PHIL 334: Engineering Ethics and Technological Practice: Philosophical Perspectives on Engineering

Professor: Ava Randel asr96@njit.edu

Office hours: Tuesdays and Thursdays 1-2 PM (in Cullimore 332, by appointment) or other times by appointment (Zoom). I cannot guarantee I'll hold drop-in hours each week—so if you're planning to drop by, shoot me an email beforehand so I can confirm that I'm available. Note that CULM 332 is a shared office space for adjunct instructors.

Course Description

A philosophical examination of the nature of engineering practice and applied technology. Considers such questions as: How do the societal functions of engineers and the practical application of technologies relate to basic moral and intellectual values? What moral obligations are implied by the uses of technology? What are the ethical duties of engineers in the practice of their careers? How are technological practice and engineering related to questions about knowledge and reality?

Prerequisites

HUM 102 with a grade of C or higher, and one History and Humanities GER 200 level course with a grade of C or higher.

Materials

All materials will be available electronically via Canvas—there are no required texts for purchase, though students are welcome to purchase Michael Schur's book if desired: https://www.simonandschuster.com/books/How-to-Be-Perfect/Michael-Schur/9781982159320

Student Learning Outcomes

By the end of the course, students will be able to:

- Identify ethical issues
- Describe different ethical decision-making approaches
- Analyze engineering ethics cases
- Apply different ethical decision-making approaches to engineering ethics cases
- Recognize the ethical responsibilities of engineers
- Evaluate the broader societal and environmental impacts of engineering
- Develop and defend positions about issues in engineering ethics

Classes

Classes will revolve around discussion of the assigned readings. Some weeks will be more lecture-heavy, others will be more discussion-oriented, but most classes will have a balance of both. I encourage you to ask questions during the lecture if you need clarification or confirmation at any point; this will benefit you, your classmates, and me, so that we are moving at a pace that is working for everybody.

The best way to be prepared for discussion is to complete the reading and Perusall annotations before coming to class (this is also how you boost your participation points!). We will be reading a broad range of works in this course—some readings will be philosophical and theoretical, others will be applied case studies; some texts will be fairly dense, others will be more contemporary and accessible.

Philosophy is best done in dialogue, but the goal for this course is not to come to a consensus about everything; rather, this course will provide opportunities to interrogate our assumptions, beliefs, and biases about engineering and technology, to engage thoughtfully with multiple perspectives, and to disagree respectfully with one another as we do so. Moral philosophy is not about finding "the" answer, but largely, about asking better questions. I hope that this course will empower you to be thoughtful, considerate, and confident in your future careers.

Attendance Policy: Each student will be allowed two absences without consequence to your grade, with the exception of our Ethics Bowl days-- **on these days, it is imperative that every student be in class**. Please contact me as soon as you are able to let me know you will be absent (or as soon as possible after the missed class, life happens) to work with me about making up participation points. A good way to stay on track amidst absences is to keep up with Perusall annotations/ exit tickets even if you are absent from class—this will aid not only your participation grade, but your own understanding of the material. I encourage you to reach out to one another and share class notes if and when you are absent.

Student Absences for Religious Observance: If any of your absences are due to religious observances, you have the right to alternative accommodations, allowing you to make up work and/ or attendance points without penalty. This is your right as a student of NJIT and holds true for all your courses. Please email me in advance if you will be absent or require accommodations for religious observance, and note that you are entitled to confidentiality about this process.

Late Work Policy: If you anticipate that you will need to turn in work beyond the pre-set deadlines, **please reach out to me as soon as possible**. If we have a conversation about it, we can determine a fair extension period and/or grade adjustment. If I do not hear from you before you turn in your work, I will not be able to adjust grades, and you will begin to lose points for each day the work is not turned in.

Other Course Policies:

- **Technology:** Please bring a device (laptop, tablet, etc) that allows you to access the internet on campus. I ask that you use technology strictly for notetaking during lectures, and only for the activity at hand during groupwork. During discussions, I encourage you to pull up the readings on your device for easy reference (or bring them printed them out, if you're old school) but I ask that you close laptops or keep tablets flat to the desk whenever your classmates are speaking.

- **Names and Pronouns**: I will gladly address you by the name and pronouns that you share with me. While I will be sure to get the correct information at the beginning of the semester, if anything changes, please reach out to me. Please also correct me in the manner you feel most comfortable if I slip up or if I mispronounce your name.

