

MODULE MEC2020: VEHICLE MAINTENANCE**Level:** Intermediate**Theme:** Vehicle Design and Ownership**Prerequisite:** MEC1020 Vehicle Service & Care**Module Description:** Students perform the basic service requirements necessary to ensure adequate maintenance of a motor vehicle.**Module Parameters:** Access to vehicles, specialty tools, hand tools and related resources.**Note:** Customer work to be checked by certified technician when work performed on brakes, steering and suspension.**Curriculum and Assessment Standards**

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate safe work practices when working with vehicles, and follow established lab procedures identify vehicle service requirements as per manufacturer's recommendations 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> observed performance in: <ul style="list-style-type: none"> following established lab/shop routines use of WHMIS information as it applies to oil, grease, gasoline and antifreeze working with others safe use of materials/tools/equipment. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Vehicle Maintenance, Part 1, MEC2020-1</i></p> <p><i>Standard</i> <i>Performance rating of 2 on each criteria</i></p>	15
	<ul style="list-style-type: none"> creation of a service schedule for a given vehicle indicating: <ul style="list-style-type: none"> make, model, year and serial number system or unit to be checked, serviced or replaced time, distance travelled and service condition. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Vehicle Maintenance, Part 2, MEC2020-1</i></p> <p><i>Standard</i> <i>Performance rating of 2 on each criteria</i></p>	15

MODULE MEC2020: VEHICLE MAINTENANCE (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> conduct a motor vehicle inspection considering age of vehicle, distance travelled, service conditions and history service and repair a motor vehicle according to vehicle condition and service schedule demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> observed performance related to the inspection of: <ul style="list-style-type: none"> lights and accessories engine cooling, fuel, exhaust, ignition emission, lubrication and mechanical systems drive train, running gear and body overall condition of body parts. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Vehicle Maintenance, Part 3, MEC2020-1</i></p> <p><i>Standard</i> <i>Performance rating of 2 on each criteria</i></p>	25
	<ul style="list-style-type: none"> observed performance in servicing a given vehicle according to the prepared schedule. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Vehicle Maintenance, Part 4, MEC2020-1</i></p> <p><i>Standard</i> <i>Performance rating of 2 on each criteria</i></p>	45
	<ul style="list-style-type: none"> observations of individual effort and interpersonal exploration during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	Integrated throughout

Concept	Specific Learner Expectations	Notes
Health/Safety Hazards	<p><i>The student should:</i></p> <ul style="list-style-type: none"> demonstrate knowledge of and follow lab safety procedures. 	Be aware of WHMIS and school district's guidelines.
Identify/Analyze	<ul style="list-style-type: none"> identify the service requirements for a specific motor vehicle considering the odometer reading, conditions of operation and service history 	

MODULE MEC2020: VEHICLE MAINTENANCE (continued)

Concept	Specific Learner Expectations	Notes
Identify/Analyze (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • identify and describe condition of the camshaft timing belt or chain and recommend the appropriate service • evaluate brake system fluid integrity and brake pedal feel and identify repair requirements. 	Compare with manufacturer's specifications.
Inspect/Service	<ul style="list-style-type: none"> • demonstrate how to: <ul style="list-style-type: none"> – inspect an engine for oil leaks – renew engine gaskets or seals, where necessary – change engine oil and filter – service PCV valve and breather – inspect the condition of coolant, hoses, belts, fan and radiator; adjust belts if required – change or recondition the engine coolant and flush the cooling system, if required – pressure test the cooling system – replace the thermostat, if necessary – locate and inspect the fuel filter; replace if required – replace the air filter, if required – inspect and service throttle linkage – inspect manifolds, pipes, catalytic converter, muffler and hangers for structural integrity; repair as required – inspect and service or replace spark plugs, distributor cap and rotor and spark plug wires and boots as required by the service schedule – inspect and replace fuel purge canister filter, if required – inspect and replace fluids as required in transmissions, transaxle transfer cases and differential assemblies – inspect and recommend service for constant velocity joints, seals, drive shaft, drive axles and U-joints 	Demonstrate proper jacking/hoisting systems.

MODULE MEC2020: VEHICLE MAINTENANCE (continued)

Concept	Specific Learner Expectations	Notes
Inspect/Service (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none"> – check tire condition – mount and balance tires – rotate tires to maximize wear life – inspect steering and suspension system components – inspect, repack and adjust wheel bearing – lubricate steering and suspension system joints – replenish fluids in power steering pump – inspect and top up brake fluid reservoir – inspect and assess the wear characteristics of disc brake and drum brake components – lubricate parking brake linkages – inspect and service battery and battery clamps, renew clamps if required – adjust alternator belt tension if necessary – check the operation of all lights and replace required bulbs – inspect fuse panel and renew inoperative fuses – use a multimeter to test a charging system – lubricate hinges on all opening panels and weather strips – lubricate locks or lock plates, as required – inspect and change windshield wiper blades, if necessary – inspect for loose trim or moldings. 	<p>Be aware of the effects of brake fluid on painted surfaces.</p> <p>Be aware of hazards when working with lead-acid storage batteries.</p> <p>Students need to be reminded to keep clear of all moving parts when checking a system.</p> <p>Access vehicle inspection forms from auto dealers and auto body repair shops.</p>
Careers	<ul style="list-style-type: none"> • identify further education, working conditions and career opportunities. 	