



**Course Information**

<b>Course Title</b>	Pipe Drafting
<b>Course Prefix, Num. and Title</b>	DFTG2423: Pipe Drafting
<b>Division</b>	Technology & Business
<b>Department</b>	Engineering Design
<b>Course Type</b>	WECM Course
<b>Course Catalog Description</b>	A study of pipe fittings, symbols, specifications and their applications to a piping process system. Creation of symbols and their usage in flow diagrams, plans, elevations, and isometrics.
<b>Pre-Requisites</b>	DFTG2319 & MATH1316
<b>Co-Requisites</b>	None

**Semester Credit Hours**

<b>Total Semester Credit Hours (SCH): Lecture Hours:</b>	4:3:3
<b>Lab/Other Hours</b>	
<b>Equated Pay Hours</b>	4.5
<b>Lab/Other Hours Breakdown: Lab Hours</b>	3
<b>Lab/Other Hours Breakdown: Clinical Hours</b>	Enter Clinical Hours Here.
<b>Lab/Other Hours Breakdown: Practicum Hours</b>	Enter Practicum Hours Here.
<b>Other Hours Breakdown</b>	List Total Lab/Other Hours Here.

**Approval Signatures**

<b>Title</b>	<b>Signature</b>	<b>Date</b>
<b>Prepared by:</b>		
<b>Department Head:</b>		
<b>Division Chair:</b>		
<b>Dean/VPI:</b>		
<b>Approved by CIR:</b>		

## Additional Course Information

**Topical Outline:** Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, and clinical or other non-lecture instruction).

Pipe Fittings including manufacturing, joining processes and calculating fitting make-up - identify fittings and describe their uses in pipe runs

Flange Basics - identify types and describe their uses in pipe runs

Valves and Mechanical Equipment in the Piping System - identify types and describe applications as throttling and non-throttling

Flow Diagrams, Instrumentation, Codes and Specifications including Abbreviations - identify abbreviations and read diagrams to determine the fittings, flanges, valves, etc needed to complete pipe run

Equipment Layout - create drawing using plant coordinates to place equipment; label per drafting standards

Read and draw Plan and Elevation Drawings - using specifications and existing data, read drawing to calculate pipe lengths, create drawings looking from above and vertically from all directions

Standard Piping Details - create drawing of steam traps, pipe supports, pipe anchors, that are used repeatedly through a plant

Piping Isometrics - 3D representation of a pipe run, fully dimension to enable pipe fitters to assemble pipes from various equipment

Offsets and Rolling Offsets - calculated dimensions for pipe that makes a change in direction and a change in elevation at the same location classroom Learning Experience.

### Course Learning Outcomes:

#### **Learning Outcomes – Upon successful completion of this course, students will:**

Create drawings of foundations, structural supports, and process equipment;

Identify symbols and research specifications;

Generate a bill of material list;

Use charts and standards; And Calculate measurements for pipe fittings

Generate isometric drawings;

#### **Methods of Assessment:**

A lab exercise that incorporates:

Battery Limits

Foundations located correctly through coordinates

Labeling of arrangement drawing

Reproduction of vertical horizontal vessels including nozzles

Plotted to scale

Daily quizzes to memorize symbols, abbreviations and call-outs; Daily quizzes locating information in specifications and P&ID's

PDCAD205-206 Generate BOM and calculate lengths

Daily assignment: Students are to calculate FMU using charts located in appendix – Exercise 5-3 and 3-7;

Daily assignment: Students must draw correct run of pipe, label coordinates, label run of pipe, flow arrows, valves and any important information

The above assignments will be evaluated using the ED Program Rubric.

### **Required text(s), optional text(s) and/or materials to be supplied by the student:**

Pipe Drafting and Design, Latest edition by Roy A. Parisher & Robert A. Rhea or similar.

A flash drive is required for archiving data files

Note book to store notes and drawings.

Manual drafting tools.

## Suggested Course Maximum:

20

## List any specific or physical requirements beyond a typical classroom required to teach the course.

Drafting Table and Manual drafting tools.

Computers with CAD 2D and 3D software.

Plotters capable of printing 34" x 44" drawings.

**Course Requirements/Grading System:** Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course.

Daily Drawings/Lab Work	– 20%
Daily Quizzes identifying terms pertaining to pipe drafting	– 20%
Four to Five Major Exams/Drawings to show mastery of topics	– 30%
Research Paper	– 10%
Final Design Project	– 20%

Based on the above breakdown, grades will be awarded as prescribed by Wharton County Junior College Standards

90 - 100 = A;

80 - 89 = B

70 - 79 = C;

60 - 69 = D

Below 60 = F

Note: A letter grade of "C" or above average must be achieved in all degree specific classes to attain graduation.

## Curriculum Checklist:

- Administrative General Education Course** (from ACGM, but not in WCJC Core) – No additional documents needed.
- Administrative WCJC Core Course.** Attach the Core Curriculum Review Forms
  - Critical Thinking
  - Communication
  - Empirical & Quantitative Skills
  - Teamwork
  - Social Responsibility
  - Personal Responsibility
- WECM Course** -If needed, revise the Program SCANS Matrix and Competencies Checklist