

COURSE SYLLABUS

DFTG 2323 (3:2:4)

<b>PIPE DRAFTING</b>
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Computer Aided Drafting & Design

Industrial Technology Department

Technical Education Division

Levelland Campus

SOUTH PLAINS COLLEGE

Spring 2018

## SCANS COMPETENCIES

### **RESOURCES: Identifies, organizes, plans and allocates resources.**

- C-1 **TIME**--Selects goal--relevant activities, ranks them, allocates time, and prepares and follows schedules.
- C-2 **MONEY**--Uses or prepares budgets, makes forecasts, keeps records, and makes adjustments to meet objectives
- C-3 **MATERIALS & FACILITIES**--Acquires, stores, allocates, and uses materials or space efficiently.
- C-4 **HUMAN RESOURCES**--Assesses skills and distributes work accordingly, evaluates performances and provides feedback.

### **INFORMATION--Acquires and Uses Information**

- C-5 Acquires and evaluates information.
- C-6 Organizes and maintains information.
- C-7 Interprets and communicates information.
- C-8 Uses computers to Process information.

### **INTERPERSONAL--Works With Others**

- C-9 Participates as members of a team and contributes to group effort.
- C-10 Teaches others new skills.
- C-11 Serves clients/customers--works to satisfy customer's expectations.
- C-12 Exercises leadership--communicates ideas to justify position, persuades and convinces others, responsibly challenges existing procedures and policies.
- C-13 Negotiates--Works toward agreements involving exchanges of resources resolves divergent interests.
- C-14 Works with Diversity--Works well with men and women from diverse backgrounds.

### **SYSTEMS--Understands Complex Interrelationships**

- C-15 Understands Systems--Knows how social, organizational, and technological systems work and operates effectively with them
- C-16 Monitors and Correct Performance--Distinguishes trends, predicts impacts on system operations, diagnoses systems' performance and corrects malfunctions.
- C-17 Improves or Designs Systems--Suggests modifications to existing systems and develops new or alternative systems to improve performance.

### **TECHNOLOGY--Works with a variety of technologies**

- C-18 Selects Technology--Chooses procedures, tools, or equipment including computers and related technologies.
- C-19 Applies Technology to Task--Understands overall intent and proper procedures for setup and operation of equipment.
- C-20 Maintains and Troubleshoots Equipment--Prevents, identifies, or solves problems with equipment, including computers and other technologies.

## FOUNDATION SKILLS

### **BASIC SKILLS--Reads, writes, performs arithmetic and mathematical operations, listens and speaks**

- F-1 Reading--Locates, understands, and interprets written information in prose and in documents such as manuals, graphs, and schedules.
- F-2 Writing--Communicates thoughts, ideas, information and messages in writing, and creates documents such as letters, directions, manuals, reports, graphs, and flow charts.
- F-3 Arithmetic--Performs basic computations; uses basic numerical concepts such as whole numbers, etc.
- F-4 Mathematics--Approaches practical problems by choosing appropriately from a variety of mathematical techniques.
- F-5 Listening--Receives, attends to, interprets, and responds to verbal messages and other cues.
- F-6 Speaking--Organizes ideas and communicates orally.

### **THINKING SKILLS--Thinks creatively, makes decisions, solves problems, visualizes, and knows how to learn and reason**

- F-7 Creative Thinking--Generates new ideas.
- F-8 Decision-Making--Specifies goals and constraints, generates alternatives, considers risks, and evaluates and chooses best alternative.
- F-9 Problem Solving--Recognizes problems and devises and implements plan of action.
- F-10 Seeing Things in the Mind's Eye--Organizes and processes symbols, pictures, graphs, objects, and other information.
- F-11 Knowing How to Learn--Uses efficient learning techniques to acquire and apply new knowledge and skills.
- F-12 Reasoning--Discovers a rule or principle underlying the relationship between two or more objects and applies it when solving a problem.

