

**CES 4605      ANALYSIS AND DESIGN IN STEEL      FALL 2006**

“The capacity to design includes more than mere technical competence. It involves a willingness to attack a situation never seen or studied before and for which data are often incomplete; it also includes an acceptance of full responsibility for solving the problem on a professional basis.”

Report of the Committee on Evaluation of Engineering Education, “The Grinter Committee”, 1955.

**INSTRUCTOR:** Thomas Sputo, Ph.D., P.E.  
Senior Lecturer of Structural Engineering; and Structural Engineer, Sputo and Lammert Engineering, LLC  
Campus Office: Weil 480C 392-9537 x 1496  
Office Hours: M, W, F 3rd Period, or by appointment  
Consulting Office: Phone: 378-0448 Fax: 373-1331  
E-mail: sputo@ufl.edu

**TEACHING ASSISTANT:** Kevin Beery Weil 480A kevinwb@ufl.edu Office Hours: TBA

**OBJECTIVE:** Introduction to the basics of structural design in structural steel using current design codes. Students are expected to become proficient in this basic knowledge.

**TIME:** M, W, F 2<sup>nd</sup> Period Weil 279

**TEXTS :** *Manual of Steel Construction*, 13th Edition, American Institute of Steel Construction, 2005. Available for purchase through instructor during first week of class - \$120.00 - Check made payable to “AISC” - NO CASH WHATSOEVER

Class packet (HW and limited notes). Available in ASCE Office, Weil xxx – Cost TBD

**WEB PAGES:**

<a href="http://www.mindspring.com/~sputoeng/default.htm">http://www.mindspring.com/~sputoeng/default.htm</a>	Sputo’s general webpage
<a href="http://www.sputoandlammert.com">http://www.sputoandlammert.com</a>	Sputo and Lammert Engineering webpage
<a href="http://www.aisc.org">http://www.aisc.org</a>	American Institute of Steel Construction

<b>GRADING CRITERIA:</b>	(7) One-Hour Quizzes	75%
	Homework / Projects	21%
	Attendance	04%

**MAXIMUM GRADING SCALE:** (May be relaxed at the option of the instructor)

93 - 100	A
90 - 92.99	B+
85 - 89.99	B
83 - 84.99	C+
77 - 82.99	C
75 - 76.99	D+
70 - 74.99	D
00 - 69.99	E

## CLASS RULES:

1. Attendance at class meetings is mandatory and timeliness is important. Attendance will be taken at the beginning of class. Attendance grade will be based on the percentage of class sessions attended. For basis of computing grades, there will be no “excused absences”.
2. Each lesson requires preparation by the student prior to the lecture. The AISC Manual and notes are required for all lectures.
3. Quiz Information: Quizzes are closed textbook, closed note. You are allowed to have your copy of the *Manual of Steel Construction*, calculator, straightedge, pencil(s), eraser, 1 sheet of white paper with whatever you want on it (to be turned in with quiz and not returned) and green calculation paper to write on.
4. Homework will be assigned, typically at each class meeting. Working with fellow students on homework will be allowed as “self-help”, but the final homework which is turned in must represent the work of the individual student. Do not copy another student’s work. Homework will be compared and violations will be dealt with. Assigned homework will be due the second following class meeting date, at the beginning of the 2<sup>rd</sup> period class meeting. **Late homework may be turned in no later than the start of the next class meeting after the due date with a 25% penalty.** Homework not turned in by that date will not be accepted.
  - a. Homework will be submitted on engineering computation paper or as computer output (**DO NOT RE-USE PAPER!**) **ONLY ONE PROBLEM PER SHEET**. Number and label all pages. **Work neatly. All work will be graded on the basis of content and neatness. Use straightedges**, reasonable scales, use pencil (that means also using an eraser), and print and label clearly. Reference equations to AISC (i.e.: AISC Eqn. H1-1a). List assumptions or rationale for your work. **Sloppy or difficult to follow work will be returned ungraded. No exceptions.**
5. The lowest of the 7 quiz grades will be dropped for purposes of computing final grades.
6. No make-up work or quizzes will be allowed, except in cases of emergencies or civic responsibilities (jury duty, etc.), provided that the instructor is notified by e-mail in advance. Provisions for make-up work will be determined on a case-by-case basis. The decision of the instructor is final.
7. Some class communication will be by means of e-mail. Check your e-mail regularly (at least daily). Keep the instructor informed of any changes to your e-mail address. Failure on the part of the student to keep-up with e-mail communications is not excusable.
8. Solutions will be posted in a binder in Weil 475 for a period of 2 weeks after the due date, at which time they will be removed.
9. Grade Appeals:

General: At any time that you do not understand the solution to a quiz or homework problem, please see either the TA or Dr. Spoto. We will be happy to assist. However, if you believe that a grade was assigned in error, please comply with the following procedures:

Quiz: Please carefully consider what you did wrong. If you still believe that an incorrect grade has

been assigned, you must make your case in writing only. Verbal requests will not be considered. You must provide substantial information as to why your grade should be changed. Your request for re-grade must be received no later than 10 calendar days after the quiz date. After that date, no requests will be considered. Turn in your request to Dr. Sputo.

