

COURSE SYLLABUS

Course Title:	CNC Maintenance & Repair II	Date submitted:	4/30/2018 (18-48)
Department:	Advanced Manufacturing Technology		
Curriculum:	Technology Studies		
<p>Course Descriptors: Make certain that the course descriptors are consistent with college and Board of Trustees policies, and the current course numbering system.</p>	Course Code: (eg. ACC 101)	MFG*163	<p>Prerequisites:</p> <p>Successful completion of Electronics Technology Certificate or permission of the director of Manufacturing Technology</p> <p>Corequisites:</p> <p>None</p> <p>Other Requirements:</p> <p>None</p>
	Course Type:	X	
	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		
	Elective Type:	G	
	AH: Art History E: English FA: Fine Arts FL: Foreign Language G: General HI: History HU: Humanities LAS: Liberal Arts & Sciences M: Math S: Science SS: Social Science		
	Credit Hours:	3	
	Developmental: (yes/no)	No	
	Lecture:	2	
	Clinical:	0	
	Lab:	2	
	Studio	0	
	Other:	0	
TOTAL:	4		
Class Maximum:	24		
Semesters Offered:	Fall, Spring		
Ability Based Education (ABE) Statement	<p>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.</p>		

<p>Catalog Course Description:</p>	<p>CNC Maintenance & Repair is a two semester course. CNC Maintenance & Repair II provides the student basic troubleshooting strategies ,explores all major CNC systems needing maintenance & repair, reviews troubleshooting techniques used to identify components in need of repair, and provides insights into making the necessary repairs. Topics include: Troubleshooting plan of action [strategy]; troubleshooting power supplies, troubleshooting the interlock system & operator controls; troubleshooting the servo drive, interface, parameter, and I/O[input/output] systems; and troubleshooting the hydraulic & pneumatics, lubrication and mechanical systems. The course provides the rationale for establishing & utilizing a regular maintenance plan.</p>
<p>Topical Outline: List course content in outline format.</p>	<p>[The outline should be in title case and use the numbering format below. You may not have subtopics, but if you do, here is the format.]</p> <ol style="list-style-type: none"> 1. Introduction to CNC System Troubleshooting 2. Introduction to CNC Servo System Troubleshooting 3. Introduction to Troubleshooting the CNC Controller & Operator's Interface System. 4. Troubleshoot Power Supply, Interlock System & Operator's Control 5. Troubleshoot a CNC Servo Drive System, Controller & Operator Interface System 6. Mechanical Systems 7. Maintenance Programs
<p>Outcomes: Describe measurable skills or knowledge that students should be able to demonstrate as evidence that they have mastered the course content.</p>	<p>Upon successful completion of this course, the student will be able to do the following:</p> <p>COURSE: Abilities should start with a measurable verb that students do. You do not need any punctuation at the end. Examples of some verbs you could use follow and more can be found at http://online.bcit.ca/guidelines/step2/Outclass.htm (Note: The examples below are cognitive abilities. See the website for others.)</p> <ol style="list-style-type: none"> 1. Demonstrate an understanding of troubleshooting strategy[s]. 2. Demonstrate an understanding of the common faults that occur in a CNC machine's power supply, in the interlock system, and in the operator's control system. 3. Demonstrate an understanding of the basic procedure to troubleshoot a CNC Servo System. 4. Demonstrate an understanding of the common faults that occur in a CNC Servo System. 5. Demonstrate an understanding of the basic procedure to troubleshoot the CNC Controller & Operator's interface system. 6. Demonstrate an understanding of the common faults that occur in the CNC Controller & Operator's interface system. 7. Demonstrate an understanding of troubleshooting successfully a CNC machine's power supply, interlock system, and operator's control system. 8. Demonstrate an understanding of troubleshooting successful a CNC Servo System. 9. Demonstrate an understanding of troubleshooting successfully a CNC Controller & Operator's Interface System. 10. Demonstrate an understanding of the mechanical systems of a CNC machine [mill, lathe & grinder]. 11. Demonstrate an understanding of troubleshooting successfully the mechanical systems of a CNC machine [mill, lathe & grinder]. 12. Demonstrate an understanding of the importance of regular maintenance. 13. Demonstrate the ability to construct and to implement a maintenance program. <p>PROGRAM: <i>Manufacturing Electro-Mechanical Maintenance Certificate and A.S. Degree</i></p>

	<p>[Any Program Abilities should be cut and pasted here as they appear in the current catalog, including numbers. Please note that MSWord may have numbered these automatically, so when you cut and paste, make sure the numbers are correct – you will need to make them “hard” numbers rather than auto numbers.]</p> <ol style="list-style-type: none"> 1. Demonstrate an understanding of Shop Safety. 2. Demonstrate an understanding industrial manufacturing machinery and equipment. 3. Demonstrate an understanding of industrial machine maintenance. 4. Demonstrate an ability to troubleshoot industrial machinery. 5. Demonstrate and ability to repair industrial machinery. <hr/> <p>GENERAL EDUCATION: <i>(Numbering reflects General Education Outcomes as they appear in the college catalog)</i> [Select the General Education Abilities from the listing below.]</p> <p>No General Education outcomes.</p>
<p>Evaluation: List how the above outcomes will be assessed.</p>	<p>Assessment will be based on the following criteria:</p> <ol style="list-style-type: none"> 1. Tests and quizzes
<p>Instructional Resources: 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>Required: Manufacturing lab including CNC equipment.</p> <p>Desired:</p>
<p>Textbook(s)</p>	<p>None</p>