)

32-404-323 Emission Control Systems 2

Credits: 2 Lecture Hours: 18 Lab Hours: 54
Students diagnose and service emission control systems and perform exhaust gas analysis on automobiles and light trucks.

32-404-326 Auto Engine Performance 4

Credits: 4 Lecture Hours: 36 Lab Hours: 108
Students perform ignition and fuel system maintenance and diagnostic procedures using a variety of diagnostic tools and test equipment. Students apply engine operating principles to perform diagnostic procedures on systems related to engine performance and emission control.

32-404-329 Advanced Engine Systems 4

Credits: 4 Lecture Hours: 36 Lab Hours: 108
Students apply related theory and diagnostic procedures to properly service and repair computerized control systems found on the modern day automobiles utilizing various types of diagnostic test equipment. Testing will occur on GM, FCA, Ford, and Import vehicles, including Hybrid and Electric. Corequisites: Emission Control Systems (32-404-323)

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Semester 05 (Tuition: $2,960)

Course #	Course Title	Credits
31-801-310	Workplace Communication	2

Credits: 2 Lecture Hours: 72
Students apply oral, written, listening, and non-verbal skills to workplace situations. Students discover how to use communication as the key to solving workplace problems, resolving conflicts, working as members of a team, and effectively giving and receiving criticism. Students develop an understanding of diversity in the workplace, harassment issues, and the impact of substance abuse on the job.

32-404-321 Automatic Transmissions 5

Credits: 5 Lecture Hours: 36 Lab Hours: 144
Students diagnose, service, and repair automatic transmissions. Students practice safe and practical shop procedures through automatic transmission disassembly, cleaning, inspection, and reassembly. Prerequisites: Automotive Computer Control Systems (32-404-324) or Advanced Engine Systems (32-404-329)

32-404-327 Climate Control Systems 3

Credits: 3 Lecture Hours: 36 Lab Hours: 72
Students service, repair, and maintain automotive air conditioning systems using knowledge of how the system operates. Students diagnose problems using the appropriate equipment. Students test systems for leaks, recycle and recharge refrigerant, and remove and replace system components. Students will diagnose and service High Voltage air conditioning and heating components. Prerequisites: Auto Electrical III (32-404-312)

32-404-328 Hybrid and Electric Vehicles 2

Credits: 2 Lecture Hours: 18 Lab Hours: 54
Students will understand low voltage and high voltage systems within hybrid and electric vehicles. Student will inspect, remove, disassembly, and installation of high voltage component includes HV batteries, inverters, and

motors. Supporting cooling systems and low voltage electrical will also be diagnosed. Prerequisites: Automatic Transmissions (32-404-321)

32-404-337 Drivetrain Systems 4

Credits: 4 Lecture Hours: 36 Lab Hours: 108
Students will perform service, diagnostic and repair procedures on manual transmission/transaxles, drive axles, differentials and transfer cases. Students will perform service, diagnostic and repair procedures on High Voltage axles, transmission and other components in the driveline system. Prerequisites: Automotive Computer Control Systems (32-404-324) or Advanced Engine Systems (32-404-329)

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Total Credits: 61

Estimated Total Tuition*: $11,270

Tools/Equipment: $1,750 (optional)

Additional cost for uniforms.