COURSE SYLLABUS

Tunxis Community College

Education That Works For a Lifetime

Course Title:	Pneumatics and Hydraulics	Date submitted:	4/30/2018 (18-45)
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*158
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:	2
Contact Hours: Clinical:	0
Contact Hours: Lab:	2
Contact Hours: Studio	0
Contact Hours: Other:	0
Contact Hours: TOTAL:	4
Class Maximum:	24
Semesters Offered:	Fall, Spring

Prerequisites:

Successful completion of the Electronics Technology Certificate or permission of the director of Manufacturing Technology.

Corequisites:

None

Other Requirements:

None

Ability Based Education (ABE) Statement

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.

Catalog Course Description:

Pneumatics and Hydraulics is a study of the principles, concepts and equipment used in the field of pneumatics and hydraulics. Course emphasis is placed upon systems design, applications, and maintenance and repair. The following concepts are reviewed in this course: Fluid power principles, fluid power cylinders, control valves [3 & 4 and 4 & 5 way], fluid power pumps, and other fluid power components.

Topical Outline:
List course content in outline format.

[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.]

1. Fluid Power Principles
2. Fluid Power Cylinders
3. Control Valves 3 and 4 Way
4. Control Valves 4 and 5 Way
5. Fluid Power Pumps
6. Other Fluid Power Components
7. Design Calculations
8. Troubleshooting Procedures

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:

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.)

1. Demonstrate an understanding of fluid power system(s).
2. Demonstrate an understanding of the role the cylinder performs in a fluid power system.
3. Demonstrate an understanding of the role 2-way and 3-way control valves perform in a fluid power system.
4. Demonstrate an understanding of the role 4-way and 5-way control valves perform in a fluid power system.
5. Demonstrate and understanding of the role that air and hydraulic pumps perform in a fluid power system.
6. Demonstrate an understanding of the roles performed by auxiliary equipment (such as, air processors, air line filters, air pressure regulator, air line lubricators, air dryers, hydraulics power units, hydraulic reservoir and pump strainer) in a fluid power system.
7. Demonstrate the understanding necessary to make calculations for plumbing sizes, power input, accumulator, and heat exchanger capacity.
8. Demonstrate the ability to troubleshoot hydraulic and pneumatic systems.

PROGRAM: *Manufacturing Electro-Mechanical Maintenance Certificate and A.S. Degree*

[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.]

1. Demonstrate an understanding of Shop Safety.

2. Demonstrate an understanding industrial manufacturing machinery and equipment.

3. Demonstrate an understanding of ndustrial machine maintence.

4. Demonstrate an ability to troubleshoot industrial machinery.

5. Demonstrate and ability to repair industrial machinery.

GENERAL EDUCATION: *(Numbering reflects General Education Outcomes as they appear in the college catalog)*

[Select the General Education Abilities from the listing below.]

	No General Education outcomes.
Evaluation: List how the above outcomes will be assessed.	Assessment will be based on the following criteria: 1. Tests and quizzes
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/Mechanical lab with pneumatic and hydraulic equipment. Desired:
Textbook(s)	Industrial Fluid Power – Prepared by Charles S. Hedges Published by Womaak Educational Publications, Department of WomackMachine Supply Co., latest edition