

MODULE CON3120: TOOL MAINTENANCE

Level: Advanced

Theme: Manufacturing Systems (Processes and Applications)

Prerequisite: CON1010 Basic Tools & Materials

Module Description: Students develop skills in preventive maintenance by routinely inspecting and servicing production tools and equipment.

Module Parameters: Access to a materials and/or construction facility and to instruction from an individual with specialized training in hand and power tool maintenance.

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 and describe the essential elements and desired outcomes of a preventive maintenance program prepare a maintenance schedule for a piece of equipment apply established maintenance procedures to assess and maintain hand and power tools 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> research project that correctly identifies and describes at least five positive outcomes of a preventive maintenance program 	20
	<ul style="list-style-type: none"> development of a maintenance chart for a given power tool that identifies components and frequency of the service requirements. <p><i>Assessment Tool</i> <i>Assessment Framework: Research Process, CTSRES</i></p> <p><i>Standard</i> <i>Performance rating of 3 for each applicable task</i></p>	20
	<ul style="list-style-type: none"> ongoing student involvement in the assessment and maintenance of hand and power tools. <p><i>Assessment Tool</i> <i>Assessment Framework: Activity Assessment, CONACT</i></p> <p><i>Standard</i> <i>Tools are maintained according to accepted practice and the manufacturer's recommendations</i> <i>Performance rating of 3 for each applicable task</i></p>	60

MODULE CON3120: TOOL MAINTENANCE (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 interaction during the learning process. <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>Orientation</p> <ul style="list-style-type: none"> Preventive Maintenance Components Tool Maintenance 	<p><i>The student should:</i></p> <ul style="list-style-type: none"> explain reasons for establishing a preventive maintenance program identify the essential elements of a preventive maintenance program; e.g.: <ul style="list-style-type: none"> scheduling and performing periodic maintenance functions repairing faulty equipment keeping records of service and maintenance work tagging or removing equipment that is out of order show a list of parameters for setting up a maintenance schedule; e.g.: <ul style="list-style-type: none"> age of equipment frequency of use manufacturer's recommendations past performance identify recommended grinding and honing angles for: <ul style="list-style-type: none"> plane irons wood chisels wood turning tools calculate twist drill point angles and lip clearances for drilling metals and plastics 	<p>This module provides opportunity for senior students to become skilled in machine tool maintenance.</p> <p>Demonstrate proper sharpening techniques for common edge cutting tools.</p>

MODULE CON3120: TOOL MAINTENANCE (continued)

Concept	Specific Learner Expectations	Notes
<ul style="list-style-type: none"> • Equipment Maintenance 	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • list and describe the types of adjustments and service requirements of a: <ul style="list-style-type: none"> – table saw – band saw – scroll saw – jointer – surface planer – portable equipment – drill press – etc. • identify tools that require safety accessories such as a push stick. 	<p>Demonstrate appropriate methods to remove and install saw blades, cutting knives, sanding discs and belts.</p>
<p>Planning and Management</p> <ul style="list-style-type: none"> • Service Scheduling 	<ul style="list-style-type: none"> • prepare a service schedule for a number of production tools and pieces of equipment • design a safety accessory for a specific tool. 	<p>Explain how machining flaws such as burns, skips or snips are a result of dull edges or improperly adjusted equipment.</p>
<p>Implementation</p> <ul style="list-style-type: none"> • Service and Maintenance 	<ul style="list-style-type: none"> • demonstrate a routine inspection of lab tools and equipment • perform maintenance services as required • build a safety accessory. 	<p>Have students consider making a fixed or adjustable taper jig, push block or other safety accessory.</p>
<p>Assessment</p> <ul style="list-style-type: none"> • Career Information • Career Preparation 	<ul style="list-style-type: none"> • identify occupation and trade qualifications related to tool and machine maintenance • maintain a record of completed activities within a portfolio. 	

