

BE 482 Senior Engineering Design II (3) (1 1-hr Lec, 2 3-hr Lab) Second of a two-semester course sequence that provides a major design experience for senior students in bioengineering. Design process; project management; design methods; modeling and simulation; design optimization; engineering economics; engineering statistics, completion of an open-ended design project. Pre: 481; or consent.

Required Text: **Fundamentals of Engineering Reference Handbook**;
Available at www.ncees.org

The course focuses on ethics, oral, and writing. A written progress report is required every week; preferable as a concise email. A project journal should be kept and available on demand for review. A project report on the success of testing the design is due at the end of the semester.

An oral class presentation of work done and planned is required every other week. The project must be presented at the CTAHR Student Symposium in April. A presentation open to all BE faculty and students must be made during finals week.

A rough schedule will be:

Week 1 Revise design sketches, bill of materials, and fabrication/testing schedule

Week 2 - 5 Complete fabrication of first prototype

Week 6 - 13 Test prototype and make improvements

Week 14 Make final prototype and test under expected conditions of use

Week 15 Final design project report

Grading rubric

A => client ecstatic about solution; final prototype could be turned over to another skilled engineer for manufacture; reports on time and easily understood; final oral presentation well received by faculty and students; and contributed to class success.

B => client satisfied with solution; final prototype could be turned over to another skilled engineer for some improvements and manufacture; reports not on time but easily understood; final oral presentation received by faculty and students without enthusiasm; and contributed somewhat to class success.

C => client accepts solution with reservations; final prototype requires major alterations before manufacture; reports intermittent and difficult to understand; final oral presentation questioned on logic and clarity by faculty and students; and contributed very little to class success.

D => client accepts solution with trepidation; final prototype unfinished but partially demonstrates design may work; reports seldom or indecipherable; final oral presentation faulted on logic and clarity by faculty and students; and contributed nothing to class success.

F => Failure to meet at least 3 of the conditions for a D

Your completed project should demonstrate you have attained the BE Program outcomes listed at <http://www.ctahr.hawaii.edu/be/undergrad.html>