Homework: Please carefully consider what you did wrong. If you still believe that an incorrect grade has been assigned, you must make your case in writing only. Verbal requests will not be considered. You must provide substantial information as to why your grade should be changed. Your request for re-grade must be received no later than 10 calendar days after the homework due date. After that date, no requests will be considered. Turn in your request to the TA.

10. Graded homework and quizzes will be returned in Weil 475. It is your responsibility to pick these up in a timely manner. Solutions will also be posted in Weil 475 for a limited time after these are returned.

## General Grading Rules

It is not the responsibility of the course instructor or TA to try to decipher your work. It should be clear what your intent is, and easy to follow in a logical sequence. Due to recurring problems each semester, the following criteria are set.

The following criteria will be used in grading homework:

Homework with more than 1 problem per sheet:	Minus 2 points out of 10
Lines drawn freehand (i.e.: no straightedge)	Minus 1 points out of 10
Work otherwise sloppy or difficult to follow	Minus 1 to 7 points out of 10

For quizzes, the following criteria will be used in grading:

Lines drawn freehand (i.e.: no straightedge)	Minus 10 points out of 100
Work otherwise sloppy or difficult to follow	Minus 10 to 25 points out of 100

These point deductions will be applied as the instructor or TA sees fit. We like to assign partial credit for problems with incorrect answers, but if we cannot follow or otherwise decipher your work to find the incorrect step without expending excessive effort, we cannot assign partial credit.

## CALCULATOR POLICY FOR QUIZZES AND IN-CLASS WORK

In order to curb problems with students programming equations into their calculators for quizzes, only the following calculators which are approved for the FE exam (plus one additional calculator) will be allowed to be used for in-class quizzes or other in-class work. **NO EXCEPTIONS WILL BE MADE. PERIOD.** No other models of calculators will be allowed. Only the models listed below may be used.

Hewlett Packard - HP 33s

Hewlett Packard - HP 9s

Casio - FX 115 MS and FX 115 MS Plus (Note: Models with "-SR" designation at end are also allowed.)

Texas Instruments - TI 30X IIS and TI 30X IIB

Texas Instruments - TI 36X Solar

Texas Instruments - TI 30X or TI 30XA

The instructor routinely uses a TI-30XA to design \$10 million buildings. So you should be able to work your simple quiz problems with something equivalent.

## **IMPORTANT UNIVERSITY INFORMATION:**

### *Academic Honesty:*

All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a student at the University of Florida and to be honest in all work submitted and exams taken in this class and all others.

### *Accommodations for Students with Disabilities:*

Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation.

This short paper by Professor Yao from Texas Tech is a pretty good summary of my thoughts and philosophy on grades. I could not have said it better than this.

**Sputo**

## **ON GRADES AND GRADING**

by James T. P. Yao for his students and interested colleagues

The grade in a given course is a measure of the student's performance in that endeavor. The overall grade point averages are indeed important considerations for all students. When I was a student at the University of Illinois in Urbana-Champaign, I did care about my grades at that time. However, I never complained about any of my grades though, at times, I felt that the grade I received in a particular course might not be fair. The fact is, on the average, the overall grade point average did reflect the knowledge gained and the effort that I put into my college education. There were courses for which I thought that I deserved a better grade than the one on my record. On the other hand, I also had grades that were better than what I expected and/or deserved. In the long run, they all averaged out at the end of my college career. Most importantly, I learned from each professor and from each course that I had.

A few years after I graduated, I forgot all my grades. No one has ever asked for my grades just a few years after I graduated from college. To date, however, I have kept all the basic knowledge that I gained from my college education. Especially, the method of learning new things on my own has been useful. If the students aim at learning as much as they can from each course and each professor, the good grades will come as a result of their diligent work, on the average. On the other hand, if the students waste their time arguing about their grades, they will lose time for studying new lessons and thus hurt their future grades.

