

# COURSE SYLLABUS

Tunxis  
Community  
College



*Education That Works For a Lifetime*

<b>Course Title:</b>	Manufacturing Machinery – Lathe I		<b>Date submitted:</b>   9/26/14 (AAC: 14-113)
<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*154	<b>Prerequisites:</b>   None
	<b>Course Type:</b>	D/Y	
	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>Developmental:</b> (yes/no)	No	
	Lecture:	1	
	Clinical:	0	
	<b>Contact Hours:</b>	Lab: Studio Other:  <b>TOTAL:</b> 3	
<b>Class Maximum:</b>	24	<b>Corequisites:</b>   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 in the use of the lathe. Topics include, identification of major components of the lathe, tool holders and tool holding, cutting tools, operating the controls, facing and center drilling.		
<b>Topical Outline:</b> <small>List course content in outline format.</small>	A. The Engine Lathe <ol style="list-style-type: none"> <li>1. Identify the most important parts of the lathe and their functions</li> <li>2. Know lubrication points of the lathes</li> <li>3. Determine the type of lubrication necessary</li> <li>4. Adjust the cross slide, compound slide, and tailstock, and clamp the compound after rotating it</li> </ol>		

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|  | <ul style="list-style-type: none"><li>B. Tool holders and tool holding for the lathe<ul style="list-style-type: none"><li>1. Identify standard, quick-change and turret-type tool holders mounted on a lathe carriage</li><li>2. Identify tool holding for the lathe tail stock</li></ul></li><li>C. Cutting tools for the lathe<ul style="list-style-type: none"><li>1. Explain the purpose of rake and relief angles, chip breakers, and form tools</li><li>2. Grind acceptable cutting tools from HSS tool bits</li></ul></li><li>D. Lathe tooling<ul style="list-style-type: none"><li>1. Explain the uses and care of independent and universal chucks</li><li>2. Explain the limitations and advantages of collets and describe a collet setup</li><li>3. Explain the use of a face driver or drive center</li><li>4. Explain the uses and differences of drive plates</li></ul></li><li>E. Operating machine controls<ul style="list-style-type: none"><li>1. Explain drives and shifting procedures for changing speeds on lathes</li><li>2. Describe the use of various feed control levers</li><li>3. Explain the relationship between longitudinal feeds and cross feeds</li><li>4. State the differences in types of crossfeed screw micrometer collars</li></ul></li><li>F. Facing and center drilling<ul style="list-style-type: none"><li>1. Correctly setup a workpiece and face the ends</li><li>2. Correctly center drill the ends of a workpiece</li><li>3. Determine the proper feeds and speeds for a workpiece</li><li>4. Explain how to setup to make facing cuts to a given depth and how to measure them</li></ul></li></ul> |
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**LABORATORIES:**

- A. Analysis of the Engine Lathe parts and lubrication points
  - 1. Identify the most important parts of the lathe and their functions
  - 2. Determine the type of lubrication necessary and lubricate the lathes
  - 3. Adjust the cross slide, compound slide, and tailstock, and clamp the compound after rotating it
- B. Analyze tool holders and tool holding for the lathe
  - 1. Identify standard, quick-change and turret-type tool holders mounted on a lathe carriage
  - 2. Identify tool holding for the lathe tail stock
- C. Analyze cutting tools for the lathe
  - 1. Explain the purpose of rake and relief angles, chip breakers, and form tools through analysis of cuts taken
  - 2. Grind acceptable cutting tools from HSS tool bits
- D. Analyze lathe tooling
  - 1. Analyze the uses and care of independent and universal chucks
  - 2. Analyze the limitations and advantages of collets and a collet setup
  - 3. Setup and use a face driver or drive center
  - 4. Setup and use different drive plates
- E. Operate machine controls
  - 1. Utilize drives and shifting procedures to change speeds on lathes
  - 2. Use various feed control levers
  - 3. Analyze the relationship between longitudinal feeds and cross feeds
  - 4. Prove out the differences in types of crossfeed screw micrometer collars

	<p>F. Face and center drill</p> <ol style="list-style-type: none"> <li>1. Correctly setup a workpiece and face the ends</li> <li>2. Correctly center drill the ends of a workpiece</li> <li>3. Determine and use the proper feeds and speeds for a workpiece</li> <li>4. Setup to make facing cuts to a given depth and measure them</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. identify the most important parts of a lathe and their functions</li> <li>2. demonstrate an ability to complete simple preventive maintenance on a lathe</li> <li>3. demonstrate an ability to complete simple adjustments to the lathe</li> <li>4. identify tool holders</li> <li>5. demonstrate an understanding of tool geometry for lathe cutting tools</li> <li>6. identify the uses and care of chucks, collets and face drivers</li> <li>7. demonstrate how to shift speeds and feeds and use controls on the lathe</li> <li>8. set up parts and face and center drill</li> </ol>
	<p><b>PROGRAM:</b> (<i>Numbering reflects Program Outcomes as they appear in the college catalog</i>)</p> <p>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.</p>
	<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> List library (e.g. books, journals, online 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>Lathe Lathe Cutting Tools Work Material</p> <p><b>Desired:</b></p>
<p><b>Textbook(s)</b></p>	<p>Check with department chair for list of approved texts.</p>