**Northeastern University**

**Department of Civil and Environmental Engineering**

Instructor’s Assessment

CIVE 3425 Steel Design

**Semester / Year:** Fall / 2014 **Instructor: Myers Date:** 12/18/2014

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:*  Listed in item 3 below.
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\_3425 \_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. | I removed some lecture time on tension members to make time for more complicated material on beam-columns. I don’t think the change was significant enough to be labeled successful as I still received several evaluation comments along the lines of “the treatment of beam-columns was too rushed.” |
| 2. | I reduced the number of assigned learning modules. I think this was clearly an improvement but, nevertheless, students still complained about the number and tedium of the learning modules. |
| 3. | I attempted to provide more examples of my exam questions so that students were not taken off-guard as they had been in the past. I think this was moderately successful, but I still received several evaluation comments noting that students were surprised by the style of exam questions. |

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

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| --- | --- | --- |
|  | **Student Comment** | **Your Comment(s)** |
| 1. | Teach less theory and more practical examples. Fewer derivations. Remove conceptual parts from exams. | This is my most common suggestion. I receive this suggestions every semester and disagree. I am repeating my response from last year, which was repeated from prior years: I think that in any design class there will be some students who want it taught from a practical perspective and others who want it taught from a theoretical perspective. I tried to balance these perspectives but probably spent more time on the theory than is typical for an UG steel design class. In my opinion, I think it is beneficial to spend a lot of lecture time on the theory behind the code so that detailed implementation of the code can be self-taught after the students learn the theory.  I think that adding a recitation to this class might help to mitigate this criticism. I will explore adding a recitation the next time I teach this class. |
| 2. | While the learning modules were considered valuable by most students, the majority of students also felt that the requirement that learning modules be submitted as a professional report was tedious and not worth the effort. | I am encouraged that most students found the computations of the learning modules to be worthwhile, and I totally understand why they dislike having to present their results in a formal report, however I think that report writing is an important part of being an engineer so I am planning to continue to require submissions as formal reports. I will consider reducing the number of report questions though. |
| 3. | Write-up procedure list for member verification and member selection of tension members, compression members and flexural members just as I do already for beam-columns. | This is a good suggestion and, next time I teach this class, I will try to provide these lists. |
| 4. | Assign more, shorter exams as opposed to having only one midterm (worth 25%) and one final (worth 40%). | This is a good suggestion and, next time I teach this class, I will consider having small exams after each topic: LRFD, tension members, compression members, flexural members and beam-columns. |
| 5. | Do a better job at learning students’ names. | This is an important reminder. I typically only learn about one-third of the students’ names. I should make an effort to learn every student’s name. |
| 6. | The course level is more appropriate for graduate students than undergraduate students. Use of jargon and technical terms is confusing. | I try to keep this in mind already, but will use this comment as a reminder to focus more on making sure I introduce terms completely before using them. I think that the procedure list requested in Student Comment #3 can also include a list of terms. |
| 7. | Add course material on connections. | I’d love to add material on connections, but I already need to add more material on beam-columns and I don’t think there is sufficient lecture time to also add significant material on connections. I will aim to have at least two lecture on connection next time I teach this class. Perhaps I will move connections earlier in the course schedule to make sure it is covered. |

**3. Student questionnaire summary**

**4. Grade Summary**

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| --- | --- | --- | --- | --- |
| **Exam 1 question #** | **Topic** | **Average score** (0 to 100) | **% students with adequate achievement** | **Comment on any item with poor achievement** |
| 1.1 | LRFD – Familiarity with key terms | 80% | 76% |  |
| 1.2 | Tension Members | 89% | 87% |  |
| 1.3 | Compression Members – Effective Length | 86% | 90% |  |
| 1.4 | Compression Members –Relative slenderness | 73% | 71% |  |
| 1.5 | Tension Members – Block Shear | 56% | 66% | This question was intentionally tricky and was only worth a small portion (7%) of the exam. |
| 1.6 | LRFD – Load Combos | 89% | 92% |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Exam 2 question #** | **Topic** | **Average score** (0 to 100) | **% students with adequate achievement** | **Comment on any item with poor achievement** |
| 2.1 | LRFD – Familiarity with key terms | 82% | 79% |  |
| 2.2 | Flexural Members – Lateral-torsional buckling. | 76% | 68% | This question was intentionally tricky and was only worth a small portion (8%) of the exam. |
| 2.3 | Flexural Members – Local Buckling | 83% | 71% |  |
| 2.4 | Beam-columns – Required strength | 65% | 68% | I was surprised students didn’t do better on this problem. I will make sure to place more emphasis on Mnt and Mlt analysis in the future. |
| 2.5 | Beam-columns – Frame design example | 78% | 84% |  |

**5. Here are the topics listed on your syllabus.** Based on your grade summaries, report the fraction of students that showed ability to apply knowledge and to identify, formulate, and solve problems. In the column “Basis for assessment” report the particular item(s) in the grade summary that support this assessment; or if the topic is not covered in the grade summary, state the basis of your assessment.

|  |  |  |  |
| --- | --- | --- | --- |
| **Topic** | **Percentage of students showing ability to apply knowledge and solve problems** | **Basis for assessment** | **Comments** |
| 1. *Design for tension members* | 73% | Grade Summary 1.2 and 1.5 | Also assessed on HW. |
| 1. *Design for compression members* | 80% | Grade Summary 1.3 and 1.4 | Also assessed on HW and Learning Modules. |
| 1. *Design for members in bending* | 80% | Grade Summary 2.2 and 2.3 | Also assessed on HW and Learning Modules. |
| 1. *Design for members with combinations of loadings* | 73% | Grade Summary 2.4 and 2.5 | Also assessed on HW and Learning Modules. |
| 1. *Design of simple connections* | N/A | N/A | This topic was not covered. |
| 1. *Design of braced frames and rigid frames (introduction)* | 78% | Grade Summary 2.5 | Also assessed on HW. |

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

What percentage of students achieved the following learning outcomes?

|  |  |  |  |
| --- | --- | --- | --- |
| **Learning Outcome** | **Percentage achieving** | **Basis for this rating** | **Comments?** |
| an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice | 90% | Grading of exams and homeworks; Discussion with students during office hours and lectures | I think that the students received an appropriate balance of theory and design examples to be able to contribute immediately to engineering practice. |

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

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| --- | --- |
| 1. | Provide procedure lists for member verification and member selection for tension members, compression members and flexural members. |
| 2. | Provide terms list for every course topic – LRFD design, tension members, compression members, flexural members and beam-columns. |
| 3. | Revisit learning modules and see if any of the report questions can be omitted. |
| 4. | Try having a short exam/quiz after each topic. Make these optional so that make-up quizzes do not become a headache. If students opt out, the final and/or midterm will carry that much more weight. Students can only decide before the quiz if they will opt out. |
| 5. | Make an effort to learn every student’s name. |
| 6. | Find a way to include connection into course schedule. |