CES 5606 TOPICS IN STEEL DESIGN FALL 2006

"Strength and Stability of Steel Frames"

"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., SECB
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OBJECTIVE: Develop a working understanding of the analysis, response, and behavior of structural steel frames, bracing, and semi-rigid frame connections, and be able to apply this knowledge to building structures.

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

Effective Length and Notional Load Approaches for Assessing Frame Stability, ASCE, 1997. ISBN: 0784402302

CES 5606 Class CD (Educational software and references)

Class Note Packets

TIME: M, W, F 1st Period Weil 279

PREREQ: CES 4605 Analysis and Design in Steel
CES 4141 Stress Analysis
Working computer knowledge:
(MS Word or Word Perfect; Excel) - required
(MathCad; Frame analysis software) - helpful

TOPICS TO BE COVERED: (Subject to Change - addition or deletion or change of order)

1. Application of stability theory to steel frame design.
2. Effective length vs. equivalent imperfection approaches to frame stability.
3. First order and second order elastic rigid frame analysis.
4. Plastic analysis of frames
5. Semi-rigid connection behavior and design.
6. Application of semi-rigid connections in steel frame analysis and design.
7. Advanced analysis techniques, including second order plastic hinge methods.
8. AISC requirements for stability
9. Bracing design and implications of bracing on stability

LAPTOP REQUIREMENT:

A large portion of the semester will involve computer modeling of individual members and frames to illustrate key points relative to the response of steel structures to load. Unless otherwise notified, you must bring your laptop computer to each class meeting and to be prepared to use it for in-class assignments or demonstrations.

Your laptop will need to meet minimum UF and College of Engineering requirements for hardware and software, including word processing and spreadsheet software. Additional software will be made available.

COURSE "RULES"

1. **Please be nice.** As a class, you will only get out of this what you collectively put in. You have the opportunity to learn about engineering from a practicing engineer. Take advantage of this opportunity!

2. Attendance at class meetings is *"mandatory"*. Attendance will not be taken, but attendance and participation will be noted.

3. Be on-time to class. The instructor will start class on-time. The instructor will endeavor to end class on-time.

4. **Each lesson requires preparation by the student prior to the lecture. Study / read the assigned material prior to the lecture.**

5. The textbooks, notes, **AND YOUR LAPTOP COMPUTER** are required for all lectures.

6. Assignments will be neatly written on engineering paper, or printed on clean white paper (if using MathCad, Excel, etc.) Number, staple and label all pages. **No exceptions.**

7. No make-up work 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.

8. 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.

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.

GRADING:

There will be no "tests" in this class. Your grade will be based on your performance on numerous "assignments" and several "projects". Each assignment and project will have a number of points assigned to it based on the scope of work required.

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