

**North Montco Technical Career Center**

**Automotive Technology Duty and Task List**

OAC APPROVAL and REV DATE: 10/08 (REV 6\_09\_09)

**CIP 47.0604**

Hours		11th Grade Math Academic Standards	11th Grade Math Assessment Anchors	11th Grade RWSL Academic Standards	11th Grade RWSL Assessment Anchors	11th Grade Science Academic Standards	11th Grade Science Assessment Anchors	Career Education and Work Standards	Social Studies	General Technician	Line Technician	Alignment/Suspension Technician	Driveline Technician	Air Conditioning Technician	Engine Performance Technician	Auto Electrical/Electronic Technician	
<b>65</b>	<b>Safety</b>																
	1 Identify the safe use of chemicals	2.1.8.A	M11.A.1.1	1.2.11.A	R11.A.1.3	3.8.12.A		13.2.11.E	5.1.12.J	X	X	X	X	X	X	X	X
	2 Identify the safe use of hand tools			1.6.11.F						X	X	X	X	X	X	X	X
	3 Identify the safe use of power tools									X	X	X	X	X	X	X	X
	4 Identify the safe use of protective clothing and equipment									X	X	X	X	X	X	X	X
	5 Identify the safe use of fire protection equipment									X	X	X	X	X	X	X	X
	6 Identify the safe shop equipment									X	X	X	X	X	X	X	X
	7 Explain "Right-To-Know Laws" and Materials Safety Data Sheets (MSDS)									X	X	X	X	X	X	X	X
	8 Demonstrate the ability to safely set-up/shut-down oxygen acetylene welding equipment									X	X	X	X	X	X	X	X
<b>35</b>	<b>Certifications</b>																
	1 PA Safety Inspection Certification	2.2.11.A	M11.A.2.1.1	1.6.11.A				13.1.11.F		X	X						
	2 PA Emission Inspection Certification	2.8.11.D	M11.A.2.1.2	1.6.11.F		3.1.10.C	S11.A.1.3	13.1.11.F	5.12.A		X						
	3 ASE or MACS Refrigerant Recovery, Recycling Certification	2.8.11.J	M11.A.3.1.1											X			
<b>35</b>	<b>Underhood/Undercar Maintenance</b>																
	1 Inspect, replace, and adjust drive belts and hoses	2.2.11.A	M11.A.2.1.2							X	X	X	X	X	X	X	X
	2 Replace cooling system components (thermostat, radiator, controllers)	2.3.11.A	M11.A.2.1.3							X	X	X	X	X	X	X	X
	3 Inspect, identify, drain, flush, and refill cooling system	2.3.11.B	M11.B.2.1.1							X	X	X	X	X	X	X	X
	4 Perform oil and lube service on normally aspirated and turbo-charged engines	2.3.11.C								X	X	X	X	X	X	X	X
	5 Perform low-emission tune-up	2.5.11.A								X	X	X	X	X	X	X	X
	6 Replace fuel supply components									X	X	X	X	X	X	X	X
	7 Replace exhaust system components									X	X	X	X	X	X	X	X
<b>85</b>	<b>Shop Operation</b>																
	1 Identify basic functions and operation of vehicle mechanical components	2.2.11.A	M11.A.2.1.2	1.2.11.A	R11.A.2.1.1	4.3.10.C	S11.A.3.1	13.1.11.A	6.5.A	X	X	X	X	X	X	X	X
	2 Communication with customers and write repair orders	2.5.11.A		1.5.11.B				13.1.11.B		X	X	X	X	X	X	X	X
	3 Estimate time and cost for job and order parts			1.6.11.A				13.3.11.C		X	X	X	X	X	X	X	X
	4 Obtain appropriate repair order information from shop manuals			1.6.11.F				13.3.11.G		X	X	X	X	X	X	X	X
	5 Practice clean and orderly work habits (vehicle, tools and work area)			1.8.11.A						X	X	X	X	X	X	X	X
	6 Perform Preventative maintenance services			1.8.11.C						X	X	X	X	X	X	X	X
	7 Perform Exterior vehicle maintenance									X	X	X	X	X	X	X	X
	8 Perform Interior vehicle maintenance									X	X	X	X	X	X	X	X
	9 Identify and use fasteners and bolts									X	X	X	X	X	X	X	X
	10 Demonstrate the ability to correctly drill and use re-threading tools									X	X	X	X	X	X	X	X
	11 Remove and reinstall door panel									X	X	X	X	X	X	X	X

