Course # ENGR1304

TRINITY VALLEY COMMUNITY COLLEGE
ADMINISTRATIVE-MASTER SYLLABUS

The Administrative- Master Syllabus is an administrative tool; it is **not intended to be distributed to students.** It is the intention of this Administrative-Master Syllabus to provide a general description of the course, outline the required elements of the course and to lay the foundation for course assessment for the improvement of student learning, as specified by the faculty of TVCC, regardless of who teaches the course, the timeframe by which it is instructed, or the instructional method by which the course is delivered. It is not intended to restrict the manner by which an individual faculty member teaches the course but to be an administrative tool to aid in the improvement of instruction. The Administrative-Master Syllabus will demonstrate that there is consistency and comparability in course offerings.

Course Title

Engineering Graphics 1

Course Prefix and Number

ENGR 1304

Department – Division

Drafting – Vocational/Technical

Course Type – select from one of the following categories.

☒ - **Academic General Education Course** (from ACGM – but not in TVCC Core)

☐ - **Academic TVCC Core Course**

☐ - **WECM Courses**

Semester Credit Hours: Lecture Hours: Lab/other hours

Semester Credit Hours	Lecture Hours	Lab/Other* Hours
3	2	4

Other hours include practicum, clinical or other types of non-lecture instruction. *If other, please specify: _____

Course Catalog Description

Introduction to the principles of drafting to include terminology and fundamentals, including size and shape descriptions, projection methods, geometric construction, sections, auxiliary views, and reproduction processes. The student will demonstrate an understanding of geometric construction, various view selections, and principles of working drawings. The student will demonstrate
competency in drafting principles in plane geometry, technical sketching, orthographic projection theory and practice, auxiliary views and competency in sectioning, dimensioning, and tolerancing.

Prerequisites/co requisites

NONE

Topical Outline

1) Introduction
   a) The graphic language
      i) World language
      ii) Universal language
   b) Types of drawing
      i) Artistic
      ii) Technical
2) Lettering
   a) Origin of letter forms
   b) Letter styles
      i) Classification
         (1) Vertical
         (2) Inclined
      ii) Single-stroke
3) Geometrical Construction
   a) Use of drafting equipment
      i) Compass
      ii) Dividers
      iii) Architect scale
      iv) Engineering scale
      v) 30-60 and 45 triangles
      vi) "T'-square an board
      vii)Ames lettering instrument
      viii) Irregular curve
      ix) Erasing shield
      x) Drafting tape
4) Sketching
   a) Technical sketching
      i) Sketching materials

b) Types of sketches
    i) Multi-view
    ii) Axonometric
    iii) Oblique
c) Scale

5) Multi-view projection
a) Theory of multi-view projection
    i) Projection of six views
        (1) Front view
        (2) Top view
        (3) Bottom view
        (4) Right side view
    ii) Transferring dimensions
        (1) Depth
        (2) Width
        (3) Height
    iii) Alternate position of views
    iv) Other types of views
        (1) Partial views
        (2) Revolution conventions
        (3) Removed views
    v) Surfaces and edges of planes
        (1) Normal surfaces and edges
        (2) Inclines surfaces and edges
        (3) Oblique surfaces and edges
        (4) Parallel edges
        (5) Angles
        (6) Curved surfaces
    vi) Intersections and tangencies

6) Sectional views
a) Cutting planes, conventions, and symbols
b) Types of sections
    i) Full
    ii) Half
    iii) Broken-out
    iv) Revolved
    v) Removed
    vi) Offset
    vii) Aligned

7) Dimensioning
a) Lines used in dimensioning
    i) Dimension line
    ii) Extension line
    iii) Center line
    iv) Leaders
    v) Arrowheads
b) Direction of dimension figures

i) Undirectional
ii) Aligned

c) Placement and method of dimensioning
i) Angles
ii) Arcs
iii) Fillets and rounds
iv) Finish marks
v) Contour dimensions
vi) Prisms
vii) Holes
viii) Location dimensions
ix) Mating dimensions
x) Notes
xi) Threads
xii) Tapers
xiii) Chamfers
xiv) Keyways
xv) Curved surfaces

d) Rules of dimensioning

8) Working Drawings
a) Dimensions and Units
b) Layout
c) Notes and other information
d) Assembly drawings

Course Learning Outcomes

Upon completion of this course, the student will be able to:

1) Demonstrate an understanding of the function of drafting in engineering design and the function of the drafter in this process.
2) Identify and describe the function of the various types of equipment used in manual drafting.
3) Demonstrate an understanding of the basic skills used in drafting.
4) Exhibit a reasonable level of skill for a beginning student.
5) Demonstrate an understanding of the construction techniques used and geometric element definitions presented.
6) Have a working knowledge of nominal dimensioning practices.
7) Demonstrate a competent knowledge of construction, identification, and labeling of primary, auxiliary, and section views.
8) Produce effective drawings based on standards and conventional practices that describe an object's geometry in an unambiguous manner, while avoiding repetitive or excessive detail.

Relationship to General Education Outcomes – In addition to the core competencies, Trinity Valley Community College has established ten general education goals which specify knowledge and skills that students should gain from completing courses in the various component areas of the core curriculum. Information regarding curriculum and assessment as a means for the improvement of student learning through the general education component. (Select all that apply.)

Mark with an "X"	General Education Outcome
	A. To communicate clearly and effectively in both oral and written English.
	B. To improve reading skills focused on comprehending, analyzing, interpreting, and evaluating printed materials.
	C. To understand mathematical information and utilize mathematical skills.
X	D. To demonstrate qualitative and quantitative critical thinking skills.
	E. To understand and appreciate cultural and ethnic diversity.
	F. To utilize computer based technology in accessing information, solving problems, and communicating.
	G. To recognize and evaluate artistic achievements in the visual and performing arts.
	H. To improve basic understanding of political, economic, and social systems.
	I. To demonstrate knowledge of the physical universe and living systems.
	J. To develop skills and strategies to become an engaged learner.

Required Text(s)

Graphics Technology, Second Edition
James H. Earle - Texas A&M University
Pearson/Prentice Hall
ISBN: 0-13-147643-2

Optional Text(s)

NONE

Material/Technology to be supplied by the student.

NONE

Course Requirements/Grading System – describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course; not intended to restrict the individual nature by which each faculty member who teaches the course determines course requirements and final student performance, but should offer consistency within reason for all sections taught for those departments without a standardized format.

Assignments will be made from the workbook at various points throughout each chapter. A final project will be assigned and final exam will be given. Your grade will be computed as follows:

Lab Assignments	70%
Final Project	20%
Final Exam	10%
	100%

Approvals – the contents of this document have been reviewed and are found to be accurate.

Prepared by	Signature	Date
Department Head	Signature	Date
Division Chair	Signature	Date
Vice President	Signature	Date