### **PERSONAL QUALITIES--Displays responsibility, self-esteem, sociability, self-management, integrity and honesty**

- F-13 Responsibility--Exerts a high level of effort and preservers towards goal attainment.
- F-14 Self-Esteem--Believes in own self-worth and maintains a positive view of self.
- F-15 Sociability--Demonstrates understanding, friendliness, adaptability, empathy, and politeness in group settings.
- F-16 Self-Management--Assesses self accurately, sets personal goals, monitors progress, and exhibits self-control.
- F-17 Integrity/Honesty--Chooses ethical courses of action.

Levelland Campus

## COURSE SYLLABUS

COURSE TITLE: DFTG 2323: PIPE DRAFTING

INSTRUCTOR: Michael Coler

OFFICE LOCATION Technical Arts Bldg. Room TA205A

PHONE/E-MAIL: (806) 716-2351, mcoler@southplainscollege.edu

OFFICE HOURS: M -TH 10:40-11:00 FRIDAY 8:00-12:00 by appointment

### SOUTH PLAINS COLLEGE IMPROVES EACH STUDENT'S LIFE

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#### I. GENERAL COURSE INFORMATION:

##### A. COURSE DESCRIPTION

Prerequisite: DFTG 1309 or ENGR 1304

This course is a study of ASME standards, pipe and fitting symbols and specifications and their application to a piping process system. The course includes drawing plan views, elevations and isometrics of process piping systems, including flow diagrams, vessels, heat exchangers, pumps, instruments, compressors and other mechanical equipment using symbols, piping standards and engineering graphics practices and procedures.

The scope of Pipe Drafting will be for sixteen weeks, which will include two hours of lecture per week and four hours of laboratory per week, for a total of ninety-six contact hours per semester.

##### B. 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.

## C. COURSE COMPETENCIES

Upon successful completion of this course (as outlined by: lesson & grade criteria and standards for course grades) the student will have accomplished the following skills and abilities:

1. Understand industrial pipe drafting and drafting department practices
2. Demonstrate proficiency in lettering styles used in pipe drafting
3. Understand the alphabet of lines used in pipe drafting
4. Demonstrate an understanding and practical proficiency in the use of piping symbols
5. Demonstrate proficiency in the use of scales (measurement used in pipe drafting)
6. Be familiar with piping processes and equipment
7. Be familiar with pipe standards, data, terms, and abbreviations
8. Demonstrate an understanding of pipe fittings and practical proficiency in drawing and detailing pipe and pipe fittings
9. Demonstrate an understanding of valves and practical proficiency in drawing and detailing valves, pipe, and pipe fittings
10. Demonstrate an understanding of the methods of joining pipe, pipe fittings, and valves
11. Demonstrate an understanding of pipe drawing bill of materials
12. Recognize pumps, tanks, and miscellaneous equipment as illustrated in design plans.
13. Demonstrate an understanding of flow diagrams and instrumentation and practical proficiency in drawing and detailing flow diagrams
14. Demonstrate an understanding of piping isometric drawing and practical proficiency in drawing and detailing piping isometrics
15. Have elementary understanding of piping design practices used in industry.

#### D. ACADEMIC INTEGRITY

It is the aim of the Computer Aided Drafting & Design faculty of South Plains College to foster a spirit of complete honesty and a high standard of integrity. The attempt of any student to present as his or her own work which he or she has not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offender liable to serious consequences, possibly suspension. Students should refer to the SPC General Catalog policy regarding consequences for cheating and plagiarism (see "Academic Integrity" as well as "Student Conduct" sections in the college catalog). At times, working with other students is encouraged for some assignments and meets SCANS competencies C-9 through C-14. If you have a question as to whether you may work with other students on any assignment, ask your instructor.

