

# COURSE SYLLABUS

<b>Course Title:</b>	Manufacturing Machinery - Grinding		<b>Date submitted:</b>	9/26/14 (AAC: 14-111)		
<b>Department:</b>	Business and Technology					
<b>Curriculum:</b>	Technology Studies					
<b>Course Descriptors:</b> Make certain that the course descriptors are consistent with college and Board of Trustees policies, and the current course numbering system.	<b>Course Code:</b> (eg. ACC 101)	MFG*152	<b>Prerequisites:</b>			
	<b>Course Type:</b>	D/Y			None	
	A: Clinical B: Lab D: Distance Learning I: Individual/Independent L: Lecture N: Internship M: Seminar P: Practicum U: Studio X: Combined Lecture/Lab Y: Combined Lecture/ Clinical/Lab Z: Combined Lecture/Studio					
	<b>Elective Type:</b>	G				
	AH: Art History E: English FA: Fine Arts G: General HI: History HU: Humanities LA: Liberal Arts FL: Foreign Language M: Math S: Science SS: Social Science					
	<b>Credit Hours:</b>	2			<b>Corequisites:</b>	
	<b>Developmental:</b> (yes/no)	No				
	<b>Lecture:</b>	1				
	<b>Clinical:</b>	0				
	<b>Lab:</b>	2				
<b>Studio:</b>	0					
<b>Other:</b>	0					
<b>TOTAL:</b>	3	<b>Other Requirements:</b>				
<b>Class Maximum:</b>	24	None				
<b>Semesters Offered:</b>	F/Sp/Su					
<b>Ability Based Education (ABE) Statement</b>	At Tunxis Community College students are assessed on the knowledge and skills they have learned. The faculty identified the General Education Abilities critical to students' success in their professional and personal lives. In every class, students are assessed on course abilities, sometimes program abilities, and, in most classes, at least one General Education Ability. Students will receive an evaluation of the degree to which they have demonstrated or not demonstrated that General Education Ability.					
<b>Catalog Course Description:</b>	Provides an introduction on the use of various grinding machines. Topics covered include, selection and identification of grinding wheels, truing, dressing and balancing wheels, grinding fluids, using the horizontal spindle reciprocating table surface grinder, and using the tool and cutter grinder.					

**Topical Outline:**

List course content in  
outline format.

- A. Selection and identification of grinding wheels
  - 1. Types of abrasives and their best use
  - 2. Bonds and their application
  - 3. Identify by type number and name , from unmarked sketches, or from actual wheels, four commonly used shapes of grinding wheels
  - 4. Interpret wheel shape and size markings together with five basic symbols of a wheel specification into a description of the grinding wheel
  - 5. Given several standard, common grinding jobs, recommend the appropriate abrasive, approximate grit size and grade, and bond
- B. Truing, dressing, and balancing of grinding wheels
  - 1. Distinguish the difference between the objectives of truing and dressing
  - 2. Use a single point dressing diamond
  - 3. Understand balancing
- C. Grinding fluids
  - 1. Reasons for using grinding fluids
  - 2. Three types of grinding fluids
  - 3. Methods of grinding fluid applications
  - 4. Methods of cleaning grinding fluids
- D. Horizontal Spindle Reciprocating Table Surface Grinder
  - 1. Components of the horizontal surface grinder
  - 2. Functions of the various component parts of the grinder
  - 3. Accessory devices used on the surface grinder
- E. Work holding on the surface grinder
  - 1. Basic operating principal of common grinder chucks
  - 2. Care of grinder chucks
  - 3. Methods of holding odd-shaped, non magnetic, and thin workpieces
- F. Using the Surface Grinder
  - 1. Prepare the surface grinder for a typical job
  - 2. Check and grind-in the chuck if necessary
  - 3. Finish grind sample parts
- G. Problems and solutions in surface grinding
  - 1. Common surface grinding problems and recommended solutions
- H. Universal Tool and Cutter Grinder
  - 1. Major components of the tool and cutter grinder
  - 2. Function of the grinder
  - 3. Sharpen cutting tools

