

MODULE MEC1160: STRUCTURES & MATERIALS**Level:** Introductory**Theme:** Suspension and Structural Systems**Prerequisite:** None**Module Description:** Students identify the types of materials and components used in vehicle construction.**Module Parameters:** Access to vehicle, hand tools, fasteners, materials and related resources.**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 use of tools, and follow established lab procedures 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> observed performance related to: <ul style="list-style-type: none"> following lab/shop established routines recognition of health hazards and safety procedures associated with coated surfaces safe handling and disposal of materials. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Vehicle Structures and Materials, Part 1, MEC1160-1</i></p> <p><i>Standard</i> <i>Performance rating of 2 on each criteria</i></p>	10
<ul style="list-style-type: none"> explain the relationship between the function of a vehicle and the materials used in its construction 	<ul style="list-style-type: none"> report indicating how the function of a vehicle dictates the type of structure and materials used in interior and exterior components. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Vehicle Structures and Materials, Part 2, MEC1160-1</i></p> <p><i>Standard</i> <i>Performance rating of 1 or more on each criteria</i></p>	30
<ul style="list-style-type: none"> examine and identify the basic parts and materials used in vehicle construction 	<ul style="list-style-type: none"> observed performance in identification of vehicle structures, parts and materials. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Vehicle Structures and Materials, Part 3, MEC1160-1</i></p> <p><i>Standard</i> <i>Performance rating of 1 on each criteria</i></p>	60

MODULE MEC1160: STRUCTURES & MATERIALS (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> observations of individual effort and interpersonal exploration during the instructional period. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>Integrated throughout</p>

Concept	Specific Learner Expectations	Notes
<p>Health/Safety Hazards</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> state health and environmental issues related to the replacement and repair of coated surfaces state how hazardous materials are handled and disposed of. 	
<p>Consumer Awareness</p>	<ul style="list-style-type: none"> outline the historical development of materials used in transportation vehicles identify what parts of a vehicle are recyclable cite examples of initiatives that will increase the percentage of parts that can be recycled list ways government regulations have altered the design and construction of vehicles. 	<p><i>Highway Traffic Act.</i></p>
<p>Identification/Function</p>	<ul style="list-style-type: none"> identify and discuss the factors that have contributed to the use and development of new structural materials identify the factors used to select a material for a given function indicate how design and construction of a vehicle is affected by the medium (land, sea, air, space) that it operates in identify the monoliths and composite materials used in a modern vehicle 	<p>This module could be a vehicle-dismantling project—group work possibilities.</p>

MODULE MEC1160: STRUCTURES & MATERIALS (continued)

Concept	Specific Learner Expectations	Notes
<p>Identification/ Function (continued)</p>	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • describe the most appropriate methods of identifying the type of materials used in a part or structure • describe the action of a coil spring when subject to rapid loading • identify design features that are tied more closely to consumer taste than function • describe how to: <ul style="list-style-type: none"> – reduce the weight of a vehicle – reduce drag – increase passenger safety – increase longevity of structural parts – improve passenger comfort and space • demonstrate knowledge of common types of fasteners used, such as: <ul style="list-style-type: none"> – studs, bolts, screws – nuts – rivets – clips – clamps • identify what structural coatings are used to: <ul style="list-style-type: none"> – protect against corrosion – add to the appearance – reduce effects of the sun’s radiation – reduce noise. 	
<p>Careers</p>	<ul style="list-style-type: none"> • describe growth occupations that are associated with transportation vehicles • research further education and career opportunities. 	<p>Designing, building, recycling.</p>