

## Scope and Sequence for Automotive Technology Level I and II

Course Title: Automotive Technology

Instructor: Wayne Violet

Major Resource(s): MSDE MLR+ Curriculum, Goodheart-Wilcox Modern Automotive Technology Curriculum

Term (Marking Period)	Unit (s) Covered: (Topics only)	Unit Objectives: (Lesson objectives will be more specific)	Tentative Formal Course Assessment Dates:	Technical Skill Attainment(s): ASE Student Certifications
Overview	Automotive Technology curriculum to be completed in Level I			
Unit I: Sept 4 - Oct. 1  60 hrs.	<ul style="list-style-type: none"> <li>• (Concurrent courses)</li> <li>• Introduction to Automotive Technology</li> <li>• Extensive Safety Training</li> </ul>	Students will complete the following sections: <ul style="list-style-type: none"> <li>➤ Introduction to the Automobile</li> <li>➤ Automotive Careers and ASE Certification</li> <li>➤ Hand tools, power tools and equipment</li> <li>➤ Automotive shop safety</li> <li>➤ Repair Orders and Service Information</li> <li>➤ Basic electricity and electronics fundamentals</li> <li>➤ Fasteners, gaskets, seals and sealants</li> </ul>	Last week of September	MLR (Maintenance and Light Repair)
Unit II: Oct 1 - Nov. 16  84 hrs.	<ul style="list-style-type: none"> <li>• (Concurrent courses)</li> <li>• Steering and Suspension</li> <li>• Brakes</li> </ul>	Students will complete the following sections: <ul style="list-style-type: none"> <li>➤ Tire, wheel and wheel bearing fundamentals and service</li> <li>➤ Suspension system fundamentals</li> <li>➤ Suspension systems diagnosis and repair</li> <li>➤ Steering system fundamentals</li> <li>➤ Steering system diagnosis and repair</li> <li>➤ Brake system fundamentals</li> <li>➤ Brake system diagnosis and repair</li> <li>➤ Anti-lock brakes and traction control handling systems</li> <li>➤ Wheel alignment</li> </ul>	Second week of November	MLR Steering and Suspension Brakes ASE
Unit III: Nov.16 – Jan. 30  120 hrs.	<ul style="list-style-type: none"> <li>• (Concurrent courses)</li> <li>• Electrical and Electronics</li> <li>• Computer systems</li> </ul>	Students will complete the following sections: <ul style="list-style-type: none"> <li>➤ Automotive batteries</li> <li>➤ Battery testing and service</li> <li>➤ Starting system fundamentals</li> <li>➤ Starting systems diagnosis and repair</li> </ul>	Last week of January	MLR Electrical/Electronics ASE

		<ul style="list-style-type: none"> <li>➤ Charging system fundamentals</li> <li>➤ Charging system diagnosis and repair</li> <li>➤ Ignition system fundamentals</li> <li>➤ Ignition system diagnosis and repair</li> <li>➤ Lights instrumentation, wipers and horns operation and service</li> <li>➤ Sound systems and power accessories</li> <li>➤ Hybrid drive system operation and repair</li> <li>➤ Computer system fundamentals</li> <li>➤ On-board diagnostics and scan tools</li> <li>➤ Computer system service</li> </ul>		
Unit IV: Feb. 1 – Feb. 15  30 hrs.	<ul style="list-style-type: none"> <li>• Safety, Security and Navigation Systems</li> </ul>	<p>Students will complete the following sections:</p> <ul style="list-style-type: none"> <li>➤ Restraint systems</li> <li>➤ Restraint systems service</li> <li>➤ Security and navigation systems, new and future technologies</li> </ul>	Second week of February	MLR Electrical/Electronics ASE
Unit V Feb 16 – March 7  42 hrs.	<ul style="list-style-type: none"> <li>• Emission Control Systems</li> </ul>	<p>Students will complete the following sections:</p> <ul style="list-style-type: none"> <li>➤ Emission control systems</li> <li>➤ Emission control system testing, service and repair</li> </ul>	First week of March	MLR Engine Performance ASE
Unit VI March 8 – March 15  24 hrs.	<ul style="list-style-type: none"> <li>• Engine Performance</li> </ul>	<p>Students will complete the following sections:</p> <ul style="list-style-type: none"> <li>➤ Engine performance and driveability</li> <li>➤ Advanced diagnostics</li> <li>➤ Engine tune-up</li> </ul>	Third week of March	MLR Engine Performance ASE
Unit VII March 15 – April 15  48 hrs.	<ul style="list-style-type: none"> <li>• Fuel Systems</li> </ul>	<p>Students will complete the following sections:</p> <ul style="list-style-type: none"> <li>➤ Automotive fuels, gasoline and diesel combustion</li> <li>➤ Fuel tanks, pumps, lines and filters</li> <li>➤ Gasoline injection fundamentals</li> <li>➤ Gasoline injection diagnosis and repair</li> <li>➤ Carburetor operation and service</li> <li>➤ Diesel injection fundamentals</li> <li>➤ Diesel injection diagnosis and repair</li> <li>➤ Exhaust systems, turbochargers, and superchargers</li> </ul>	Third week of April	MLR Engine Performance ASE
Unit VIII April 16 – April 30  30 hrs.	<ul style="list-style-type: none"> <li>• Heating and Air conditioning</li> </ul>	<p>Students will complete the following sections:</p> <ul style="list-style-type: none"> <li>➤ Heating and air conditioning fundamentals</li> <li>➤ Heating and air conditioning diagnosis and repair</li> </ul>	Last week of April	MLR HVAC ASE

