

COURSE SYLLABUS

ARCE 1352 (3:2:4)

<b>STRUCTURAL DRAFTING</b>
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**Computer Aided Drafting & Design**

Industrial Technology Department

Technical Education Division

Levelland Campus

**SOUTH PLAINS COLLEGE**

FALL 2019

## **I. GENERAL COURSE INFORMATION**

### **COURSE DESCRIPTION**

#### **ARCE 1352 - Structural Drafting (3:2:4)**

Prerequisite: ARCH 1315 or DFTG 1309 or ENGR 1304 and ARCE 1352

This is a study of structural systems including concrete foundations and frames, wood framing and trusses and structural steel framing systems. Includes detailing of concrete, wood and steel to meet industry standards including the American Institute of Steel Construction and the American Concrete Institute.

The scope of Structural Drafting (ARCE 1352) will be for sixteen weeks, which will include two (2) hours of lecture per week and four (4) hours of laboratory experience per week, for a total of ninety-six (96) contact hours per semester.

### **COURSE LEARNING OUTCOMES**

Exhibit knowledge of steel, wood and concrete systems; use reference materials, produce drawings for concrete, wood and steel framing systems; design details and connections for framing components; and analyze the advantages and disadvantages of various systems.

### **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 engineering / drafting department practices of typical structural steel fabricators.
2. Demonstrate practical proficiency in lettering styles used in structural steel detailing.
3. Be familiar with the alphabet of lines used in structural steel detailing.
4. Demonstrate proficiency in the use of scales (measurement) used in structural steel detailing.
5. Be familiar with American Institute of Steel Construction Standards and American Concrete Institute Standards, data, terms and abbreviations.
6. Demonstrate an understanding of designing bolted framed beam connections and practical proficiency in drawing and detailing bolted framed beam connections.
7. Demonstrate an understanding of designing Case I framed beam connections.
8. Demonstrate an understanding of designing Case II framed beam connections and practical proficiency in drawing and detailing Case II framed beam connections.
9. Demonstrate an understanding of designing Case III framed beam connections and practical proficiency in drawing and detailing Case III framed beam connections.
10. Be familiar with drawing Bill of Materials used by structural steel fabricators and prepare a drawing bill of materials framed beam connections.
11. Demonstrate an understanding of designing unstiffened seated beam connections (bolted) and practical proficiency in drawing and detailing bolted unstiffened seated beam connections.
12. Demonstrate an understanding of designing unstiffened seated beam connections (welded) and practical proficiency in drawing and detailing welded unstiffened seated beam connections.
13. Demonstrate an understanding of designing stiffened seated beam connections (bolted) and practical proficiency in drawing and detailing bolted stiffened seated beam connections.
14. Demonstrate an understanding of designing stiffened seated beam connections (welded) and practical proficiency in drawing and detailing welded stiffened seated beam connections.
15. Be familiar with column types used in structural steel and column plans.
16. Be familiar with beam framing plans used in structural steel detailing.

17. Demonstrate an understanding and practical proficiency in elementary design and detailing of pre-stressed and reinforced concrete products.
18. Demonstrate an understanding and practical proficiency in elementary design and detailing of poured-in-place members.
19. Demonstrate an understanding and practical proficiency in elementary design and detailing of structural wood members.

## **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.

## **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 1305, Basic Technical Drafting course. Specifically, they are C7, C11, C14, C15, C18, F1, F3, F4, F5, F6, F11, F12, F13 and F14.

For a complete list of SCANS Competencies that are addressed by the curriculum of **ARCE 1352** - request more information from your instructor.

## **VERIFICATION OF WORKPLACE COMPETENCIES**

**DFTG 1352 - Structural Drafting** is offered in the last phase of the Computer-Aided Drafting and Design student's course work. During this phase, a Capstone Learning Experience is provided for Computer Aided Drafting & Design students in the last phase of the student's degree or certificate program.

## **COURSE SYLLABUS**

<b>COURSE TITLE:</b>	Structural Drafting
<b>COURSE NUMBER:</b>	<b>DFTG 1352</b> (fall 2019)
<b>PREREQUISITE(S):</b>	ARCH 1315 or DFTG 1309 or ENGR 1304 and ARCE 1352
<b>LOCATION:</b>	TA 207

<b>INSTRUCTOR:</b>	Terry Stucker
<b>OFFICE LOCATION:</b>	TA 206
<b>PHONE:</b>	806.716.2349
<b>E-MAIL:</b>	<a href="mailto:tstucker@southplainscollege.edu">tstucker@southplainscollege.edu</a>
<b>REMIND:</b>	@spcarc

<b>OFFICE HOURS:</b>	Mon/Wed: 11a-12p, 1p-2p Friday: 8a-12p (by appointment only)
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## **SPECIFIC COURSE/INSTRUCTOR REQUIREMENTS**

