



**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 2 (*Descriptive Geometry*)

Course Prefix and Number

ENGR 1305

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

Examination of the graphical solution to problems involving points, lines, and planes in space. The student will demonstrate the ability to visualize spatial relationships; exhibit good engineering form by being neat in work and accurate in solutions; develop sequential thinking; set patterns of analysis; and spatial visualization through problem-solving. The student will analyze and graphically solve problems which may be difficult to solve mathematically.

Prerequisites/co requisites

ENGR 1304 Engineering Graphics 1

Topical Outline

- 1) Introduction
 - a) The fundamental principles of descriptive geometry
 - b) Notation
 - c) Coordinates for a point
 - d) Terminology for lines
- 2) Principle views
 - a) Methods of graphical representation
 - i) Orthographic drawing
 - ii) Arrangement of views
 - iii) Orthographic dimensions
 - iv) Frontal reference plane
 - b) Typical position of a plane
 - c) Typical directions of a line
 - d) The visualization of a line
 - e) The bearing and slope of a line
 - f) Points on a line
 - g) The determination of visibility
 - h) Rule for visibility
- 3) Auxiliary views
 - a) Introduction
 - i) Auxiliary views
 - ii) Horizontal reference plane
 - b) Primary auxiliary views
 - i) Auxiliary elevations
 - ii) Orientation
 - c) Secondary auxiliary views
 - i) Right-auxiliary and left-auxiliary views
 - ii) Orientation
 - iii) Frontal reference plane
- 4) Oblique views
 - a) Introduction

- b) Orientation
- c) Normal view of a line
- d) End view of a line
- e) Angle between a line and a principle plane
- f) Parallel lines
- g) Perpendicular lines
- 5) Line and plane problems
 - a) Planes
 - i) The strike
 - ii) The dip
 - b) The visualization of a plane
 - i) The strike and dip of a oblique plane
 - ii) Location of a line in a plane
 - iii) Location of a point in a plane
 - iv) Location of a point and a line in a plane, given by a strike and dip
 - v) The principle lines of a plane
 - vi) An edge view of a plane
- 6) Surfaces and developments
 - a) Classes of surfaces
 - i) Plane surfaces
 - ii) Surfaces of revolution
 - iii) Sections of surfaces of revolution
 - (1) Right
 - (2) Meridian section
 - b) Warped surfaces
- 7) Development of surfaces
 - i) Prisms
 - ii) Pyramids
 - iii) Cylinders
 - iv) Cones
 - v) Transition pieces
 - vi) Elbows
 - vii) The helix
 - viii) The convolute
 - ix) Double-curved surfaces
- 8) Surfaces and intersections
 - a) The methods of finding the intersection of surfaces
 - i) The edge view method
 - ii) The piercing point method
 - iii) The cutting plane method
- 9) Geology and mining problems
 - a) Definitions
 - i) Strike
 - ii) Dip
 - iii) The outcrop
 - iv) A fault
 - v) Striae

- vi) A shaft
- vii) An incline
- viii) A tunnel
- b) Apparent dip
- c) Cuts, fills, and mine dumps

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 and practical proficiency in discovering the position of points and lines in space.
- 6) Demonstrate an understanding and practical proficiency in the use of primary and secondary auxiliary views.
- 7) Demonstrate an understanding and practical proficiency in revolving (revolution) objects to show their true size and shape.
- 8) Demonstrate an understanding and practical proficiency in determining the visibility of intersecting and nonintersecting lines.
- 9) Demonstrate an understanding and practical proficiency in determining the true size and shape of planes and their visibility.
- 10) Demonstrate an understanding and practical proficiency in discovering piercing points and the intersection of planes.

<p>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.)</p>
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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 following each lecture. A final exam will be given. Your grade will be computed as follows:

Lab Assignments	90%
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