

ENGR – 300

Societal Issues in Engineering Professional Practice

This course is intended to satisfy the “**Issues in Professional Practice Course Requirement**” for Graduate Engineering. The goal of the course is to cover the understanding of the social impacts and implications of engineering practice. To accomplish this, the course will address various areas of emerging technologies and their projected impact on society. Guest lecturers from industry will address many of the sessions to provide the students with insight into their particular corporation’s emerging use of technology. Their emphasis will be on why they feel the necessity to emphasize the societal impacts.

1. Introduction

- 1.1. Course outline
- 1.2. Detailed Introduction
- 1.3. Survey form

2. Biotech

- 2.1. Sequencing machines
- 2.2. Genetically engineered food

3. Energy

- 3.1. Fossil fuel energy production
- 3.2. Nuclear Energy
- 3.3. Alternative sources of energy
 - 3.3.1. Solar
 - 3.3.2. Geothermal
- 3.4. Hydroelectricity

4. Communications

- 4.1. Traditional Telco
- 4.2. Internet
- 4.3. Wireless

5. Transportation

- 5.1. Earthquake resistance
- 5.2. What kind of Vehicles should be made to make them environmentally safe
- 5.3. Alternative fuel sources
 - 5.3.1. Fuel Cells
 - 5.3.2. Electric
 - 5.3.3. Hydrogen

6. Military

- 6.1. Intentions – good and bad?
- 6.2. Missile defense system
- 6.3. Is military necessary on such a large scale?

7. Medicine

- 7.1. Prosthetics
- 7.2. Remote Surgery
- 7.3. Augmentation
- 7.4. Instrumentation
- 7.5. Artificial organs
- 7.6. Microsurgery

8. Microelectronics

- 8.1. Silicon
- 8.2. Biological
- 8.3. Nanotubes
- 8.4. Optical

9. Exploration

- 9.1. Space
- 9.2. Undersea
- 9.3. Land

10. Ethics in Technology

- 10.1. What is morality
- 10.2. What is ethics
- 10.3. Do technology and Ethics interact?
- 10.4. How do we use technology for mankind’s benefit?