As a teacher, I try very hard to be fair and consistent in grading student papers. The student will get a perfect score if he/she gives a correct answer. If the answer is not correct, the teacher is the one who judges how serious the error is and assigns a partial score accordingly. As a student, I had several professors who did not give partial scores. The reason was that, the engineering system could fail with the wrong answer, no matter how close the answer is to the correct one (e.g., exactly the same number but with a wrong sign). I do not agree with that policy but respect their judgement in those courses. In any event, partial scores are subjective depending on the experience and viewpoints of the individual teachers. It is counter-productive to argue about it.

Please be careful in doing your homework, tests, and other assignments. People's lives and properties will depend on your work someday in the near future. Try to learn as much as you can while you are in school. Communicate with your teachers and classmates frequently, and concentrate on the learning process. With knowledge, you will become a successful and proud engineer soon. **HAVE KNOWLEDGE, WILL SUCCEED!**

**TENTATIVE LECTURE SCHEDULE**  
(Subject to modification)

<b>Class No.</b>	<b>Date</b>	<b>Topic</b>		<b>HW</b>	<b>HW Due</b>
1	23 Aug	Introduction			
2	25 Aug	Specifications and Codes			30 Aug
<b>3</b>	<b>28 Aug</b>	Steel Properties, Safety, LRFD			01 Sept
4	30 Aug	Tension Members			06 Sept
5	01 Sept	Tension Members			08 Sept
	<b>04 Sept</b>	<b>Labor Day (No Class)</b>			
6	06 Sept	Tension Members			11 Sept
7	08 Sept	Tension Members			13 Sept
<b>8</b>	<b>11 Sept</b>	Tension Members: Block Shear			15 Sept
9	13 Sept	<b>Quiz 1</b>			18 Sept
10	15 Sept	Compression Members			20 Sept
<b>11</b>	<b>18 Sept</b>	Compression Members			22 Sept
12	20 Sept	Compression Members			25 Sept
13	22 Sept	Column Design			27 Sept
<b>14</b>	<b>25 Sept</b>	Column Design			29 Sept
15	27 Sept	<b>Quiz 2</b>			02 Oct
16	29 Sept	Column Design			04 Oct
<b>17</b>	<b>02 Oct</b>	Column Design: Local Buckling			09 Oct
18	04 Oct	Built-up Compression Members			11 Oct
	06 Oct	<b>No Class - Homecoming</b>			
<b>19</b>	<b>09 Oct</b>	Simple Beam Bending - Shape Factor, Compact Section, Plastic Action			13 Oct
20	11 Oct	<b>Quiz 3</b>			16 Oct
21	13 Oct	Simple Beam Bending			18 Oct

<b>Class No.</b>	<b>Date</b>	<b>Topic</b>		<b>HW</b>	<b>HW Due</b>
<b>22</b>	<b>16 Oct</b>	Simple Beam Bending - Beam Tables			20 Oct
23	18 Oct	Lateral-Torsional Buckling			23 Oct
24	20 Oct	Laterally Unbraced Beams			25 Oct
<b>25</b>	<b>23 Oct</b>	Laterally Unbraced Beams			27 Oct
26	25 Oct	Beams - Shear, Deflection, Web Crippling and Yielding			30 Oct
27	27 Oct	<b>Quiz 4</b> (Sputo at Conference)			01 Nov
<b>28</b>	<b>30 Oct</b>	Beams - Local Buckling, Non-Compact Flanges			03 Nov
29	01 Nov	Combined Axial and Bending Forces, Interaction Formulas			06 Nov
30	03 Nov	Beam-Columns			08 Nov
<b>31</b>	<b>06 Nov</b>	Beam-Columns			13 Nov
32	08 Nov	<b>Quiz 5</b>			15 Nov
	10 Nov	<b>No Class - Veteran's Day</b>			
<b>33</b>	<b>13 Nov</b>	Beam-Columns			17 Nov
34	15 Nov	Beam-Columns			20 Nov
35	17 Nov	Connections			22 Nov
<b>36</b>	<b>20 Nov</b>	<b>Quiz 6</b>			27 Nov
37	22 Nov	Structural Bolts, Loads, Installation			29 Nov
	24 Nov	<b>No Class - Thanksgiving</b>			
<b>38</b>	<b>27 Nov</b>	Bolted Connections			01 Dec
39	29 Nov	Welding, Joint Types, Design Stresses			04 Dec
40	01 Dec	Welded Connections			06 Dec
<b>41</b>	<b>04 Dec</b>	Connection Design			06 Dec
42	06 Dec	<b>Quiz 7 - Instructor Evaluation</b>			