

## ChE 415/416 – Unit Operations Laboratory – Design Oral Critique

*This is not an outline. It may or may not be a good idea to present information in this order.*

Presenter:

---

*Design Objective*

*Grade:*

- A** I understood exactly what the speaker wanted to achieve with his/her design; AND I could explain to someone else what problem needed to be solved, what had to be specified in the design, and what constraints (e.g., allowable temperature range, allowable pressure range, explosion hazards) existed just based on the information that was presented; AND there was no irrelevant information.
- B**
- C** I understood exactly what the speaker wanted to achieve with his/her design; BUT I could not easily explain what the design was supposed to specify just based on the presentation; OR I could not easily explain the constraints on the design just based on the presentation.
- D**
- F** I am not sure what the design was supposed to achieve. (The design objective was not clearly stated.)

*Presentation of Proposed Design*

*Grade:*

- A** I could explain to someone else how the design meets the objective; AND I could explain the purpose of each step of the designed process or each of the critical parameters specified; AND I could give an example of an alternative design that was rejected and explain why.
- B**
- C** I could explain to someone else how the design meets the objective; BUT I am not sure of the purpose of every step of the designed process or of every specified value; OR I could give an example of an alternative design that was rejected, but I could not explain why.
- D**
- F** It would be hard for me to explain how the design meets the objective, based on the presentation; OR I am not sure of the purpose of most steps in the designed process or of most specified values; OR I don't know what alternative designs were explored.

*Experimental Approach*

*Grade:*

- A** I could explain to someone else exactly what the speaker's team determined in the lab and why it was critical to the design; AND the speaker did not present experimental results that seemed unrelated to the design; AND I know the uncertainty on each of the experimentally-determined parameters.
- B**
- C** I could list things that the speaker's team determined in the lab, but I am not sure why some of them were important to the design; OR I don't know the uncertainty on some of the experimentally-determined parameters.
- D**
- F** It was hard to tell what was determined experimentally, what was given in the assignment, and/or what was determined some other way; OR I don't know the uncertainty on most of the experimentally-determined parameters.

*Proposed Design*

*Grade:*

- A** Off the top of my head, I cannot think of a better solution to the problem, given the constraints; AND the overall approach seems reasonable; AND operating conditions (temperature, pressure, flow rate) have been specified; AND there are no obvious problems with the specifications (e.g., a temperature above the boiling point of something that should be a liquid); AND specifications which depend on experimentally-determined values are given an appropriate range of values based on experimental uncertainty; AND all streams go from somewhere to somewhere; AND equipment is used appropriately (e.g., pumps to move liquids, compressors to move gases).
- B**
- C** This solution is reasonable and meets the design objective; BUT obvious alternatives seem to have been discarded without good reason; OR some operating conditions are unspecified OR there are obvious problems with some specifications; OR the effect of experimental uncertainty on the design is unclear.
- D**
- F** This solution does not meet the design objective; OR this solution seems unreasonable; OR several operating conditions are unspecified or have unreasonable values.

*Presentation Quality*

*Grade:*

- A** The talk was logically organized; AND it was the right length; AND the visual aids were helpful, not distracting; AND too much was not crammed onto one slide; AND fonts were of appropriate size; AND charts and tables were easy to read and interpret.
- B**
- C** Some information was presented that didn't have any clear purpose; OR the talk was too long or too short by more than 1-2 minutes; OR some slides were hard to read; OR some charts or tables were hard to interpret.
- D**
- F** The talk was disorganized; OR many visual aids were hard to read or hard to interpret.

*Speaker's Professionalism*

*Grade:*

- A** The talk was consistently professional in tone and language; AND the speaker was neatly dressed; AND he/she spoke clearly and confidently; AND he/she avoided slang; AND he/she treated the audience with respect; AND he/she used phrases such as "I don't know, but I think that . . ." appropriately, thinking on his/her feet but not inventing nonsense; AND he/she appeared to be knowledgeable about the project and related engineering concepts; AND I would actively recruit this person to work for me.
- B**
- C** The talk was not consistently professional in tone and language; OR the speaker was not neatly dressed; OR The speaker spoke too fast or fidgeted distractingly; OR the speaker seemed to lack some critical knowledge about the project and/or related engineering concepts; OR the speaker seemed to be inventing things when questioned.
- D**
- F** The talk was consistently unprofessional in tone or language; OR the speaker seemed to lack much critical knowledge about the project and/or related engineering concepts; OR the speaker failed to treat the audience with respect when questioned.

*Overall Grade (all traits rated equally):* \_\_\_\_\_