Unit IX May 1 – May 15  30 hrs.	<ul style="list-style-type: none"> <li>Cooling and Lubrication</li> </ul>	<p>Students will complete the following sections:</p> <ul style="list-style-type: none"> <li>Cooling system fundamentals</li> <li>Cooling system testing, maintenance and repair</li> <li>Lubrication system fundamentals</li> <li>Lubrication system testing, maintenance and repair</li> </ul>	Second week of May	MLR HVAC ASE Engine Repair ASE Engine Performance ASE
Unit X May 16 – June 11  66 hrs.	<ul style="list-style-type: none"> <li>Drive Trains and Axles</li> </ul>	<p>Students will complete the following sections:</p> <ul style="list-style-type: none"> <li>Clutch fundamentals</li> <li>Clutch diagnosis and repair</li> <li>Manual transmission fundamentals</li> <li>Manual transmission diagnosis and repair</li> <li>Automatic transmission fundamentals</li> <li>Automatic transmission service</li> <li>Drive shafts and transfer cases</li> <li>Drive shaft and transfer case diagnosis, service and repair</li> <li>Differential and rear axle fundamentals</li> <li>Differential and rear drive axle diagnosis and repair</li> <li>Transaxle and front drive axle fundamentals</li> <li>Transaxle and front drive axle diagnosis and repair</li> </ul>	Second week of June	MLR Automatic Transmissions Manual Transmissions Drivetrains ASE
<b>Level II</b>				
SP2 Safety Training for Level II Sep 4 - 18  24 hrs.	Safety Refresher Course Comprehensive Safety Plan SP2 Training	<p>Students will complete the following sections:</p> <ul style="list-style-type: none"> <li>Comprehensive Safety Plan</li> <li>Automotive Safety Refresher Course</li> <li>Complete SP2 in Mechanical Safety, Pollution Prevention and the Supervisors Course</li> </ul>	End of August	MLR
Unit XI Sept. 18- Dec. 21  180 hrs.	<ul style="list-style-type: none"> <li>Engine Repair</li> </ul>	<p>Students will complete the following sections:</p> <ul style="list-style-type: none"> <li>Engine Fundamentals</li> <li>Engine Design Classifications</li> <li>Engine Top End Construction</li> <li>Engine Bottom End Construction</li> </ul>	End of November	MLR

		<ul style="list-style-type: none"> <li>➤ Engine Front End Construction</li> <li>➤ Engine Size and Performance Measurements</li> <li>➤ Complete Engine Teardown, Inspection, Measurement , Advisement for Repairs and Reassembly</li> </ul>		
Dec 21. – Jan. 15 52 hrs.	<ul style="list-style-type: none"> <li>• Preparation for First ASE Student Certification Testing Window</li> </ul>	<p>Students will complete the following:</p> <ul style="list-style-type: none"> <li>➤ Complete G1 ASE Practice Exams</li> <li>➤ Complete ASE Practice Exams in Brakes</li> <li>➤ Complete ASE Practice Exams in Electrical</li> <li>➤ Complete ASE Practice Exams in Steering and Suspension</li> </ul>	End of January	MLR Brakes ASE Steering and Suspension ASE Electrical/Electronics ASE
Unit XII Jan 16 – Feb 28 36 hrs.	<ul style="list-style-type: none"> <li>• Advanced Brakes</li> </ul>	<p>Students will complete the following sections:</p> <ul style="list-style-type: none"> <li>➤ Advanced braking system</li> <li>➤ Advanced brake system diagnosis and repair</li> <li>➤ Advanced anti-lock brakes and traction control handling systems</li> </ul>	End of February	MLR Brakes ASE
Unit XIII Mar 1 – April 15 84 hrs.	<ul style="list-style-type: none"> <li>• Advanced Steering and Suspension</li> </ul>	<p>Students will complete the following sections:</p> <ul style="list-style-type: none"> <li>➤ Advanced suspension system fundamentals</li> <li>➤ Advanced suspension systems diagnosis and repair</li> <li>➤ Advanced steering system fundamentals</li> <li>➤ Advanced steering system diagnosis and repair</li> <li>➤ Advanced wheel alignment</li> </ul>	Middle of April	MLR Steering and Suspension ASE
Unit XIV April 16 – May 30 52 hrs.	<ul style="list-style-type: none"> <li>• Advanced Electrical/Electronics</li> </ul>	<p>Students will complete the following sections:</p> <ul style="list-style-type: none"> <li>➤ Advanced Electrical Training</li> <li>➤ Extensive DVOM training</li> <li>➤ Wiring repair</li> <li>➤ Terminal/connector repair</li> <li>➤ Parasitic draw testing</li> <li>➤ Waveform readings / PWM measurements</li> <li>➤ Digital vs. analogue</li> <li>➤ Sensor diagnosis</li> </ul>	End of May	MLR Electrical/Electronics ASE
June 1	<ul style="list-style-type: none"> <li>• Final ASE Student Certification Testing Window</li> </ul>	Students will complete ASE Student Certification Exams as Applicable	Beginning of June	