# Fall 2010 Course and Curriculum Assessment Review

**March 2, 2011**

***Competency Changes:***

1. ChEn 170: Change 10.8.2 (“Students will be introduced to costs in capital ventures (e.g., capital vs operating costs, salvage value, equipment costing)”) to replace “salvage value” with “depreciation”. **Responsible: Tommy.**
2. ChEn 311: The 11 and 12 competencies will be dropped in Fall 2012, as they are covered in EngT 231.
3. ChEn 378: 3.2.7 modified to include wording on corrosion (now “Students will be able to select materials appropriate for particular applications and processes, through consideration of physical and chemical characteristics of materials, including possible failure and corrosion modes”) and renumbered as 10.9.1. **Responsible: Tommy.**
4. ChEn 436: Use existing 10.5.3 (“Students will be able to perform preliminary valve sizing and understand the interaction of the valve with other process components”), but delete 10.3.2 (“Students will understand the principles involved in selecting a control valve”). **Responsible: Tommy.**
5. ChEn 436: Delete 3.8.2 (“Students will be able to write and solve ODE’s that describe the transient behavior of simple systems”) due to redundancy with 3.1.3 and 3.1.6 (“Students will be able to set up and solve simple transient material balances” and “Students will be able to set up and solve simple transient energy balances”). **Responsible: Tommy.**

***General Action Items:***

1. For each course you teach, remember to look at the action item(s) from the previous year before the semester begins and respond to the action item(s) at the end of the semester. If you are teaching a course for the first time, you should look at the past history of action items to provide guidance for your course preparation. **Responsible: ALL**
2. Before the students fill out the ABET competency evaluations at the end of the semester, spend a few minutes in class reviewing the competencies to refresh the students’ memories. Our goal is to get improved feedback from the students. **Responsible: ALL**
3. To further improve the student feedback, the Undergraduate Committee (UG) will add space for student comments on these evaluation forms. We have found that the written comments by faculty drive change more than the numeric values. Therefore, we want to provide the students the same opportunity. **Responsible: UG Committee.**

***ChEn 170:***

1. Change 10.8.2 (Students will be introduced to costs in capital ventures (e.g., capital vs operating costs, salvage value, equipment costing) to replace “salvage value” with “depreciation”. **Responsible: Tommy.**
2. Feedback loop: Leadership experience. Continue the good work of incorporating leadership experience and feedback into the team project.

***ChEn 191:***

1. The UG Committee shares the concern about AIChE meetings and College lectures taking time away from 191 class time, but do not recommend action at this time.
2. The UG Committee agrees that students should be encouraged to take the course in the Fall. Change the Map and the website accordingly. **Responsible: Tommy.**

***ChEn 263:***

1. Feedback loop: Temperature units in Mathcad. Instruction improved again, with continued improvement in performance based on homework (from >90% of students doing it correctly last year to >95% this year). The instructor wants one more year of evaluation to see how the students do in the advanced junior classes. **Responsible: Brad.**
2. Feedback loop closed: Iteration methods. Again, instruction improved and the students are doing well, with an average 93% score on the Newton’s method portion of the VBA project. This item is closed unless the instructor notes a decrease in student capabilities.
3. Feedback loop: Leadership opportunity and student team learning environment. Students given an opportunity to present their team projects during an evening celebration in order to see a wider variety of approaches to team work, leadership, and solving problems. This was well-received. Continue next semester and report on outcome. **Responsible: Brad.**
4. The instructor plans to implement a VBA project based on heat exchanger solutions using the log-mean temperature method. The UG Committee appreciates the desire for extra L3 preparation, but we are concerned about the potential for overwhelming the students with too challenging a problem. Be sure to consider the students’ capability. You may want to completely define the engineering approach to maintain the focus on the programming aspects of the problem.
5. The instructor plans to improve final preparation with a review sheet and checklist. Please report on this next semester. **Responsible: Brad.**

***ChEn 311:***

1. The 11 and 12 competencies will be dropped in Fall 2012, as they are covered in EngT 231. (They will be retained through Fall 2011 because a poll indicated that the Econ 110 and EngT 231 heritage was still about 50/50 among current students.)

