COURSE SYLLABUS

Tunxis Community College

Education That Works For a Lifetime

Course Title:	Computer Numerical Control I	Date submitted:	4/30/2018 (18-32)
Department:	Advanced Manufacturing Technology		
Curriculum:	Technology Studies		

Course Descriptors: Make certain that the course descriptors are consistent with college and Board of Trustees policies, and the current course numbering system.

Course Code: (eg. ACC 101)	MFG*168
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
Contact Hours: Lecture:	3
Contact Hours: Clinical:	0
Contact Hours: Lab:	0
Contact Hours: Studio	0
Contact Hours: Other:	0
Contact Hours: TOTAL:	3
Class Maximum:	24
Semesters Offered:	Fall, Spring

Prerequisites:

Manufacturing Math II (MFG*105), Introduction to Machine Technology (MFG*150), and Introduction to Geometric Dimensioning & Tolerancing (MFG*160)

Corequisites:

None

Other Requirements:

None

Catalog Course Description:

Computer Numerical Control I is the first course in CNC machinery and programming. Topics include, Cartesian coordinates, safe use of CNC equipment, setup and operate a two axis CNC lathe and a three axis CNC machining center, programming and runoff of parts.

Topical Outline: List course content in outline format.	INSTRUCTIONAL UNITS: 1. History of CNC 2. Cartesian Coordinates 3. Safety and the safe use of the equipment 4. CNC Lathe 5. Path definition and creating Paths 6. Program and canned cycles 7. Editing and loading from the floppy drive 8. Programming the first part 9. Programming Part #2 10. Programming Part #3 11. Introduction to the CNC Vertical Machining Center 12. Introduction to G codes and auxiliary codes 13. Load the program and preview it 14. Program Part #1 15. Program Part #2 16. Program Part #3 LABORATORIES: 1. Cartesian Coordinate exercises 2. Demonstrations in Safety and the safe use of the equipment 3. Operate a CNC Lathe 4. Demonstration and exercises in Path definition and creating Paths 5. Program canned cycles and demonstrate their use 6. Editing and loading from the floppy drive 7. Programming Part #1 in MDI 8. Programming Part #2 in MDI 9. Programming Part #3 in MDI 10. Operating the CNC Vertical Machining Center 11. Demonstration of G codes and auxiliary codes 12. Load programs and preview them 13. Runoff Part #1 14. Runoff Part #2 15. Runoff Part #3
Outcomes: Describe measurable skills or knowledge that students should be able to demonstrate as evidence that they have mastered the course content.	Upon successful completion of this course, the student will be able to do the following: 1. Demonstrate and understanding of the Cartesian coordinate system as it relates to a CNC lathe and a CNC milling machine 2. Demonstrate safe use of the CNC equipment 3. Setup and operate a two axis CNC lathe 4. Setup and operate a three axis CNC vertical machining center 5. Program simple parts for a CNC lathe using a conversational control 6. Program simple parts in G code language for a CNC vertical machining center
	PROGRAM: *Electronics Technology Certificate and A.S. Degree* 1. Demonstrate an understanding of Shop Safety.

	2. Demonstrate an understanding the theory of electrical structure, voltage, current, resistance, and electrical circuit and their measurement. 3. Demonstrate an understanding of the basic laws of arithmetic. 4. Demonstrate an understanding of several number systems and codes that are the foundation of digital theory and digital applications. 5. Make comparisons with personal computers; as well as, develop an understanding of its origin and growth since conception. 6. Demonstrate an understanding of the fundamentals of Automated Manufacturing systems.
	GENERAL EDUCATION: *(Numbering reflects General Education Outcomes as they appear in the college catalog)* No General Education outcomes.
Evaluation: List how the above outcomes will be assessed.	Assessment will be based on the following criteria: 1. Quizzes 2. Lab Projects
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.	Required: Manufacturing lab with CNC machines and accessories. Desired: None
Textbook(s)	None