

Transforming Society- Technology and Choices for the Future (EN0002)

Course Description and Goals:

- *EN2* is an introductory level course which covers the engineering fundamentals behind and societal impact of novel discoveries relevant to technology.
- Gauging from the first offering (42 students enrolled in spring 2006), most of the students will represent non-engineering disciplines spanning both life and physical sciences.
- Because of such diverse student backgrounds, the course aims to provide foundational material and offer an interdisciplinary approach when examining exciting technologies in the field.

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Material Covered:

- Chosen topics will vary on a year to year basis in an effort to reflect the most recent and interesting technologies in the field.
- During the 2005-2006 academic year, topics included:
 - engineering ethics and ethical decision making (used to frame societal impacts of each technology to follow);
 - nanotechnology;
 - stem cells in engineering research;
 - biological warfare and biosensors; and
 - global warming/alterative energy sources.

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Teaching Philosophy:

- Team-based learning is stressed through the use of in class exercises, debates, and case studies.
- Students were encouraged to consider the ethical implications of each technology, in part by discussing recent articles in the NY Science Times and also by critically evaluating cutting edge applications as introduced in a peer-reviewed journal articles.
- Guest lecturers, who were experts in the field, were also utilized on occasion.
 - See next slide for potential integration with sociology and economics.
- In the future, a team design project will be introduced.

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Integration with Other Departments:

- **Sociology:**
 - Stem Cell Research: Social impact of this technology; Understanding families and children, fertility, etc.
 - Global Warming: Understanding urbanization and population - influence on greenhouse gas emissions, etc.
- **Economics:**
 - Nanotechnology, Stem Cell Research, and Global Warming: Understanding government funding for researching these cutting-edge technologies, the public debate over such funding, the cost to develop the technologies (cost/benefit), etc.