***ChEn 374:***

1. Feedback loop: Environmental considerations. Work to develop some homework simple problems involving environmental considerations or incorporate some environmental aspects into existing problems (competency 7.4). Possible examples/ideas: leaking pump seals (annular orifice flow calculation), waste treatment plant (settling velocities, Stokes flow/drag), wind turbine and/or pipeline design environmental impact. Please consult former instructors or UG committee for additional ideas or clarification and report on progress. **Responsible: David.**
2. Feedback loop: Power law fluids. Good work. Please continue to improve instruction/ learning relating to competencies 3.3.4 and 10.3.3. **Responsible: David.**
3. Feedback loop: Safety. Safety plans were required for class project proposals and implementation. Excellent progress. Continue with your idea of homework case studies. **Responsible: David.**

***ChEn 378:***

1. Competency 3.2.7 changed to “Students will select materials appropriate for particular applications and processes, through consideration of physical and chemical characteristics of materials, including possible failure and corrosion modes.” As a design competency, it was renumbered 10.9.1. **Responsible: Tommy.**
2. Feedback loop: Corrosion. Continue to monitor and report on the perceived positive impact of moving corrosion topics to earlier in the semester. **Responsible: Dean.**
3. The UG Committee agrees that an L3 exam question from Materials Science is warranted. Please work with previous instructors to propose one set of five questions. **Responsible: Dean with Bill and Ken.**

***ChEn 391:***

1. Field trips remain the purview of the instructor (no endorsement of the adequacy of the BYU heating plant was intended). However, it is easier to make effective trips to some sites with a class of 10 than with 30. Please continue to make the field trip experiences the best possible for your class, as circumstances permit.
2. The UG Committee is working on changes for this course to maximize its effectiveness in the overall curriculum.  **Responsible: UG Committee.**

***ChEn 436:***

1. Use existing 10.5.3 (“Students will be able to perform preliminary valve sizing and understand the interaction of the valve with other process components”), but delete 10.3.2 (“Students will understand the principles involved in selecting a control valve”). Similar competencies are in 374 and 451, which will be evaluated for consistent treatment. **Responsible: Tommy.**
2. ChEn 436: Delete 3.8.2 (“Students will be able to write and solve ODE’s that describe the transient behavior of simple systems”) due to redundancy with 3.1.3 and 3.1.6 (“Students will be able to set up and solve simple transient material balances” and “Students will be able to set up and solve simple transient energy balances”). **Responsible: Tommy.**
3. Feedback loop closed: Valve sizing. In 2009, the instructor assessment and student assessment did not match very well for 10.5.3. The instructor evaluated this to see if there was a problem with the wording of the competency (see item 1 in this section) or another problem. The instructor feels is is simply related to the material coverage occurring early in the semester, which the students forget by evaluation time at the end of the semester. The ratings were better aligned this year. This item is closed.
4. Feedback loop closed: Competency review. The UG Committee agrees with the recommendation that this and other competencies be reviewed briefly prior to evaluation to help improve the student’s feedback (see General Action Item 2 above). **Responsible: All.**
5. Feedback loop: Environmental coverage: Environmental and safety problems were incorporated in the homework, but the documentation could be improved. A safety video was shown. Please continue and report the status in 2011. This will item will then be closed pending continued progress. **Responsible: Tom.**

***ChEn 475:***

1. The competencies relating to radiation (3.4.1) were questioned because there are no radiation-specific experiments. The UG Committee suggests asking the students to consider radiation in appropriate experiments, even if only to verify that it is negligible.
2. All “R” competencies were recommended for elimination to focus on the “M”. The UG Committee is considering this recommendation, specifically looking at consolidation/elimination of 3.4.1-3.4.3 and 6.1 and 6.2 (but 3.3.2, 4.4.2, and 10.3.1 were also noted as needing to be addressed). **Responsible: Tommy and UG Committee.**
3. Get instructors together to choose the best Statistics course as a perquisite. **Responsible: Tommy and Morris.**
4. The UG Committee is considering the course workload as part of our overall assessment of both semesters of UO.

***ChEn 476:***

1. Feedback loop closed: Thermodynamic applications: The new instructor was concerned about student learning relating to competency 3.7.2 (involving solution thermodynamics applied to solving separation problems) after the first course. After a second course, he believes that it is probably not an area of special concern, but will continue to work to help the students apply these principles with greater confidence.
2. A new edition of the book is available, which will be used next semester with the goal of re-evaluating and pruning the course content to improve both teaching and learning.