COURSE SYLLABUS

Tunxis Community College

Education That Works For a Lifetime

Course Title:	Manufacturing Machinery – Drill Press and Saw	**Date submitted:**	9/25/14 (AAC:14-110)
Department:	Business and 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*151
Course Type:	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

Elective Type:	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

Credit Hours:	1
Developmental: (yes/no)	N0
Contact Hours: Lecture:	1
Clinical:	0
Lab:	1
Studio	0
Other:	0
TOTAL:	2
Class Maximum:	24
Semesters Offered:	F/Sp/Su

Prerequisites:

None

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:

Provides an introduction on Sawing and Drilling Machines. Topics covered include, Use of cutoff saws, use of drill presses, using the vertical band saw, drilling tools, countersinking, reaming and counterboring.

Topical Outline: List course content in outline format.

A. Sawing Machines
   1. Types of sawing machines
   2. Advantages of band machines
   3. Types of band machines
   4. Applications of the vertical band machine

5. Vertical band machine safety

B. The use of Reciprocating and horizontal bank cutoff machines
1. Saw blade terminology
2. Selecting a blade
3. Identify major parts of the reciprocating and horizontal band machines
4. Properly install blades on reciprocating and horizontal band machines
5. Proper use of reciprocating and horizontal band machines
6. Sawing problems on the horizontal band machine

C. Abrasive and Cold Saws
1. Identify abrasive and cold saws
2. Composition of abrasive saw wheels
3. Selecting abrasive saws
4. Quality of abrasive saw cuts
5. Abrasive saw feed rates
6. Operating the abrasive sawing machine
7. Cold saw blades

D. Preparing to use the vertical band machine
1. Welding band saw blades
2. Problems in band welding
3. Installing an adjusting band guides on the vertical band machine
4. Installing and adjusting the band on the vertical band machine

E. Using the vertical band machine
1. Selecting a blade for the vertical band machine
2. Using the job selector on the vertical band machine
3. Setting saw velocity on the vertical band machine
4. Setting speed ranges
5. Cutting fluids
6. Contour cutting on the vertical band machine

F. The Drill Press
1. Identification the different types of drill presses
2. Identification of major parts of the sensitive drill press
3. Identification of the major parts of the radial arm drill press

G. Drilling tools
1. Identify the various features of the twist drill
2. Identify the various types of twist drills
3. The accuracy of twist drills

H. Hand grinding of drills
1. Basics of hand grinding
2. Drill grinding procedure

3. Using the drill gage

I. Operating drilling machines
1. Determining cutting speeds and feeds
2. Learn chip formation and characteristics
3. Effect of cutting fluids
4. Various drilling procedures
5. Work holding devices

J. Counterboring and Countersinking
1. Identify tools for counterboring and countersinking
2. Selecting speeds and feeds for counterboring and countersinking

K. Reaming in the drill press
1. Identify commonly used reamers
2. Determine appropriate amounts of stock allowance
3. Identify probable solutions to reaming problems

LABORATORIES:

A. Use of Sawing Machines
1. Applications of the vertical band machine
2. Vertical band machine safety

B. The use of Reciprocating and horizontal bank cutoff machines
1. Selecting a blade
2. Identify major parts of the reciprocating and horizontal band machines
3. Properly install blades on reciprocating and horizontal band machines
4. Proper use of reciprocating and horizontal band machines
5. Sawing problems on the horizontal band machine

C. Using Abrasive and Cold Saws
1. Operate the abrasive sawing machine
2. Composition of abrasive saw wheels
3. Select and use abrasive saws
4. Identify quality of abrasive saw cuts
5. Use of Abrasive saw feed rates
6. Use Cold saw blades

D. Preparing to use the vertical band machine
1. Welding band saw blades
2. Problems in band welding
3. Install and adjust band guides on the vertical band machine
4. Install and adjust the band on the vertical band machine

E. Use the vertical band machine
   1. Selecting a blade for the vertical band machine
   2. Using the job selector on the vertical band machine
   3. Setting saw velocity on the vertical band machine
   4. Setting speed ranges
   5. Cutting fluids
   6. Contour cutting on the vertical band machine

F. Use drilling tools
   1. Measure the accuracy of twist drills
   2. Use twist drills

G. Hand grind drills
   1. Use the basics of hand grinding
   2. Follow the drill grinding procedure
   3. Use the drill gage

H. Operate drilling machines
   1. Determine cutting speeds and feeds and use in applications
   2. Experiment with chip formation
   3. Determine the effect of cutting fluids on various drilling operations
   4. Use various drilling procedures
   5. Setup and use various work holding devices

I. Use counterbores and countersinks
   1. Select and use counterbores and countersinks
   2. Select and use speeds and feeds for counterboring and countersinking

J. Ream with the drill press
   1. Identify, select and use common reamers
   2. Identify probable solutions to reaming problems

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. Setup and operate a horizontal band saw
2. Setup and operate a vertical band saw
3. Setup and operate a drill press
4. Grind drills using the pedestal grinder
5. Drill, counterbore, ream, and countersink using the drill press

PROGRAM: *(Numbering reflects Program Outcomes as they appear in the college catalog)*

2. utilize the tools, materials, techniques, and technical processes of engineering and technology when solving technical problems

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.
	GENERAL EDUCATION: *(Numbering reflects General Education Outcomes as they appear in the college catalog)* None
Evaluation: List how the above outcomes will be assessed.	**Assessment will be based on the following criteria:** Quizzes Exams Assignments Laboratory Assignments
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:** [No special facilities are required. Or list what is required.] Cut Off Saw Verical Band Saw Drill Press Drilling Tools **Desired:**
Textbook(s)	Check with department chair for list of approved texts.