**Northeastern University**

**Department of Civil and Environmental Engineering**

Instructor’s Assessment

CIVE 2221 Statics and Strength of Materials

**Semester / Year:** Fall / 2013 **Instructor: Furth Date:** 12/17/2013

Expectations regarding this course assessment:

1. Before the start of the course, review the most recent instructor assessment for recommendations on how to improve the course.
2. Grade summaries will be based on up to three exams.
3. *Questions to be asked on the in-class evaluation:*  None.
4. This assessment form is based on the set of topics and learning outcomes listed in the course syllabus. Do not change this part of the syllabus without action from the discipline group. If there is a change, notify the Undergraduate Studies Committee so that this form can be modified.
5. Complete the form and save it as a Word document with filename like this: IAssess\_2221 \_2013\_Fall

**1. What course improvements did you make? How successful were they? Relate them to recommendations made in previous course assessments.** *Expand the table as necessary.*

|  |  |
| --- | --- |
| 1. | As recommended last year, I modified homework problems from the 2nd textbook so that they were more numerical (rather than using parameters with letter names). That eliminated complaints about them.  |
| 2. | Skipped force diagrams as recommended last year. Saved time, allowed me to move faster so that shear stress wasn’t as rushed. |
| 3. | Added more homework problems in frames, a weakness from past years. Attainment on final exam (identical question) rose from 75% to 81%. |
| 4. | Added a rather elaborate determinate frame homework example, and spent a class on it. Students didn’t really appreciate it, though, in the midst of working on exams. Better to leave it till the final day. |
| 5. | Reinforced truss statics by adding hwk and exam questions after the initial homeworks and exam on trusses. Attainment on final exam question rose from 80% to 91%.  |

**2. Your response to student comments and/or TRACE evaluation:** *Respond to serious criticisms and suggestions. Expand table as necessary.*

|  |  |  |
| --- | --- | --- |
|  | **Student Comment** | **Your Comment(s)** |
|  |  |  |
|  |  |  |
|  |  |  |

**3. Student questionnaire summary**

*Omit – does not apply.*

**4. Grade Summary**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Selected questions from the 6 midterm exams #** | **Topic** | **Average score** (0 to 100) | **% students with adequate achievement** | **Comment on any item with poor achievement** |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Final exam question #** | **Topic** | **Average score** (0 to 100) | **% students with adequate achievement** | **Comment on any item with poor achievement** |
| F1 | Shear & moment diagram | 94 | 93% |  |
| F2 | point equilibrium | 85 | 92% | It took them far too long as they used less effective methods |
| F3 | determinate frame analysis | 80 | 83% | up from 75% last year – a sign that i |
| F4 | truss analysis (joints) | 84 | 91% | up from 80% last year |
| F5 | bending stress, moment of inertia | 88 | 86% |  |
| F6 | shear flow | 90 | 80% | suffered from end-of-term fatigue |
| F7a | beam design | 79 | 97% |  |
| F7b | bending and shear stress |  | 47% | suffered from confused lecture on shear. Needs clearer hwk problems on shear for rectangular, I-beam, and general cross sections |

**5. Here are the topics listed on your syllabus.** For each, give an assessmentof student ability to apply knowledge and to identify, formulate, and solve problems. “Basis for assessment” should be “Grade Summary, #xxx” where xxx is the listed question that examines that topic. If the topic is not covered in the grade summary, state the basis of your assessment.

|  |  |  |  |
| --- | --- | --- | --- |
| **Topic**  | **% students attaining** | **Basis for assessment** | **Comments** |
| 1. Learn how to combine forces and compute the resultants of various types of force systems.
 | 95% | several exam questions involving distributed loads |  |
| 1. Develop the ability to draw free-body diagrams.
 | 85% | several exam questions | Still a weakness. Needs to be emphasized more |
| 1. Study rigid bodies in static equilibrium. Be able to identify a stable system of supports and learn to compute reactions using the equations of static equilibrium.
 | 95% | several exam questions |  |
| 1. Be able to classify trusses and other simple structures as stable or unstable, and if stable, as determinate or indeterminate.
 | n.a. |  | This topic was not emphasized |
| 1. Be able to compute the internal forces and the resulting stresses they cause in simple stable and determinate structures and draw shear and bending moment diagrams.
 | 90% | exam questions |  |
| 1. Be able to compute certain properties of areas and masses (including centroids and moments of inertia).
 | 95% | F5 |  |

**6. Assessment of Program-Level Outcomes not Covered in Topic Assessment**

*Omit – does not apply.*

**7. Recommendations for improving this course.** Expand the table as needed.

|  |  |
| --- | --- |
| 1. | For point equilibrium, use components from the start; de-emphasize law of sines, de-emphasize angles. That means changing homework problems. |
| 2. | In recitations, create study groups so that students will know somebody. Too many feel all alone. |
| 3. | Better organize lectures and homeworks on shear stress.  |
| 4 | Drop the 7th mini-exam – not needed |
| 5 | For the final lecture, do the elevated highway frame problem |
| 6 | In **several** exams, require drawing FBD, and grade them on their FBD’s. |