Hours		11th Grade Math Academic Standards	11th Grade Math Assessment Anchors	11th Grade RWSL Academic Standards	11th Grade RWSL Assessment Anchors	11th Grade Science Academic Standards	11th Grade Science Assessment Anchors	Career Education and Work Standards	Social Studies	General Technician	Line Technician	Alignment/Suspension Technician	Driveline Technician	Air Conditioning Technician	Engine Performance Technician	Auto Electrical/Electronic Technician
<b>120</b>	<b>ASE 1: Engine Repair</b>															
	1 General Engine Diagnosis; Removal and Reinstallation (R & R)	2.2.11.A	M11.B.2.2	1.1.11.C	R11.A.1.2	3.7.10.B	S11.A.2.2	13.1.11.A	8.1.12.D	X	X		X		X	
	2 Cylinder Head and Valve Train Diagnosis and Repair	2.3.11.A		1.2.11.A	R11.A.1.3					X	X					
	3 Engine Block Assembly Diagnosis and Repair									X	X					
	4 Lubrication and Cooling Systems Diagnosis and Repair									X	X					
<b>125</b>	<b>ASE 2: Automatic Transmissions/Transaxles</b>															
	1 General Transmission and Transaxle Diagnosis	2.2.11.A	M11.A.2.1	1.1.11.E	R11.A.1.1	3.1.10.E	S11.A.1.1	13.4.11.B	8.3.12.A				X		X	X
	2 In-Vehicle Transmission/Transaxle Maintenance and Repair	2.2.11.B	M11.A.3.2	1.1.11.F	R11.A.1.2		S11.A.1.1			X	X		X			
	3 Off-Vehicle Transmission and Transaxle Repair												X			
<b>90</b>	<b>ASE 3: Manual Drive Train and Axles</b>															
	1 General Drive Train Diagnosis	2.3.8.E	M11.B.2.3	1.1.11.G	R11.A.1.2	3.1.10.E	S11.A.1.1	13.1.11.F	5.4.12.A		X		X		X	
	2 Clutch Diagnosis and Repair	2.8.11.P	M11.A.2.1	1.3.11.F	R11.A.1.3	3.6.10.C	S11.C.3.1				X		X			
	3 Transmission/Transaxle Diagnosis and Repair				R11.A.1.6								X			
	4 Drive Shaft and Half Shaft, Universal and Constant-Velocity (CV) Joint Diagnosis & Repair												X			
	5 Ring and Pinion Gears and Differential and Differential Case Assembly Diagnosis & Repair										X		X			
	6 Limited Slip Differential Diagnosis and Repair												X			
	7 Drive Axle Shaft Diagnosis and Repair												X			
	8 Four-wheel Drive/All-wheel Drive Component Diagnosis and Repair										X		X			
<b>95</b>	<b>ASE 4: Suspension and Steering</b>															
	1 General Suspension and Steering Systems Diagnosis	2.9.11.F	M11.C.1.1	1.1.11.G	R11.A.2.5	3.7.10.B	S11.A.2.2	13.3.11.B	6.1.12.C	X	X	X				
	2 Steering System Diagnosis and Repair	2.9.11.G	M11.C.3.1	1.2.11.A	R11.A.2.6	3.4.10.C	S11.C.3.1			X	X	X				
	3 Suspension Systems Diagnosis and Repair									X	X	X				
	4 Related Suspension and Steering Service									X	X	X				
	5 Wheel Alignment Diagnosis, Adjustment, and Repair									X	X	X			X	
	6 Wheel and Tire Diagnosis and Repair															