#### E. SCANS AND FOUNDATION SKILLS

Appropriate competencies and foundation skills set forth by the Secretary's Commission on Achieving Necessary Skills (SCANS) have been integrated into the DFTG 2323, Pipe Drafting course. Specifically, they are C3, C5, C6, C14, C15, C18, F1, F3, F4, F5, F13, and F14.

#### F. VERIFICATION OF WORKPLACE COMPETENCIES

DFTG 2323, Pipe Drafting, is offered in the last phase of the Computer Aided Drafting & Design student's course work. During this phase, a Capstone Learning Experience is provided for students in their last semester to complete degree or certificate program requirements.

### II. SPECIFIC COURSE/INSTRUCTOR REQUIREMENTS

#### A. TEXTBOOK & OTHER MATERIALS

AutoCAD Plant 3d 2018

AuthorSham Tickoo

ISBN: 9781942689898

No other material is required.

## B. ATTENDANCE POLICY

The Technical Graphics Specialist is a professional person working in a business or industrial setting that demands much from its team of employees. For this reason, one who is often tardy or absent from work creates an additional burden for his or her co-workers.

The Computer Aided Drafting & Design program, similar to all the allied engineering professions, requires mature attendance to both lecture sessions and laboratory experiences. Obviously, once missed, a class situation cannot be effectively recreated for students who are not present. Your instructors feel that for a student to succeed, that student must not only be present, but must exercise prudent use of class time. Late or absent members tend to retard the progress of the entire class.

Punctual and regular attendance is required of all students attending South Plains College. **THERE ARE NO EXCUSED ABSENCES.** Students are responsible for all classwork covered during absences from class, even in cases in which they are able to satisfy the instructor that the absence was unavoidable. **ABSOLUTELY NO CLASS TIME WILL BE USED TO UPDATE INFORMATION MISSED DUE TO TARDINESS OR ABSENTEEISM;** the student must arrange an appointment with the instructor at a time that will not conflict with class schedules.

The following is the standard absentee policy for DFTG 2323:

There are two possible absences in a day one for lecture time and one for lab. The student will be allowed six (6) absences or twelve (12) tardies. Four tardies equal one absence. After seven (7) absences have been tallied the course grade will be dropped one letter grade, nine (9) will drop an additional letter grade. Additional absences after 9 can result in student being dropped from the course. (Tardies will be five or more minutes past class start time as shown in the appropriate schedule of classes. Also leaving class without all active assignments completed before the last 15 (fifteen) minutes will also be counted as a tardy). **NOTE: Instructors in the Computer Aided Drafting & Design program have the prerogative to amend the standard absentee policy. However, the instructor must notify each student in writing of the attendance policy change.**

Any student wishing to drop this class should go through the proper procedure of initiating the withdrawal by obtaining a ***drop form*** from the Registrar's Office. This form must be signed by the instructor. This procedure provides the opportunity for counseling with the student by the instructor and determining the reason and justification for withdrawal.

Whenever absences become excessive, an ***Excessive Absence Report*** will be sent to the Dean of Students and, if in the instructor's opinion, minimum course objectives cannot be met due to absences, the student will be withdrawn from the course with the appropriate letter grade X, W, or F.

### C. ASSIGNMENT POLICY

1. All required work must be turned in on time in order for the student to benefit from the corrections and to study for future examinations.
2. All assignments (practical drawing assignments and/or practical drawing test, objective assignments and/or objective test) will be due at *specified times and dates*.
3. Any drawing assignments that are *not* turned in at the specified time and date will immediately receive a grade penalty of 5 points.

### D. GRADING POLICY/PROCEDURE

1. Daily course work (lecture and laboratory experiences) = 50% of the semester grade.
2. Final Exam = 20% of the semester grade. The final examination will be a comprehensive exam comprised of practical skills and objective material.
3. Mid-Term Examination = 10% of the semester grade. The mid-term examination will be a practical skills test and the test grade will be calculated with 100 as the highest grade.
4. Attendance 20%

**D. NOTE: Instructors in the Computer Aided Drafting & Design program have the prerogative to amend the standard assignment and grading policy. However, the instructor must notify each student in writing of changes made to assignment and grading criterion.**

## STANDARDS FOR COURSE GRADES

### A - EXCELLENT

Student can complete ALL tasks within specified clock times and dates with excellent quality and with initiative and adaptability to solving problems with limited assistance and/or supervision.

