Experiences with Online Homework in a Design Class

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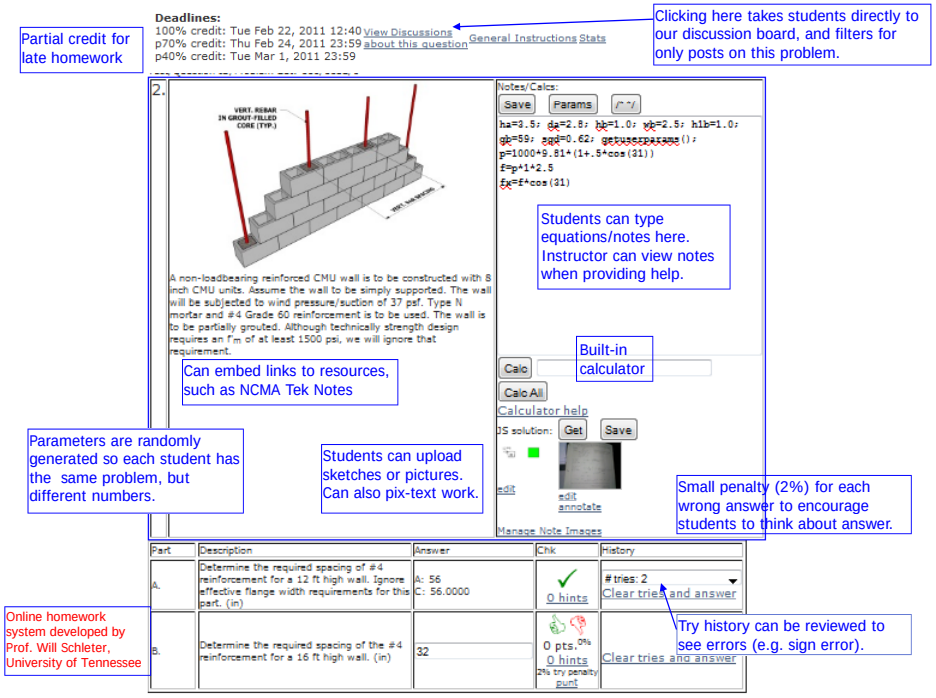
Online Homework Systems

- Commonly used in freshman classes
  - Mastering physics, web assign, custom systems
- University of Tennessee Engineering Fundamentals system
  - Used in large freshman engineering classes
  - Proven to be very effective
- How would this work in a design class?
  - Used in Sp 11 Masonry Design class (27 students)



Discussion Board

HW H jward43		Thu 4/7 15:26	hw17: Part G: The problem asks me to calculate the design moment when the wall weight is included, but does not tell me anything about the steel. Is there steel in each grouted cell, as there is in Part C, or just the one bar furthest away from the compression face, as there is in Part E?
H walldog		Thu 4/7 15:34	I am guessing that old calcdog included all the steel in the calculations, like in part C.
Add a response... Mark as answered			
HW H RBECK1		Wed 4/6 1:31	hw17-1: On Part B wouldn't (phi)Vn=(phi)Vn + (phi)Vns? Vns = 0 because we do not consider shear reinforcement. Vnm = [4.0-1.75(Mu/Vudv)]An*Square root(f'm) and the 0.25Pu term is zero because no axial load. I get a (phi)Vn = 77.33kips which is not right.
H rbennet2	F F	Thu 4/7 15:34	Problem corrected.
Add a response... Mark as answered			
HW H clayne1		Thu 3/31 19:18	hw16-1: Can you look at my notes for part A?
H rbennet2	F F	Thu 3/31 21:18	Multiply applied axial force by length of wall, not by height. Shear strength is a function of M/Vd.
Add a response... Mark as answered			
HW H Anon		Sun 3/27 15:09	hw15-1: , part I---In calculating the deflection of the wall, Ig is considered to be the gross cross-section (7.625" x 12" for a one-foot section of wall)--correct? Also, when calculating the service moment, can we use the equation on slide #29 (considering 2nd order effects), but instead substitute unfactored loads in for P and w? To me, this would be the service moment considering 2nd order effects, but am I missing something? Thanks--
H rbennet2	F F	Sun 3/27 19:39	Although the code says Ig, it should be I net, which is the moment of inertia of the net area. Yes you can use the equations of slide #29 substituting service loads.
Add a response... Mark as answered			
HW H ncasamat		Sat 3/26 13:09	hw15-1: part G, Find "phi Mn" I considered the strain distribution based on masonry yielding and a compressive strength, C-T, equal to the factored axial load at mid hight. C-T = phiPn =Pu@midhight , the only unknown is the ".8c" or "a" Once the location of the neutral axis is determined Phi Mn can be calculated by summing the moments about As. Is this the correct approach?
H rbennet2	F F	Sat 3/26 19:49	Almost. C-T=Pn=Pu/φ. There are equations for that in the notes.
Add a response... Mark as answered			

Link takes instructor directly to students homework

Evaluation of Online Homework System

- Students get immediate feedback; work problem until completed
- Discussion board enables entire class to see questions and answers
- Took just slightly longer to code online homework problems as to grade a set of 27 homeworks
- Only complaint from students was the tolerance on the problems (1%)
  - This can be changed in the system, and will be for next time

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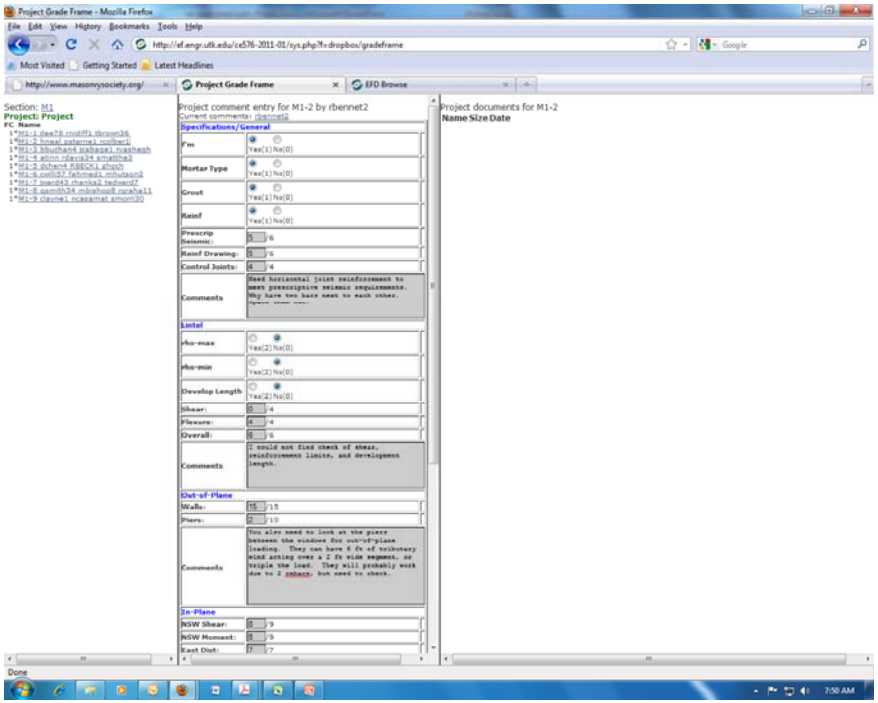
Evaluation of Online Homework System

- Online homework supplemented with a design project at end of semester
- Students had to upload several Excel files with graphs which were manually graded.
- Online grading rubric eased the grading



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Conclusions

- Online homework system eliminated many of the administrative hassles of homework
- Instructor could focus on providing help instead of routine grading
- Positive experience for instructor and class