



**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

Process Pipe Drafting

Course Prefix and Number

DFTG 2423

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 |
|-----------------------|---------------|------------------|
| 4 | 3 | 3 |

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

Course Catalog Description

A study of pipe fittings, symbols, specifications and their applications to a piping process system. This application will be demonstrated through the creation of symbols and their usage in flow diagrams, plans, elevations, and isometrics. The student will demonstrate a knowledge of intermediate math skills; foundations, structural steel supports, and process equipment; Instrument Society of America (I.S.A.) symbology; and researching specifications. The student will complete a bill of material list and use charts and standards; visualize views in three-dimension; solve intermediate math problems; draw manually or by computer, follow specifications; and calculate measurements for screwed, socket-weld, and butt-weld piping using trigonometric applications.

Prerequisites/co requisites

DFTG 1309 Basic Computer Aided Drafting
ENGR 1304 Engineering Graphics 1

Topical Outline

- 1) Introduction to Pipe Drafting
 - a) Types of projects
 - b) Types of companies
 - c) Technical skills
 - d) Personal Skills
- 2) Steel Pipe
 - a) History
 - b) Materials
 - c) Manufacturing Methods
 - d) Sizing of Pipe
- 3) Pipe Fittings
 - a) Elbows
 - i) 90° Elbows
 - ii) 45° Elbows
 - b) Tee
 - i) Weld Tee
 - ii) Stub-in
 - c) Coupling
 - d) Reducer
 - e) Weld Cap
 - f) Use of Fittings
 - g) Screwed and socket-weld fittings
 - h) Pipe nipples
 - i) Flanged Fittings
- 4) Flange Basics
 - a) Faces

- b) Ratings
- c) Types
- d) Bolts
- e) Gaskets
- 5) Valves
 - a) Common valves
 - b) Valve operators
- 6) Mechanical Equipment
 - a) Types
 - b) Uses
 - c) Terminology
- 7) Piping Isometrics
 - a) Drawing
 - b) Dimensioning
- 8) Pipe Drawings
 - a) Arrangement drawings
 - b) Sections
 - c) Elevations
 - d) Piping Details
- 9) Three-dimensional Modeling of Pipe
 - a) Automatic drawings from models
 - b) Automatic Isometrics from models

Course Learning Outcomes

Create drawings of foundations, structural steel supports, and process equipment; symbology and research specifications; recognize and generate a bill of material list and use charts and standards; visualize views in three-dimension; follow specifications; and calculate measurements for pipe fittings using trigonometric applications.

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

- 1) Understand industrial pipe drafting and drafting department practices
- 2) Select the proper standard connections.
- 3) Name and define pipe drafting terms and equipment.
- 4) Demonstrate an understanding and practical proficiency in the use of piping symbols.
- 5) Be familiar with piping processes and equipment
- 6) Be familiar with pipe standards, data, terms, and abbreviations
- 7) Demonstrate an understanding of pipe fittings and practical proficiency in drawing and detailing pipe and pipe fittings
- 8) Demonstrate an understanding of the methods of joining pipe, pipe fittings, and valves
- 9) Be familiar with pumps, tanks, and miscellaneous equipment
- 10) Demonstrate an understanding of piping isometric drawing and practical proficiency in drawing and detailing piping isometrics

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. |
| X | 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)

Pipe Drafting and Design, Second Edition
 Roy Parisher, Robert Rhea
 Gulf Professional Publishing
 ISBN: 0-7506-7439-3

Optional Text(s)

NONE

Material/Technology to be supplied by the student.

Optional USB Flash drive for back ups

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.

Lab 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 | 80% |
| Final Project | 10% |
| Final Exam | <u>10%</u> |
| | 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 |