- **Wellbeing:** Your well-being is of primary importance. If you are facing any challenges related to your physical or mental health, or obstacles like food or housing insecurity, please do not hesitate to get in touch with me, or the Dean of Students, to discuss ways we can put you in the best possible position to succeed. https://www.aclu.org/know-your-rights

- **Getting in touch:** I am reachable by email at asr96@njit.edu. I will do my best to get back to you within 24 hours on weekdays, but I appreciate your patience when this is not possible. If a substantial amount of time has passed and you feel I may have missed an email of yours, please don't hesitate to nudge me again. I encourage you to contact me or schedule a meeting in Office Hours to discuss ideas for your final project.

- **Accessibility Statement:** All students, with or without disabilities, are entitled to equal access to the programs and activities of NJIT. NJIT provides accommodations to students with disabilities. In order to ensure you get the accommodation you need to succeed, please provide me with the appropriate information before/after class, during my office hours, or email me to schedule a meeting. If you are having difficulty accessing the elements of the course for any reason (even one not recognized by the Office of Accessibility Resources and Services), please speak with me about it. https://www.njit.edu/accessibility/

- **Generative AI:** At NJIT, generative AI policies are determined by the instructor, and in my classes I do not accept content generated or modified by AI. Everything you turn into me should be your own original work, written specifically for this course. This includes reflection papers, Perusall comments, and every part of your final project. Submitting below the word count or having improper grammar will always earn you more points than submitting an AI-generated essay—I would also rather receive a messy draft than have you run it through Grammarly or other rewriting/ rewording software. We will discuss my reasons for this in class, but if you have any questions or concerns, please reach out to me.

Academic Integrity: Students are expected to abide by the NJIT University Code on Academic Integrity at all times (for details, see: https://www.njit.edu/dos/sites/njit.edu.dos/files/NJIT%20University%20Policy%20on%20Academic%20Integrity_0.pdf) Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: NJIT Academic Integrity Code. Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu. If and when you refer to, use, or build upon ideas from other work in your papers or comments, even if you don't directly quote that work, you should fully acknowledge your sources. For any questions involving Academic Integrity, please don't hesitate to reach out to me.

Requirements and Grading

Assignment	Weight
Class Participation	40%
Reflection Papers (3)	30% (10% each)
Final Project	30%

Class Participation: You'll notice that participation makes up nearly half of your grade. Participation includes engaging in class discussions (this incorporates attendance, asking questions, sharing your thoughts in small groups) (15%), participating with your teammates in the Ethics Bowl (10%), your 5-minute Ethics in the Wild presentation (5%) **and** using Perusall software to annotate readings before each class (10%). Each of these elements are crucial to your course participation grade, but your engagement in the "Ethics Bowl" cannot be made up, so at the beginning of the semester please make note of these dates.

- ➔ **Class discussions:** Everyone participates differently in class, which is why your grade for your engagement in class is combined with other participatory elements—and why we will alternate between large and small-group discussions. However, I strongly encourage everyone to participate in discussions, not only for your own benefit, but for the benefit of your classmates and me. The more perspectives, the better—and class time is an excellent time to practice skills of dialoguing thoughtfully, articulating your thoughts, questioning and clarification-- all of which are invaluable skills for your future careers and lives beyond school. If any particular

elements or dynamics of our course make it difficult for you to participate in the ways you want to, please reach out to me so we can address them in ways you feel comfortable.

➔ **Perusall annotations:** Students will annotate specific readings on Perusall in preparation for class (not all readings—only when indicated on Canvas). Annotations can take several forms: highlighting concepts that are challenging, engage substantially with the author's argument (pushing back on it, providing an example of the concept, following the logic to its conclusions, connecting it to another reading) and responding to others students' comments by responding to their annotations are all permitted.

➔ **Ethics in the Wild:** Each student will present once for ~5 minutes on a day the student selects. The student will share a short piece of media that raises issues and themes related to technology, engineering, and moral philosophy and then identify the ethically salient questions that emerge from it. These should be things like a TV show clip, news article, commercial, TikTok, podcast, etc—something that you **naturally come across,** not something that you seek out. These are informal, graded on a completion basis, and will be used to spark discussion throughout the semester—they do not need to coordinate thematically with our lectures for the day!

➔ **"Ethics Bowl":** As a midterm assignment, students will be split into teams to engage in a mock "Ethics Bowl" competition. This is a (very fun!) opportunity for on-the-spot collaborative ethical reasoning and problem-solving.

Reflections: You will be assigned three reflections (500-750 words) each worth 10% of your grade. These papers are not academic—they are more like journal entries, meant to be personal reflections on the subject material. The prompts are loosely as follows:

(1) Due Thurs, Feb 6th: What questions do you have about engineering ethics and/ or the philosophy of technology? What ethical commitments do you hold in your personal life and in your professional life? Are they similar at all, or are they unrelated? Why? How do you believe that technology, innovation, and ethics interact? Do you believe there is something intrinsic to technology that merits special ethical investigation, or do believe technology is morally neutral? Do you believe engineers have different moral obligations than other professions? Why or why not? What moral dilemmas do you anticipate facing in your future career? What do you think we could discuss in this course that would help you feel empowered to engage with these dilemmas?