### **TEXTBOOK & OTHER MATERIALS**

**Textbook:** (To be purchased)

Book Title: Structural Steel Drafting & Design – 2<sup>nd</sup> Edition

Author: David C. Maclaughlin, Hector Estrada

Publisher: Delmar Cengage Learning ISBN: 978-1-4018-9032-2

**Spiral or other notebook** for notes, sketches

**Pen, Pencil, Eraser**

**Software:** (Provided in CAD labs) - AutoCAD 2019

## **COURSE OUTLINE**

- 1) ORIENTATION
- 2) COMPUTER AIDED DRAFTING & DESIGN DEPARTMENT PRACTICES
- 3) DRAWING EQUIPMENT, INSTRUMENTS AND MATERIALS
- 4) AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) STANDARDS AND AMERICAN CONCRETE INSTITUTE STANDARDS
- 5) BILLS OF MATERIALS
- 6) FRAMED BEAM CONNECTIONS
  - a. BOLTED
    - i. CASE I
    - ii. CASE II
    - iii. CASE III
- 7) UNSTIFFENED SEATED BEAM CONNECTIONS
  - a. BOLTED
  - b. WELDED
- 8) STIFFENED SEATED BEAM CONNECTIONS
  - a. TYPE A
  - b. TYPE B
  - c. TYPE C
  - d. WELDED
- 9) COLUMN DESIGN
- 10) PRESTRESSED AND REINFORCED CONCRETE DESIGN
- 11) POURED-IN-PLACE CONCRETE DESIGN
- 12) STRUCTURAL WOOD DESIGN

## **ATTENDANCE POLICY**

The CADD 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. Students are responsible for all class work 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 in regard to applicable make-up work.

The CAD department implements the following standard absentee policy:

- 1) Two (2) possible absences per day (one for lecture, one for lab)
- 2) Students are allowed six (6) absences **or** 12 tardies\*
- 3) Four (4) tardies = 1 absence
- 4) The 7th and 8th absence will result in a drop of one (1) letter grade per each absence
- 5) 9th absence will 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 may 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.

### **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***. Any drawing assignments that are *not* turned in at the specified time and date will immediately receive a grade penalty of 5 points and an additional 5 points per each additional day late.
- 3) All electronic classwork must be saved to your folder on the cad server.

## **GRADING POLICY/PROCEDURE**

- 1) Daily course work (lecture and laboratory experiences) = **50%** of the semester grade. Practical drawing assignments will be graded on the following:
  - a) Neatness
  - b) Line Criteria
  - c) Text Criteria
  - d) Dimensioning Criteria
  - e) Choice & Location of Views
  - f) Correctness & Accuracy of Views (shape description)
  - g) Nomenclature
  - h) Printing and Plotting
- 2) Mid-Term Project / Exam = **20%** of semester grade
- 3) Final Exam = **20%** of the semester grade. The final examination will be a comprehensive exam comprised of practical skills and objective material. (a project and a written exam)
- 4) Attendance = **10%**

**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**

Final grades will be determined using the following scale:

- A: 90 - 100%
- B: 80 - 89%
- C: 70 - 79%
- D: 60 - 69%
- F: 59% or Below

## **ADDITIONAL POLICIES & ACCOMODATIONS**

### **BUILDING POLICIES**

- 1) **ABSOLUTELY NO** food, drinks or the use of tobacco products will be allowed in the classroom.
- 2) Headphones are not allowed during lecture portions of class, but are allowed during lab if the volume is turned down so as not to be heard by other class members. Violation of this will result in loss of the privilege of using headphones.
- 3) Phones must be turned off during the lecture portion of class. If a call must be made or received while in class (lecture or lab), please excuse yourself to a hallway so as not to interrupt class or distract other students.
- 4) Each student must clean their workstation and restart their computer 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 Computer Aided Drafting & Design is to stay within established perimeters. In staying with these standards, the computers within the CAD 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. Please do not alter the configurations of any workstation or computer at any time.

**Lab computers are monitored remotely. Lab computers will be used for all class work. No outside computers or tablets are to be used in Lab rooms.**



## **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.

### **Title IX Pregnancy Accommodations Statement**

If you are pregnant, or have given birth within six months, Under Title IX you have a right to reasonable accommodations to help continue your education. To activate accommodations you must submit a Title IX pregnancy accommodations request, along with specific medical documentation, to the Director of Health and Wellness. Once approved, notification will be sent to the student and instructors. It is the student's responsibility to work with the instructor to arrange accommodations. Contact Crystal Gilster, Director of Health and Wellness at 806-716-2362 or email [cgilster@southplainscollege.edu](mailto:cgilster@southplainscollege.edu) for assistance.

### **Campus Concealed Carry Statement**

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in South Plains College buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and South Plains College policy, license holders may not carry a concealed handgun in restricted locations. For a list of locations and Frequently Asked Questions, please refer to the Campus Carry page at: <https://www.southplainscollege.edu/campuscarry.php>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all South Plains College campuses. Report violations to the College Police Department at 806-716-2396 or 9-1-1.