

MODULE MEC3210: PLASTIC & FIBREGLASS**Level:** Advanced**Theme:** Suspension and Structural Systems**Prerequisite:** MEC1160 Structures & Materials**Module Description:** Students determine the types of plastic and fibreglass materials required for repairs, and perform appropriate repair procedures.**Module Parameters:** Access to plastic welding equipment and related materials and 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"> identify hazards and safety precautions to be observed when working with plastics | <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"> use of plastic repair materials personal safety requirements following established shop procedures. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Plastic & Fibreglass, Part 1, MEC3210-1</i></p> <p><i>Standard</i> <i>Performance rating of 3 on each criteria</i></p> | 10 |
| <ul style="list-style-type: none"> describe types of plastics, welding equipment and bonding processes used to repair plastics parts | <ul style="list-style-type: none"> preparation of a chart or other visual presentation indicating: <ul style="list-style-type: none"> plastic types repairability materials required for repair. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Plastic & Fibreglass, Part 2, MEC3210-1</i></p> <p><i>Standard</i> <i>Performance rating of 3 on each criteria</i></p> | 15 |
| <ul style="list-style-type: none"> apply plastic welding and/or bonding techniques to repair a plastic component | <ul style="list-style-type: none"> observed performance in completion of a plastic repair. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Plastic & Fibreglass, Part 3, MEC3210-1</i></p> <p><i>Standard</i> <i>Performance rating of 3 on each criteria</i></p> | 30 |

MODULE MEC3210: PLASTIC & FIBREGLASS (continued)

| Module Learner Expectations | Assessment Criteria and Conditions | Suggested Emphasis |
|---|---|--|
| <p><i>The student will:</i></p> <ul style="list-style-type: none"> • identify types of fibreglass materials and repair procedures • perform a fibreglass repair on a component • demonstrate basic competencies. | <p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • ability to identify three kinds of fibreglass material, related resins/hardeners and repair procedures. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Plastic & Fibreglass, Part 4, MEC3210-1</i></p> <p><i>Standard</i> <i>Performance rating of 3 on each criteria</i></p> <ul style="list-style-type: none"> • observed performance in the completion of a repair: <ul style="list-style-type: none"> – using safe handling techniques – using proper preparation of repair area – using correct application of material – following approved finishing steps. <p><i>Assessment Tool</i> <i>Task Assessment Checklist: Plastic & Fibreglass, Part 5, MEC3210-1</i></p> <p><i>Standard</i> <i>Performance rating of 3 on each criteria</i></p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal interaction during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p> | <p>10</p> <p>35</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"> • demonstrate knowledge of and follow accepted safety practices when working with hot liquids, plastic solvents, resins and equipment. | <p>Consider WHMIS regulations and ventilation requirements.</p> |

MODULE MEC3210: PLASTIC & FIBREGLASS (continued)

| Concept | Specific Learner Expectations | Notes |
|------------------|--|---|
| Identify/Analyze | <p><i>The student should:</i></p> <ul style="list-style-type: none"> • identify and state characteristics of plastics used in vehicle manufacture • identify plastics that can be repaired by welding and bonding • explain the types of plastic welding equipment available and when this repair process should be used • identify welding rods • explain which bonding agents are available and their application • identify type of plastic, and decide whether to weld or bond • state why a particular process was chosen. | <p>CAUTION: Bonding agents can be very toxic. Follow all the manufacturer's safety requirements.</p> |
| Inspect/Repair | <ul style="list-style-type: none"> • identify correct layout • prepare "witness lines" for repeat layout • prepare/clean plastic material as per instructions for process used • create a solid lay-up • weld/bond materials • prepare damaged area • prepare material • apply material. | <p>Bonding processes are becoming more prevalent than welding.</p> |
| Careers | <ul style="list-style-type: none"> • describe how prevalent plastic repairs are in industry. | |