CIVL 100 – Introduction to Structural Engineering (4 units)
Class meets on TR, 10:00 am – 11:45 am in Anderson 215

Catalog description and prerequisites:
Introduction to the theory and applications of structural analysis and design. Topics include: determination of loads, analysis of beams, trusses and frames, influence lines and indeterminate structures. Prerequisites: CIVL 15, ENGR 19, and ENGR 121.

Instructor and contact information:
Dr. Estrada, P.E., Professor of Civil Engineering, CTC 223, 946-3076, hestrada@pacific.edu
Office hours:
MTWR 2:00 to 3:00 pm

Course Objectives:
By the end of the semester, the students in this course will be able to:
1. Identify and solve problems encountered in structural analysis
2. Identify, formulate, and compute minimum design loads for structures based on ASCE 7
3. Determine reactions, internal forces, and displacements in trusses, beams, and frames using classical and computer-aided analysis methods
4. Effectively communicate solutions to problems

Required Textbooks:

Other course materials:
Additional materials are available at http://www1.pacific.edu/~hestrada/ and the Canvas course site

Methods of evaluation and grading procedures:
1. There will be two exams during the term and a comprehensive final exam, each worth 25% of the total grade. The times and dates of exams are noted in the course outline. All exams are closed book and closed notes, except for one sheet of formulas (one sided) per exam plus IBC and ASCE 7 materials.

2. The remaining 25% of the total grade will be based on homework, class participation and punctual attendance. Homework assignments will be given regularly and are due by 5:00 pm of the due date, unless specifically stated otherwise. You are expected to do the assignments yourself; however, working in groups is encouraged. There are two goals in doing the homework problems: to learn the concept or method used in solving the given problem, and to communicate your approach and results of the problem to the instructor. To encourage the achievement of both of these goals, I will insist that the problems be handed in according to the format shown in Figure 1, on engineering paper.

Your grade average will be converted to a letter grade as follows:

   A = 90-100%,       B+ = 83 – 86.9%       C+ = 73 – 76.9%       D+ = 63 – 66.9%
   A− = 87 – 89.9%    B = 80 – 82.9%        C = 70 – 72.9%        D = 60 – 62.9%
   B− = 77 – 79.9%    C− = 67 – 69.9%       F ≤ 60%.

Policies for attendance, make-up exams, and late assignments:
Attendance is required; each unexcused absence will result in a deduction of 1% from your final grade average. Exam make-ups will be granted only for authorized absences. Late homework will not be graded. Assignments and due dates are listed on the course outline and posted on the course web page.

Collection of work for assessment:
Student work may be retained to assess how course learning objectives are being met and for accreditation purposes.
Honor Code:

The Honor Code at the University of the Pacific calls upon each student to exhibit a high degree of maturity, responsibility, and personal integrity. Students are expected to:

- act honestly in all matters
- actively encourage academic integrity
- discourage any form of cheating or dishonesty by others
- inform the instructor and appropriate university administrator if she or he has a reasonable and good faith belief and substantial evidence that a violation of the Academic Honesty Policy has occurred.

Violations will be referred to and investigated by the Office of Student Conduct and Community Standards. If a student is found responsible, it will be documented as part of her or his permanent academic record. A student may receive a range of penalties, including failure of an assignment, failure of the course, suspension, or dismissal from the University. The Academic Honesty Policy is located in Tiger Lore and online at http://www.pacific.edu/Campus-Life/Safety-and-Conduct/Student-Conduct/Tiger-Lore-Student-Handbook-.html

Accommodations for students with disabilities:

If you are a student with a disability who requires accommodations, please contact the director of the Office of Services for Students with Disabilities (SSD) for information on how to obtain an Accommodations Request Letter.

Three-step accommodation process:
1. Student meets with the SSD Director and provides documentation and completes registration forms.
2. Student requests accommodation(s) each semester by completing the Request for Accommodations Form.
3. Student arranges to meet with his/her professors to discuss the accommodation(s) and to sign the Accommodation Request Letter.

To ensure timeliness of services, it is preferable that you obtain the accommodation letter(s) from the Office of SSD within 1-2 weeks. After the instructor receives the accommodation letter, please schedule a meeting with the instructor during office hours or some other mutually convenient time to arrange the accommodation(s). The Office of SSD is located in the McCaffrey Center, Rm. 137. Phone: 209-946-3221. Email: ssd@pacific.edu. Online: www.pacific.edu/disabilities.

Student responsibilities:

In order to be successful in this course you must:
1. meet all prerequisites for the course
2. attend every class and participate in the classroom discussions
3. obtain the required study materials and read assigned materials
4. complete all assigned work (laboratory work, exams, and assignments) on time
5. work two hours on assignments and studying outside of class for every hour of class contact time
6. adhere to the honor code

Instructor responsibilities:

You should expect me to:
1. be prepared for lecture, including being organized and punctual
2. be available for questions and concerns, particularly during office hours
3. provide correct answers to all questions, even if I may not initially know
4. treat all students equally and respectfully
5. grade fair and consistent
6. be actively engage in student learning
Course Topics: (This outline is subject to change in the event of extenuating circumstances.)

1. Minimum design loads: dead, live, rain, snow, and seismic
2. Analysis of statically determinate structures: reactions, including cables and arches
3. Internal loadings developed in structural members; trusses, beams, and frames
4. Influence lines for statically determinate beams and trusses
5. Approximate analysis of statically indeterminate structures
6. Deflections by integration, conjugate beam, and virtual work methods
7. Analysis of statically indeterminate structures: force and slope-deflection methods
8. Overview of analysis of structures by the stiffness method: trusses and beams
9. Computer-based analysis

Figure 1: Homework Format.

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<thead>
<tr>
<th>Name</th>
<th>CIVL 100</th>
<th>Date</th>
<th>1/1</th>
</tr>
</thead>
</table>

Given: Record the information given

Required: Clearly identify the goal of the problem.

Approach: Before presenting any calculations, briefly describe your approach to the problem.

Calculations: Carry out calculations neatly, carefully describing each major step in words. Remember someone will have to read your work.

Summary: Neatly summarize the results requested in the problem statement. Use sketches if possible.

Figure 1: Homework Format.