Hours		11th Grade Math Academic Standards	11th Grade Math Assessment Anchors	11th Grade RWSL Academic Standards	11th Grade RWSL Assessment Anchors	11th Grade Science Academic Standards	11th Grade Science Assessment Anchors	Career Education and Work Standards	Social Studies	General Technician	Line Technician	Alignment/Suspension Technician	Driveline Technician	Air Conditioning Technician	Engine Performance Technician	Auto Electrical/Electronic Technician
<b>105</b>	<b>ASE 5: Brakes</b>															
	1 General Brake Systems Diagnosis	2.9.11.F	M11.C.1.1	1.1.11.G	R11.A.2.5	3.7.10.B	S11.A.2.2	13.3.11.B	6.1.12.C							
	2 Hydraulic System Diagnosis and Repair	2.9.11.G	M11.C.3.1	1.2.11.A	R11.A.2.6	3.4.10.C	S11.C.3.1			X	X					
	3 Drum Brake Diagnosis and Repair									X	X					
	4 Disc Brake Diagnosis and Repair									X	X					
	5 Power Assist Units Diagnosis and Repair										X					
	6 Misc. (Wheel Bearings, Parking Brakes, Electrical, Etc.) Diagnosis & Repair									X	X					X
	7 Electronic Brake, Traction and Stability Control Systems Diagnosis and Repair										X					
											X					
<b>230</b>	<b>ASE 6: Electrical/Electronic Systems</b>															
	1 General Electrical System Diagnosis	2.8.11.P	M11.C.3.1	1.1.11.E	R11.A.1.1	3.1.10.C	S11.C.2.1	13.1.11.A	8.1.12.A		X	X	X	X	X	X
	2 Battery Diagnosis and Service	2.8.11.G	M11.D.1.1	1.1.11.F	R11.A.1.2	3.4.10.B	S11.A.1.3			X	X	X	X	X	X	X
	3 Starting System Diagnosis and Repair									X	X	X	X	X	X	X
	4 Charging System Diagnosis and Repair									X	X	X	X	X	X	X
	5 Lighting Systems Diagnosis and Repair									X	X					X
	6 Gauges, Warning Devices, and Driver Information Systems Diagnosis and Repair										X					X
	7 Horn and Wiper/Washer Diagnosis and Repair										X					X
	8 Accessories Diagnosis and Repair										X					X
	9 Hybrid Vehicle High Voltage Safety Procedures Diagnosis and Repair										X					X
<b>95</b>	<b>ASE 7: Heating and Air-Conditioning Systems</b>															
	1 A/C System Diagnosis and Repair	2.2.11.E	M11.D.2.2	1.1.11.G	R11.A.1.2	3.1.10.A	S11.A.3.1	13.1.11.C	7.4.12.A	X	X	X	X	X	X	X
	2 Refrigeration System Component Diagnosis and Repair	2.6.8.A	M11.E.2.1	1.3.11.F	R11.A.1.3	3.4.10.B	S11.C.2.1									
	3 Heating, Ventilation, and Engine Cooling Systems Diagnosis and Repair				R11.A.1.6						X			X		
	4 Operating Systems and Related Controls Diagnosis and Repair										X			X		
	5 Refrigerant Recovery, Recycling, and Handling										X			X		X
<b>220</b>	<b>ASE 8: Engine Performance</b>															
	1 General Engine Diagnosis	2.8.11.O	M11.D.1.1	1.1.11.E	R11.A.1.1	3.4.10.B	S11.A.1.3	13.3.11.A	7.4.12.A		X		X		X	X
	2 Computerized Engine Controls Diagnosis and Repair	2.8.11.K	M11.D.2.1	1.1.11.F	R11.A.1.2	4.2.10.A	S11.C.2.2				X		X		X	
	3 Ignition System Diagnosis and Repair										X		X		X	X
	4 Fuel, Air Induction, and Exhaust Systems Diagnosis and Repair										X		X		X	
	5 Emissions Control Systems Diagnosis and Repair										X		X		X	

