Title: Introduction to Professional Issues

Credits: 1

[UW Course Catalog Description](http://www.washington.edu/students/crscat/ee.html#ee398)

Coordinator: Blake Hannaford, Professor, Electrical and Computer Engineering

Goals: To discuss some of the many issues beyond those covered in our technical courses that a newly-minted engineering professional needs to know in order to succeed and contribute to the best of his or her ability.

Learning Objectives: At the end of this course, students will be able to:

1. Describe the advantages and disadvantages of acquiring an advanced degree in the context of their own professional plans.
2. Describe the characteristics of a professional.
3. Appreciate the importance and legal limitations of the IEEE Code of Ethics.
4. Understand the advantages of different corporate organization models, associated lines of authority and job descriptions.
5. Understand the complexity of ethical responsibilities and conflicts that can occur as an employee of a corporation, the advantages of legal counsel and the patchwork of state and federal laws concerning whistle-blowing
6. Understand the limitations of a company's loyalty to its employees, and employees' loyalty to their company.
7. Understand the economic importance and relative advantages and disadvantages of trade secrets and patents.
8. Understand the global, economic and societal ramifications of outsourcing.
9. Appreciate the complexities of the immigration debate with respect to the H-1B visa.


Reference Texts: None

Prerequisites by Topic: None

Topics:

1. Salary ranges for electrical engineers, and dependence on age, location, education, and specialty. (1 wk)
2. Societal expectations of a professional engineer; the IEEE Code of Ethics. (1 wk)
3. The corporate enterprise: who’s in charge of your career? Corporate organization. (1 wk)
4. The employment contract, non-compete clauses, intellectual property protection. (1 wk)
5. Responsibilities of engineers in ethical dilemmas: personal ethics, conflicts of interest. (1 wk)
6. Whistle-blowing examples and the protection afforded by Federal and state laws. (1 wk)
7. Trade secrets and the mobile employee. (1 wk)
8. Patents and patent rights. (1 wk)
9. Outsourcing of engineering jobs. (1 wk)
10. The H-1B visa and the immigration debate. (1 wk)

**Course Structure:** The class meets for one hour each week for discussion of selected topics. A variety of reading assignments will amplify the issues under discussion, and short essays and/or web research may be assigned each week. A final paper will be assigned in lieu of a final exam.

**Computer Resources:** Students will respond to class assignments on a Canvas site.

**Laboratory Resources:** None

**Outcome Coverage:**

1. *An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.* *(L)* It is expected that students will be able to apply their engineering knowledge to discussion of engineering ethics.

2. *An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.* *(M)* We will discuss professional ethics in general, the IEEE Code of Ethics in particular, and provide case studies of real and hypothetical examples of engineering ethics.

3. *An ability to communicate effectively with a range of audiences.* *(L)* The importance of being able to explain engineering analysis to non-experts – e.g. Environmental Impact Statements, FCC regulations – will be discussed briefly.

4. *An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.* *(H)* We will discuss professional ethics in general, the IEEE Code of Ethics in particular, and provide case studies of real and hypothetical examples engineering ethics. Note also the discussion of the role of whistleblowers.

5. *An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.* *(L)* The application of
engineering judgment will be lightly explored in the context of a discussion of engineering ethics.

(6) An ability to acquire and apply new knowledge as needed, using appropriate learning strategies. (L) Students will be asked to find additional examples of engineering ethics cases for discussion.

Prepared By: John Sahr

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