

Table 2.1 – Sample End of Term Course Assessment

Course number and name ChE 487 CHEMICAL PROCESS SIMULATION & DESIGN II
1999

Semester and Year Winter

Faculty Member Montgomery

First time course taught

Course taught previously

Course outcome	Assessment tool	Mean score
Obtain chemically related technical and business related information. Groups were given brief problem statements and were required to find relevant information in the chemical engineering literature.	Preliminary written report ChE score Final report ChE score	83 % technical 88 % technical
2. Write, edit, revise, and critique technical memos and formal written reports. Groups wrote formal written reports, which were evaluated by their classmates, who wrote individual assessment memos. Based on these comments and those of their technical and technical communications supervisor, they revised the report.	Individual assessment memos Group final report End of term student assessment	90 % technical 78 % tech comm. 90 % tech comm. 3.05 / 5.00
3. Prepare and present effective oral reports. Groups presented their preliminary results and their final results in oral presentations. For the preliminary presentation they first rehearsed with technical communications faculty. No such rehearsals took place for the final reports.	Prelim. oral reports Final oral report End of term student assessment	74 % ChE, 85 % Comm. 83 % ChE, 83 % Comm. 3.18 / 5.00
4. Assemble a logical sequence of interconnected unit operations for an effective chemical process. Students practiced conceptual design of engineering processes in two group one hour mini-projects. One of the exam questions covered this aspect of the course, and process synthesis comprised 20% of their final report grade.	Mini project 1 Mini project 2 Final report score Exam	99 % 85 % 83 % n/a
5. Use, understand, and interpret results from a commercial chemical	Mini project 3	98 %

<p>process simulation software package. Students used the ASPEN chemical process simulator to design their processes. Groups worked on a mini project, and material and energy balances comprised 10% of their final report grade.</p>	<p>Final report score</p>	<p>84 %</p>
<p>6. Assess the profitability of a chemical process. One exam problem covered this aspect of the course, and it comprised 10% of their final report grade</p>	<p>Final report score Exam problem</p>	<p>94 % n/a</p>
<p>7. Determine sizes and costs of equipment commonly used in the chemical processing industries. One exam question covered this aspect of the course, and it comprised 35% of the final report grade</p>	<p>Final report score Exam problem</p>	<p>88 % n/a</p>
<p>8. Work as a member of a team. Individual students were assessed as to their contributions to the team effort.</p>	<p>Team meetings, instructor evals End of term student assessment</p>	<p>93 % 3.94 / 5.00</p>

Table 2.1 - Sample End of Term Course Assessment, cont.

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List ways in which course learning outcomes were achieved and assessed:

Comments on this course offering (based on course evaluations, what worked well, etc.)

Exam was a good way to assess individual performance, students paid more attention to all parts of the course
Turton et al. too general a textbook
Some deadlines too early, e.g. heat integration component due two days after lecture
Some Tech comm lectures too late, too soon before written report deadline

Suggestions for future course offerings:

Continue exam, but don't make it so long, and remember to record scores for individual problems
Peters and Timmerhaus as main text, Douglas as recommended, Mathes and Stephenson as recommended for tech comm
Make sure main chemicals are available on Aspen...
Move deadlines later to give them more time to absorb material
Consider peer assessment to evaluate individual contributions to team project
Add an "Aspen simulation" component to the written report grading sheet