(2) Due Thurs, March 27th: Look back to reflection entry #1. Has anything changed since you wrote it? Have any of your questions been answered? What new questions about ethics and technology do you have? Now that we've read and discussed some ethical theories, how would you describe your own personal ethic/ ethical system? In your own words, which ethical or critical theories appeal to you? Which ones don't? Are there any that you're still not sure about or confused about? In your

own words, describe one or two readings, class discussions, activities, or case studies that stand out to you so far. What's been interesting, confusing, or frustrating?

(3) Due Thurs, May 1st: As we wrap up this semester, reflect on your prior 2 journal entries. In broad terms: what will you take away from this course? what do you anticipate will be helpful to you in your personal or professional life? what questions remain unanswered? In specific terms: Reflect on at least two readings, discussions, lectures, or activities that stand out to you from the semester. If you mention a reading, be sure to include the title and author's name.

Final Project: You will research and analyze either a (1) current technological development or a (2) recent technological event (case study). At the end of the semester, you will write an original ethical analysis of the case and provide your suggestions to the stakeholder(s) involved. The assignment will be split into several parts—completing each piece on time is critical to your final grade:

(1) First, you will turn in a project proposal (**Thurs, March 13**) wherein you summarize (about 1 page double spaced) your case study and some sources you plan on using. These are assigned early enough so that I can provide you with feedback.

(2) Then, you will prepare a brief summary (5 minutes) of the technology or case with your peers in your pre-assigned final groups for an in-class workshop (**April 8-10th**). During class, each group member will have ~10 minutes: 5 minutes for a presentation, and five minutes for collaborative brainstorming of your ethical analysis and suggestions. During this time you will answer questions, and receive feedback—this is intended as a conversational "workshop" which will help you as you prepare your final paper.

(3) After the workshop, you will turn in a succinct, polished case summary and a brief reflection of what you discussed in your workshops (**April 17th**)

(4) The final portion of the project is a paper that will be written **during our final exam slot at the end of the semester**, where you will write a thorough, reasoned ethical analysis utilizing theories we have engaged with throughout the semester and incorporating feedback from your peers. More details to come.

More information and rubrics will be provided as the semester progresses, but keep your mind open throughout the semester for topics that interest you.

Letter and numerical grades are translatable on the following scale:

A = 90%+

B+ = 87-89.99%

B = 80-86.99%

C+ = 77-79.99%

C = 70-76.99%

D = 60-69.99%

F = 0-59.99%

Required Texts

There is no required text for purchase for this course. All course materials will be posted on the course Canvas page.

Class Schedule

Please find our course schedule below (the course is loosely organized alongside the Engineering Method). Due dates are highlighted and bolded.

Introduction (Jan 21)

Week 1 (Tues): Introduction to the course

Due Tues, Jan 21: Complete first day of class survey

Unit 1: Defining the Problem—why do ethics matter for engineers? (Jan 23-30)

Week 1 (Thurs): Humans and technology—why engineering ethics?

Week 2: Perspectives on tech neutrality—framing some concerns

Unit 2: Background Research—engineering code of ethics, normative ethics & critical theories (Feb 4- March 13)

Week 3: Introduction to applied ethics & codes of ethics

Due Thurs, Feb 6th: Reflection journal entry #1

Week 4: Normative theories: utilitarianism

** Ethics in the Wild presentations begin**

Week 5: Normative theories: deontology

Week 6: Normative theories: virtue theory

Week 7: Social Contract Theory & theories of justice

Week 8: Critical theories & philosophy of technology

Due Thurs, March 13th: project proposal (1 page)

Unit 3: Constructing Hypothesis and Planning— "Ethics Bowl" and final project proposal (March 25-27)

Week 9: Ethics Bowl

no reading this week: work on project proposal

Due March 27th: Reflection paper #2

Unit 4: Designing—final project workshops & class choice lectures (April 1-May 6)

Week 10: Special topics TBD-- class choice (No class April 3)

Week 11: (**April 8-10**) Work-In-Progress Presentation Group Workshops

Week 12: Special topics TBD—class choice (in-class writing time)

Due April 17th: case summary & workshop reflection

Week 13: Special topics TBD—class choice

Week 14: Wrap up: class choice

Due Thurs, May 1st: Reflection journal #3

Unit 5: Development—final project

Final paper due date TBD