

PENN STATE UNIVERSITY
Department of Mechanical & Nuclear Engineering

ME240

PRODUCT DISSECTION: APPLIANCES
Spring 2008 (Feb. 18 – March 27)

ME106S

Course Description

This course examines the way in which products and machines work: their physical operation, the manner in which they are constructed, and the design and societal considerations that determine the difference between success and failure in the marketplace. The primary objectives of this course are to develop a basic aptitude for engineering and engineering design, and to develop mental visualization skills by examination of design and manufacture of consumer and industrial products. Heavy emphasis is placed on hands-on laboratory experience and the development of team and communication skills. Students working in teams dissect several common products to discover their internal functions and to critique their design, manufacturing methods, materials selection, and potential for recycling. Lecture and discussion topics include the design process, material selection, introduction to manufacturing processes, basic mechanical and electrical components and measurements, green design, and human factors. Dissection projects include a hand drill, mixer, staplers, telephones, and single-use cameras.

Class Times: TR 2:30-4:25pm (314 Hammond)

Web Site: <http://www.mne.psu.edu/simpson/courses/me240>

Instructor: Dr. Tim Simpson Seung Ki Moon John Krenzel
Professor Teaching Assistant Lab Assistant
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Text: There is no text required; however, a lab notebook or journal is necessary.

Grading: Journal answers for lab sessions 100 pts (total)

Drill	10 pts
Mixer	10 pts
Staplers	20 pts
Single-Use Cameras	10 pts
Telephones	20 pts
How Things Work Web Page	30 pts

Attendance: Attendance is required at all laboratory sessions since you are an integral part of a team; any absences must be approved by the instructor.

Course Objectives:

The objectives of this course are to learn about engineering and product design by:

- a) Dissecting existing consumer and industrial products to determine how they function, how they are made and how they might be improved
- b) Explaining that function by applying appropriate physical principles
- c) Communicating that function effectively—by oral, written, electronic, and graphical means
- d) Developing visual reasoning skills and basic mechanical aptitude

Schedule:

Dates	Activity	Slides	Grade
Feb. 19 & 21	Lecture: Drills, Bearings, and Motors	<u>PPT</u>	—
	<u>Build Your Own Motor</u>	—	—
	Drill Dissection	—	10 pts
	Mixer Dissection	—	10 pts
Feb. 26 & 28	Lecture: Stapler Wars	<u>PPT</u>	—
	Stapler Dissection	—	20 pts
	Hand in journals (Drill & Mixer labs will be graded)	—	—
March 4 & 6	Lecture: How Cameras Work	<u>PPT</u>	—
	Camera Dissection	—	10 pts
	Hand in journals (Stapler labs will be graded)	—	—
March 11 & 13	NO CLASS - SPRING BREAK	—	—
March 18 & 20	Lecture: How Telephones Work	<u>PPT</u>	—
	Telephone Dissection	—	20 pts
	Hand in journals (Camera labs will be graded)	—	—
March 25 & 27	How Things Work In-Class Activity	PPT	30 pts
	Hand in journals	—	—