

Engineering Ethics

Syllabus Number

4G101

Special Subjects

Elective 2 credit

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1. Course Description

There are various ethical matters that engineers and researchers should consider carefully, such as “why engineers are accountable for products,” “whose fault is an error,” “should the design be improved to reduce accidents, even at the great expense,” In this course, we will discuss the ethical issues engineers face while referring to specific cases. And you will learn the basic theories of ethics: consequentialism, duty-based theory and virtue ethics.

This course is designated to achieve to DP5.

2. Course Objectives

- Students can understand the problems taken up in the course and explain in their own words. (Knowledge / Understanding)
- Students can think logically and critically. (Skill)
- Students can read critically.(Skill)

3. Grading Policy

- The final exam: 100%
- You must pass all mini-exams to acquire the qualification to take the final exam.
- I will provide feedback on the mini exams.

4. Textbook and Reference

Textbook

小出泰士 『JABEE対応 技術者倫理入門』 丸善株式会社、2010年

ISBN:978-4621082522

Reference

黒田光太郎・戸田山和久・伊勢田哲治編 『誇り高い技術者になろう[第二版]』 名古屋大学出版会、2012年

ISBN:978-4815807061

北原義典 『はじめての技術者倫理 未来を担う技術者・研究者のために』 講談社、2015年

ISBN:978-4061565470

藤本温編 『技術者倫理の世界 第3版』 森本出版株式会社、2013年

ISBN:978-4627973039

5. Requirements(Assignments)

- Think about the questions in the lecture content (eg, why engineers are accountable) (30 minutes), and read the textbook corresponding to the lecture. (60 minutes)
- Summarize the content of the lecture and take mini-exams on the LMS. (90 minutes).

6. Note

- In this course, we will use LMS for distributing lecture prints, taking a questionnaire etc.

7. Schedule

- [1] Introduction (What is engineering ethics?)
- [2] Engineers in the organization (Why did the Space Shuttle Challenger disaster happen?)
- [3] Accountability (Why engineers are accountable for products?)
- [4] Product liability (What are the correct use conditions?)
- [5] Human error (whose fault is an error?)
- [6] Consequentialism (Can I sacrifice one person to help 100 people?)
- [7] Cost-benefit analysis (Should the design be improved to reduce accidents, even at the great expense?)
- [8] Whistle blowing (When is whistle-blowing allowed?)
- [9] Intellectual property (Can ideas and technologies be released to the public immediately?)
- [10] Duty-based theory (Is it true that I should not lie?)
- [11] Globalization (Are there common global values?)
- [12] Precautionary principle (Is GM food safe?)
- [13] Environmental preservation (Why should we protect nature?)
- [14] Virtue ethics (What is a virtuous person?)
- [15] Human and technology (What is technology for humans?)