

ME397

Product Design Laboratory

Objectives: To develop, at a graduate level of understanding, a working knowledge of contemporary engineering design theory and techniques; to understand the context and suitability of mathematical methods in design; and to apply each aspect in the redesign of a current consumer product.

Text: K. Otto and K. Wood, *Product Design: Techniques in Reverse Engineering, Systematic Design, and New Product Development*, Prentice-Hall, NY, 2001. (Reference articles will be distributed on Canvas for supplemental reading on special topics.)

Prerequisites: Undergraduate knowledge of mechanical, material, manufacturing, and fluid/thermal systems. Basic knowledge of calculus, differential equations, linear algebra, probability methods (statistics), logic, and set theory. Knowledge and experience with computational methods. Experience with hand tools and basic experimental/testing techniques.

Grading: Each student will choose a commercially available product to reverse engineer and redesign during the semester. You will periodically report the results of your project, as outlined in the table below. These reports will include results from application of the methods, such as tables and figures, plus short narratives describing these results and giving your insights gained from applying the methods. Specific details for each assignment will be provided. Additionally, there will be several short homework assignments throughout the semester. Discussion of assignments among students is encouraged, but each student must turn in his/her own work. **No late homework will be accepted unless prior permission is obtained from the instructor.** You will also receive a grade for your participation on interactive aspects of the course.

Exams: No exams

Final grades for the class are assigned on the plus/minus (+/-) grading system according to the following scale:

91-100	A
90	A-
89	B+
81-88	B
80	B-
79	C+
71-78	C
70	C-
69	D+
61-68	D
60	D-
≤59	F

Sample Syllabus