Hours		11th Grade Math Academic Standards	11th Grade Math Assessment Anchors	11th Grade RWSL Academic Standards	11th Grade RWSL Assessment Anchors	11th Grade Science Academic Standards	11th Grade Science Assessment Anchors	Career Education and Work Standards	Social Studies	General Technician	Line Technician	Alignment/Suspension Technician	Driveline Technician	Air Conditioning Technician	Engine Performance Technician	Auto Electrical/Electronic Technician	
<b>25</b>	<b>Precision Measurements</b>																
	1 Read standard rule and interpret readings	2.2.11.A	M11.A.2.1.2	1.1.11.D	R11.B.1.1.1	3.7.10.A				X	X	X	X	X	X	X	X
	2 Read a metric ruler and interpret readings	2.3.11.A	M11.B.2.3.1	1.1.11.E	R11.B.1.2.1					X	X	X	X	X	X	X	X
	3 Read a tape measure and interpret readings	2.3.11.B	M11.A.2.1.1	1.1.11.G	R11.B.1.2.1					X	X	X	X	X	X	X	X
	4 Read a micrometer and interpret readings	2.3.11.C								X	X	X	X	X	X	X	X
	5 Read a dial indicator and interpret readings									X	X	X	X	X	X	X	X
	6 Read a feeler gauge and interpret readings									X	X	X	X	X	X	X	X
	7 Read a thermometer and interpret readings									X	X	X	X	X	X	X	X
	8 Read a brake drum gauge and interpret readings									X	X	X	X	X	X	X	X
	9 Read a disc brake rotor gauge and interpret readings									X	X	X	X	X	X	X	X
<b>30</b>	<b>Computer Applications</b>																
	1 Obtain correct information using ShopKey Software	2.5.8.A		1.1.11.A	R11.A.2.1.2	3.8.10.B	S11.A.2.2	13.4.11.A	8.4.12.C	X	X	X	X	X	X	X	X
	2 Obtain MSDS information via the Internet for specific products			1.2.11.B	R11.A.3.1.1					X	X	X	X	X	X	X	X
	3 Demonstrate the ability to use Microsoft Office applications			1.6.11.F						X	X	X	X	X	X	X	X
<b>30</b>	<b>Communication</b>																
	1 Demonstrate proper use of telephone etiquette	2.1.8.A	M11.A.1.1	1.1.11.C	R11.A.1.2	3.2.10.A	S11.A.1.1	13.2.11.E	5.1.12.C	X	X	X	X	X	X	X	X
	2 Demonstrate the ability to effectively communicate with a customer			1.1. 11 .B.				13.3.11.A		X	X	X	X	X	X	X	X
	3 Demonstrate the ability to effectively communicate with a supervisor			1.6.11.A				13.3.11.B		X	X	X	X	X	X	X	X
	4 Demonstrate the ability to effectively communicate with classmates			1.6.11.C				13.3.11.F		X	X	X	X	X	X	X	X
				1.6.11.F													
<b>10</b>	<b>Career and Technical Leadership (CTSO)</b>																
	1 Complete the SkillsUSA Knowledge and Leadership Quiz	2.1.8.A	M11.A.1.0	1.1.11.E	FR11.A.1.1	3.1.10.A	S11.A.1.1	13.1.11.B	5.1.12.J	X	X	X	X	X	X	X	X
	2 Participate in CTSSO Leadership activities			1.1.11.F	R11.A.2.2.2					X	X	X	X	X	X	X	X
<b>10</b>	<b>Job Seeking</b>																
	1 Preparing a resume	2.2.8.S	M11.A.3.1	1.6.11.A		3.2.12.A		13.1.11.C	7.3.12.D	X	X	X	X	X	X	X	X
	2 Write a letter of application			1.6.11.C				13.2.11.A		X	X	X	X	X	X	X	X
	3 Complete application blanks			1.6.11.E				13.2.11.B		X	X	X	X	X	X	X	X
	4 Participate in a mock job interview			1.6.11.F				13.2.11.C		X	X	X	X	X	X	X	X
	5 Identify career paths within the career and technical education program.							13.2.11.E		X	X	X	X	X	X	X	X
<b>20</b>	<b>Senior Project</b>																
	1 Submit a Proposal	2.1.11.A	M11.A.1.1	1.2.11.B		3.7.10.B	S11.A.2.2	13.1.11.A	7.3.12.D	X	X	X	X	X	X	X	X
	2 Develop an Outline			1.4.11.B				13.3.11.B	8.1.12.A	X	X	X	X	X	X	X	X
	3 write a Research Paper			1.5.11.B					8.1.12.B	X	X	X	X	X	X	X	X
	4 Produce a Finished Product			1.6.11.C						X	X	X	X	X	X	X	X
1405	5 Present and Defend Your Final Product			1.8.11.A						X	X	X	X	X	X	X	X

