



University of Wisconsin - Madison

College of Engineering [EGR]

Last Offered: 2013 Spring [1134]

Direct Link to this Syllabus :

<http://aefis.engr.wisc.edu/index.cfm/page/CourseAdmin.ViewABET?coursecatalogid=209&pdf=True>

1. M E 379, Mechanical Dissection

2. Credits : 1.00 Contact Hours : 3.0

3. Textbook and Materials : The Way Things Work, by David Macauley

4. Specific Course Information :

a. **Brief description of the content of the course (Course Catalog Description) :** Laboratory examination of the design of pumps, turbines, engines, heat-exchangers, household appliances, and other mechanical equipment. Operational design materials, manufacturing, failure and marketing considerations.

b. **Pre-requisites or Co-requisites :** Sr st in mech engr or cons inst

c. **This is a Elective course.**

5. Specific Goals for the Course :

a. Course Outcomes :

1. Develop a better understanding of how function, material selection and processing, and manufacturing and assembly considerations are implemented in actual machines and products.
2. Develop an appreciation for the details that must be addressed in designing and manufacturing a machine or product.

b. ABET Student Learning Outcomes :

- (e) Ability to identify, formulate and solve engineering problems.
- (f) Understanding of professional and ethical responsibility.
- (h) The broad education necessary to understand the impact of engineering solutions in a global and societal context.
- (i) Recognition of the need for and an ability to engage in life-long learning.
- (j) Knowledge of contemporary issues.
- (k) Ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

6. Brief List of Topics to be Covered :

Each week a different device is dissected and studied.

While these may vary from semester to semester, typically the dissections include: Toy which exhibits motion (e.g. a radio controlled car) Hydraulic jack Power tools (both pneumatic and electric) Air conditioner Small internal combustion engine (two weeks) Manual transmission (two weeks) Automatic transmission Printer or hard drive Gas turbine Project selected by student two-person teams