COURSE SYLLABUS

Tunxis Community College

Education That Works For a Lifetime

Course Title:	Blueprint Reading I	**Date submitted:**	04/30/18 (18-26)
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*124
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:	2
Developmental: (yes/no)	No
Contact Hours: Lecture:	1
Clinical:	0
Lab:	1
Studio	0
Other:	0
TOTAL:	2
Class Maximum:	30
Semesters Offered:	Fall, Spring

Prerequisites:

None

Corequisites:

None

Other Requirements:

None

Catalog Course Description:

An initial course in Blueprint Reading. The study of orthographic projection. Topics include, lines and their uses, auxiliary views, sectional views, basic and special dimensioning, dimensioning practices for holes, chamfers, angle, tapers, keyways diameters, radii, and geometric tolerancing.

Topical Outline: List course content in outline format.

INSTRUCTIONAL UNITS:
1. Family of Lines
   A. Object lines

B. Hidden lines
C. Centerlines
D. Phantom lines
E. Dimension lines
F. Extension lines
G. Leaders
H. Break lines
I. Section lines
J. Cutting plane lines
K. Screw threads

2. Principles of Orthographic Projection
A. Multi-view projection
B. Third-angle projection
C. First –angle projection
D. View alignment
E. Principal views
F. Developing orthographic views

3. Auxiliary views
A. Single auxiliary view
B. Double auxiliary views

4. Sectional views
A. Full sections
B. Half sections
C. Broken-out or Partial sections
D. Removed or Detail sections
E. Rotated or Revolved sections
F. Auxiliary sections
G. Assembly sections
H. Offset sections
I. Angular sections
J. Sectioning Rules
K. Sectional symbols

5. Dimensioning plans
A. In-Line dimensioning
B. Base-Line dimensioning
C. Dimensioning systems
D. Drawing to scale

6. Special Dimensions
A. Diameters in profile
B. Radii
C. Angles and chamfers
D. Limits, Tolerances, and Allowances
E. Holes and Threads
F. Thread notation
G. Unified screw thread standards
H. Tapers and keyways

7. Dimensioning practices
A. Holes, chamfers, angles
B. Schematic and simplified hole presentations
C. Tapers and keyways
D. Diameters and radii

8. Geometric dimensioning and tolerancing and surface texture
   A. Tolerancing
   B. Geometric dimensioning and tolerancing
   C. Applying positional tolerances
   D. Inspecting positionally toleranced holes
   E. Surface texture

LABORATORIES:

1. Using the Family of Lines
   A. Object lines
   B. Hidden lines
   C. Centerlines
   D. Phantom lines
   E. Dimension lines
   F. Extension lines
   G. Leaders
   H. Break lines
   I. Section lines
   J. Cutting plane lines
   K. Screw threads

2. Using the Principles of Orthographic Projection
   A. Examples in the use of Multi-view projection
   B. Examples in the use of Third-angle projection
   C. Examples in the use of First –angle projection
   D. Examples in the use of View alignment
   E. Examples in the use of Principal views
   F. Developing orthographic views

3. Use of Auxiliary views
   A. Using Single auxiliary view
   B. Using Double auxiliary views

4. Use of Sectional views
   A. Examples in the use of Full sections
   B. Examples in the use of Half sections
   C. Examples in the use of Broken-out or Partial sections
   D. Examples in the use of Removed or Detail sections
   E. Examples in the use of Rotated or Revolved sections
   F. Examples in the use of Auxiliary sections
   G. Examples in the use of Assembly sections
   H. Examples in the use of Offset sections
   I. Examples in the use of Angular sections
   J. Examples in the use of Sectioning Rules
   K. Examples in the use of Sectional symbols

5. Use of Dimensioning plans
   A. Using In-Line dimensioning
   B. Using Base-Line dimensioning
   C. Using Dimensioning systems
   D. Using Drawing to scale

6. Create drawings using Special Dimensions
   A. Using Diameters in profile
   B. Using Radii dimensioning
   C. Using Angles and chamfers
   D. Using Limits, Tolerances, and Allowances
   E. Using Holes and Threads

F. Using Thread notation
G. Using Unified screw thread standards
H. Using Tapers and keyways

7. Using Dimensioning practices
   A. Applications in the use of dimensioning of Holes, chamfers, angles
   B. Applications in the use of dimensioning of Schematic and simplified hole presentations
   C. Applications in the use of dimensioning of Tapers and keyways
   D. Applications in the use of dimensioning of Diameters and radii

8. Examples of Geometric dimensioning and tolerancing and surface texture
   A. Examples of Geometric Tolerancing
   B. Examples of Geometric dimensioning and tolerancing
   C. Applying positional tolerances
   D. Inspecting positionally toleranced holes
   E. Examples of Surface texture

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:

1. demonstrate the ability to understand lines and their uses in orthographic projections
2. demonstrate the ability to understand auxiliary and sectional views
3. read and use dimensioning on drawings
4. demonstrate the ability to understand geometric dimensioning and tolerancing and surface texture requirements.

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

Advanced Manufacturing Machine Technology Certificate & A.S.

1. demonstrate an understanding of Shop Safety
2. demonstrate an understanding of Blueprint Reading and its application in Machine Technology
3. demonstrate an understanding of Precision Layout Procedures
4. demonstrate an understanding of tool geometry for lathe cutting tools
5. demonstrate an understanding of the use and selection of different cutting tools and cutter holders for the Vertical Milling Machine
6. demonstrate an understanding of CNC Programming
7. solve oblique triangle problems using the Law of Sines
8. demonstrate an understanding of Quality Control Tools & Systems and their applications
9. demonstrate an ability to determine the acceptability of manufactured parts based on GDT requirements

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:
lab projects
quizzes
exams

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 **Desired:** None
Textbook(s)	Print Reading for Industry Walter C. Brown and Ryan K. Brown Goodheart-Wilcox, latest edition.