Hours															
	11th Grade Math Academic Standards	11th Grade Math Assessment Anchors	11th Grade RWSL Academic Standards	11th Grade RWSL Assessment Anchors	11th Grade Science Academic Standards	11th Grade Science Assessment Anchors	Career Education and Work Standards	Social Studies	General Technician	Line Technician	Alignment/Suspension Technician	Driveline Technician	Air Conditioning Technician	Engine Performance Technician	Auto Electrical/Electronic Technician
<b>INC HRS</b>	<b>Perform Related Mathematical Calculations</b>														
	1 Math Intro Lesson 1 Order of Operations	2.2.11.A	M11.A.2.1.2				13.3.11.D		X	X	X	X	X	X	X
	2 Math Intro Lesson 2 Buying and Selling at a Discount	2.3.11.A	M11.B.2.3.1						X	X	X	X	X	X	X
	3 Math Intro Lesson 3 Logarithms Time Doubling & Half-Life	2.3.11.B	M11.A.2.1.1						X	X	X	X	X	X	X
	4 Math Intro Lesson 4 Linear Equations/Rate of Change	2.3.11.C							X	X	X	X	X	X	X
	5 Math Intro Lesson 5 Ratio/Proportions	2.5.11.A							X	X	X	X	X	X	X
	6 Complete Math-In-CTE Lesson 1 Computation	2.5.11.D							X	X	X	X	X	X	X
	7 Complete Math-In-CTE Lesson 2 Pascal's Law	2.6.11.B	M1Q1.E.1.1.1						X	X	X	X	X	X	X
	8 Complete Math-In-CTE Lesson 3 Applying Pascal's Law	2.8.11.D							X	X	X	X	X	X	X
	9 Complete Math-In-CTE Lesson 4 Cost Estimation	2.8.11.G	M11.D.2.2.1						X	X	X	X	X	X	X
	10 Complete Math-In-CTE Lesson 5 Ohm's Law	2.8.11.J	M11.D.2.2.2						X	X	X	X	X	X	X
	11 Complete Math-In-CTE Lesson 6 Watt's Law	2.8.11.P							X	X	X	X	X	X	X
	12 Complete Math-In-CTE Lesson 7 Piston Displacement	2.8.11.Q	M11.D.1.1.1						X	X	X	X	X	X	X
	13 Complete Math-In-CTE Lesson 8 Computing Horsepower	2.9.11.F	M11.D.1.1.1						X	X	X	X	X	X	X
	14 Complete Math-In-CTE Lesson 9 Computing Compression Ratio	2.9.11.G	M11.D.1.1.1						X	X	X	X	X	X	X
	15 Complete Math-In-CTE Lesson 10 Compute Compression Ratio Change								X	X	X	X	X	X	X
	16 Complete Math-In-CTE Lesson 11 Cyl. Balance % Change								X	X	X	X	X	X	X
	17 Complete Math-In-CTE Lesson 12 Camber/Caster								X	X	X	X	X	X	X
	18 Complete Math-In-CTE Lesson 13 Toe-In/Toe-Out								X	X	X	X	X	X	X
	19 Complete Math-In-CTE Lesson 14 Resurfacing Brake Drums								X	X	X	X	X	X	X
	20 Complete Math-In-CTE Lesson 15 Interpreting Brake Drum Measurements								X	X	X	X	X	X	X