**LABORATORIES:**

- A. Selection and identification of grinding wheels
  - 1. Identify by type number and name , from unmarked sketches, or from actual wheels, four commonly used shapes of grinding wheels
  - 2. Interpret wheel shape and size markings together with five basic symbols of a wheel specification into a description of the grinding wheel
  - 3. Given several standard, common grinding jobs, recommend the appropriate abrasive, approximate grit size and grade, and bond
- B. True, dress, and balance grinding wheels
  - 1. Use a single point dressing diamond to dress a wheel
  - 2. Balance a grinding wheel

	<p>C. Grinding fluids</p> <ol style="list-style-type: none"> <li>1. Use methods of grinding fluid applications</li> <li>2. Clean grinding fluid reservoirs</li> </ol> <p>D. Use a Horizontal Spindle Reciprocating Table Surface Grinder</p> <ol style="list-style-type: none"> <li>1. Identify components of the horizontal surface grinder</li> <li>2. Try functions of the various component parts of the grinder</li> <li>3. Use accessory devices on the surface grinder</li> </ol> <p>E. Use work holding on the surface grinder</p> <ol style="list-style-type: none"> <li>1. Understand and use basic operating principals of common grinder chucks</li> <li>2. Use proper care of grinder chucks when operating the grinder</li> <li>3. Try various methods of holding odd-shaped, non magnetic, and thin workpieces</li> </ol> <p>F. Use the Surface Grinder</p> <ol style="list-style-type: none"> <li>1. Prepare the surface grinder for a typical job</li> <li>2. Check and grind-in the chuck if necessary</li> <li>3. Finish grind sample parts</li> </ol> <p>G. Identify problems and solutions in surface grinding</p> <ol style="list-style-type: none"> <li>1. Common surface grinding problems and recommended solutions</li> </ol> <p>H. Use the Universal Tool and Cutter Grinder</p> <ol style="list-style-type: none"> <li>1. Identify the major components of the tool and cutter grinder</li> <li>2. Understand the function of the grinder</li> <li>3. Sharpen cutting tools</li> </ol>
<p><b>Outcomes:</b> Describe measurable skills or knowledge that students should be able to demonstrate as evidence that they have mastered the course content.</p>	<p><b>Upon successful completion of this course, the student will be able to do the following:</b></p> <ol style="list-style-type: none"> <li>1. select the proper grinding wheel</li> <li>2. true, balance and dress a grinding wheel</li> <li>3. demonstrate the ability to know the value and use of cutting fluids</li> <li>4. demonstrate the ability to use a surface grinder</li> <li>5. demonstrate the ability to use a cutter grinder</li> </ol> <p><b>PROGRAM:</b> <i>(Numbering reflects Program Outcomes as they appear in the college catalog)</i></p> <ol style="list-style-type: none"> <li>7. demonstrate technical competency in a functional area of technology. The specialization may include, but is not limited to: electricity, computer aided drafting and design, manufacturing, and construction.</li> </ol> <p><b>GENERAL EDUCATION:</b> <i>(Numbering reflects General Education Outcomes as they appear in the college catalog)</i></p> <p>None</p>
<p><b>Evaluation:</b> List how the above outcomes will be assessed.</p>	<p><b>Assessment will be based on the following criteria:</b></p> <p>Quizzes Exams Laboratory Assignments</p>

<p><b>Instructional Resources:</b></p> <p>List library (e.g. books, journals, on-line resources), technological (e.g. Smartboard, software), and other resources (e.g. equipment, supplies, facilities) required and desired to teach this course.</p>	<p><b>Required:</b></p> <p>Grinding Machines                  Grinding Tools                  Grinding Supplies</p> <p><b>Desired:</b></p>
<p><b>Textbook(s)</b></p>	<p>Check with department chair for list of approved texts.</p>