### B - GOOD

Student can complete ALL tasks within specified clock times and dates with good quality and with initiative and adaptability to solving problems with periodic assistance and/or supervision.

### **C - AVERAGE**

Student can complete ALL tasks with satisfactory quality, but requires recurring assistance and/or supervision.

### **D - BELOW AVERAGE**

Student can complete more than 3/4 of all tasks satisfactorily, but frequently requires continual assistance and/or supervision to perform the required skills.

### **F - FAILURE**

Student completes less than 3/4 of all tasks satisfactorily, and requires continual assistance and/or supervision to perform the required skills.



## E. SPECIAL REQUIREMENTS

### BUILDING POLICIES

1. **ABSOLUTELY NO** food, drinks or the use of tobacco products will be allowed in the classroom.
2. Radios are not allowed in the classroom, nor is any device allowed that carries sound beyond the earphone(s) of the wearer.
3. Cellular phones and beepers must be turned off and placed in your pocket or backpack. Do not use class/lab time to communicate over cell phones with others.
4. Each student must clean their workstation at the end of class.
5. **ABSOLUTELY NO** rough or boisterous play or profanity will be allowed in the classroom.
6. Students should adhere to standards established in the SPC Catalog (Student Conduct) and Student Guide. Students in the Computer Aided Drafting & Design program must follow all safe practices in the classroom and other laboratory work areas. Further, chemical hazards and appropriate MSDS safety practices will be covered by the instructor during the first class session if potential for exposure exists.
7. The nature of Technical Graphics is to stay within established perimeters. In staying with these standards, the computers within the Graphics Lab have been optimally set to enhance learning for students. The configurations are set to establish a base of reference for all students, and so the instructor can optimize aid to each student.

### III. COURSE OUTLINE

#### A. TOPICS

1. ORIENTATION
2. ENGINEERING AND DRAFTING DEPARTMENT PRACTICES
3. DRAWING EQUIPMENT, INSTRUMENTS, AND MATERIALS
4. ENGINEERING LETTERING
5. ALPHABET OF LINES
6. MEASUREMENTS
7. PIPING PROCESSES AND EQUIPMENT
8. PIPE STANDARDS, DATA, TERMS AND ABBREVIATIONS
9. PIPE FITTINGS AND SYMBOLS
10. VALVES AND SYMBOLS
11. METHODS OF JOINING PIPE AND SYMBOLS
12. PIPE DRAWING BILL OF MATERIALS
13. PUMPS, TANKS, AND MISCELLANEOUS EQUIPMENT
14. FLOW DIAGRAMS AND INSTRUMENTATION
15. PIPING ISOMETRIC DRAWINGS
16. PIPING DESIGN PRACTICES

#### IV. ACCOMMODATIONS

South Plains College strives to accommodate the individual needs of all students in order to enhance their opportunities for success in the context of a comprehensive community college setting. It is the policy of South Plains College to offer all educational and employment opportunities without regard to race, color, national origin, religion, gender, disability or age (SPC Equal Opportunity Policy--General Catalog).

##### Diversity Statement

In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

##### Disabilities Statement

Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Disability Services Office. For more information, call or visit the Disability Services Office at Levelland (Student Health & Wellness Office) 806-716-2577, Reese Center (Building 8) & Lubbock Center 806-716-4675, or Plainview Center (Main Office) 806-716-4302 or 806-296-9611.

##### Non-Discrimination Statement

South Plains College does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: Vice President for Student Affairs, South Plains College, 1401 College Avenue, Box 5, Levelland, TX 79336. Phone number 806-716-2360.