Structural Drafting (ARCE 1315)

Credit: 3 semester credit hours (2 hours lecture, 4 hours lab)

Pre-requisite/Co-requisite: DFTG 2319

Course Description

This course covers the preparation of structural steel drawings and bills of material for the purpose of fabrication and erection. Emphasis will be placed upon using structural design framing plans to develop detailed steel members, connections and assemblies.

Required textbook and materials

1. Structural wheel
2. Flash Drive – 1GB minimum
3. Access to computer with AutoCAD
4. Notebook with dividers
5. Basic sketch equipment
6. Calculator

Course Objectives

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

1. Use AISC, ASD, LRFD, and OSHA standards
2. Interpret and draw design / erection drawing
3. Detail structural beams from a design drawing
4. Detail structural columns from a design drawing
5. Make a basic structural bill of materials
6. Detail structural platforms with flooring, handrail, ladder and stairs

Course outline

A. Introduction
    1. Introduction of faculty and staff
    2. Review syllabus
    3. Review class policies

B. Describe the basic structural shapes
    1. W, S, M, T shapes
    2. C, MC shapes
    3. Angle, pipe, tubing shapes
    4. Plate, flat, rod, bar shapes

C. Design / erection drawings
    1. Standard border
    2. Standard views
    3. Required details
    4. Revisions

D. Detail a beam using standard framed connecting systems.
    1. Connection row chart

2. Bill of material
3. Beam length calculations
4. Weld calculations

E. Detail a column using standard framed connecting systems.
1. Connection row chart
2. Bill of material
3. Beam length calculations
4. Weld calculations

F. Interpret standards
1. Specifications
2. Codes
3. Finish

G. Structural platforms and OSHA standards
1. Steel flooring
2. Steel handrail – angle, pipe
3. Elevated access – ladder, stair

Grade Scale

90-100	A
80-89	B
70-79	C
60-69	D
0-59	F

Course Evaluation

Final grades will be calculated according to the following criteria:

Activity	Percentage
Assignments	25%
Tests	25%
Professionalism and notebook	10%
Projects	20%
Final	20%
Total	**100%**

Late penalties will be assessed on all work turned in late, 5 points per day

Course requirements

1. Detail structural members from design / erection drawings
2. Detail standard and design specific connections
3. Use standards and guidelines
4. Prepare design / erection drawings
5. Learn common terminology

Attendance Policy (all work during absence must be made up)

1. 20% absences allowed – 4 tardies are equivalent to 1 absence
2. Miss more than 20% of classes and receive an F for the course

Course Policies

1. No food, drinks or use of tobacco products in class.
2. No foul or harsh language will be tolerated.
3. Turn off all cell phones during lectures.
4. Do not bring children to class.
5. No cheating of any kind will be tolerated. Students caught cheating or helping someone to cheat can and will be removed from the class for the semester. Cheating can result in expulsion from LIT.
6. If you wish to drop a course, the student is responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course you will earn an "F" in the course.
7. Back-ups
   It is the student's responsibility to make back-up copies of their work. Do not rely on the server to be there 100% of the time. I cannot help you if you lose your work. Remember that in order for your work to be graded it must be turned in.
8. Internet usage
   a. Classroom computers have access to the internet.
   b. Student usage of the internet will be monitored.
   c. Proper usage of the internet will be allowed to be used for classroom research or as directed.
   d. Any unauthorized use of the internet will not be tolerated.
   e. Improper usage of the internet, such as profanity, pornography, gambling, etc. will result in disciplinary action not limited to expulsion from LIT.

Disabilities Statement

The Americans with Disabilities Act of 1992 and section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services in the Cecil Beeson Building.

Refer to Calendar for important dates and course schedules!