

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

**Professor:** Ava Randel [asr96@njit.edu](mailto:asr96@njit.edu)

**Office hours:** Mondays and Wednesdays 1-2 PM (in office) or other times by appointment (Zoom). I plan to be in the adjunct office (CULM 332) most Mondays and Wednesdays, but I cannot always guarantee it—if you're planning to drop by, shoot me an email beforehand so I can make sure I'm available.

### **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.

### **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 get 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 older and 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.

**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 necessary. 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. During lectures, I ask that you use technology strictly for notetaking (I encourage you to take notes on paper to aid your working memory, but use whatever works best for you). 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.
- **Getting in touch:** I am reachable by email at [asr96@njit.edu](mailto: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/>
- **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](https://www.njit.edu/dos/sites/njit.edu.dos/files/NJIT%20University%20Policy%20on%20Academic%20Integrity_0.pdf)) Everything you turn into me should be your own original work, written specifically for this course. Copying from friends, classmates, the internet, or generative AI is against the University's Academic Integrity policy and risks very un-fun consequences for you and for me. I generally have no issue with students using ChatGPT for personal studying/ review, but you should not be turning in any artificially generated content in papers, Perusall comments, etc. 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 (asking questions, sharing your thoughts) (10%), participating with your teammates in the Ethics Bowl (10%), your 5-minute Ethics in the Wild presentation (10%) **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, especially where ethics are concerned—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). As long as you engage with the assignment, and as long as your comment is posted before class, you'll receive credit for it. Annotations can take several forms: first, I welcome you to highlight concepts that are challenging and mark them for us to clarify in class. Second, I welcome you to highlight the main points of a reading and engage substantially with it; either by pushing back on it, providing an example of the concept, following the logic to its conclusions, connect it or contrast it with another reading, or articulating your own agreement or disagreement with it. Third, I welcome you to thoughtfully engage with other students' comments by responding to their annotations.
- ➔ **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 (TV show clip, news article, TikTok, podcast, etc) that raises issues and themes related to technology, engineering, and moral philosophy and then identify the ethically salient questions that emerge from it. 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":** After midterms, students will be split into teams to engage in a mock "Ethics Bowl" competition. This is a low-preparation, low-stakes, very fun activity that provides an opportunity to practice on-the-spot collaborative ethical reasoning and problem-solving.

**Reflection Papers:** You will be assigned three reflection papers (500-750 words) each worth 10% of your grade: one at the beginning of the course, one that will serve as your midterm assignment, and one towards the end of coursework. These papers are not academic in nature—they are more akin to “journal entries,” meant to be personal reflections on the subject material. The prompts are loosely as follows:

- (1) Due Sept 18<sup>th</sup>: 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 Oct 30<sup>th</sup>: Look back to reflection entry #1. Have any of your questions been answered? What new questions have been raised? How would you articulate your ethical commitments—have any changed, or have you obtained new language or rationale to explain them? What ethical or critical theories appeal to you? Which ones come up short? Why?
- (3) Due Dec 9<sup>th</sup>: As we wrap up this semester, reflect on your prior 2 journal entries. 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?

**Final Project:** You will find and research a current, real-world case study of an engineering/ technological event or phenomenon and then write an original ethical analysis of the case. 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 (**Wed, November 6<sup>th</sup>**) wherein you summarize (about 1 page double spaced) your case study and some sources you plan on using.
- (2) Then, you will share a pre-recorded presentation (due **Friday, Nov 13<sup>th</sup>**) of the case with your peers in your pre-assigned final groups. Each group will watch their group members' pre-recorded presentations (~5 mins) before class time on the week of presentations in lieu of assigned readings. These presentations will be polished and professional summaries of the case you have chosen.
- (3) During class (**Nov 18-20<sup>th</sup>**) each group member will have ~10 minutes to present a draft of your ethical analysis, answer questions, and receive feedback—this presentation is intended as a conversational “workshop” which will help you as you prepare your final paper.
- (4) The final paper (**due Dec 20<sup>th</sup>**) will be due at the end of the semester, where you will provide a succinct summary of the case and a thorough, reasoned ethical analysis utilizing theories we have engaged with throughout the semester and incorporating feedback from your peers.

More information and rubrics will be provided as the semester progresses, but keep your mind open throughout the semester for topics that interest you. **I encourage you to meet with me about your topic before finalizing.**

**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 (Sept 4)**

Week 1: (Sept 4<sup>th</sup>) – Introduction to the course

**Due Wed, Sept 4<sup>th</sup>:** Complete first day of class survey

### **Unit 1: Defining the Problem—why do ethics matter for engineers? (Sept 9-Sept 18)**

Week 2: Humans and technology—why engineering ethics?

Week 3: Perspectives on tech neutrality—framing some concerns

**Due Wed, Sept 18<sup>th</sup>:** Reflection journal entry #1

### **Unit 2: Background Research—engineering code of ethics, normative ethics, nonideal & critical theories (Sept 23-Oct 30)**

Week 4: Introduction to applied ethics & codes of ethics

Week 5: Normative theories: utilitarianism

\*\* Ethics in the Wild presentations begin\*\*

Week 6: Normative theories: deontology

Week 7: Normative theories: virtue theory

Week 8: Critical theories & philosophy of technology: race, historicity, and technology

Week 9: Critical theories & philosophy of technology: gender, embodiment, and technology

**Due Wed, Oct 30<sup>th</sup>:** Reflection journal #2

### **Unit 3: Constructing Hypothesis and Planning—“Ethics Bowl” and final project proposal**

Week 10: Ethics Bowl

\*\*no reading this week: work on project proposal\*\*

**Due Wed, Nov 6<sup>th</sup>:** Project Proposal (1 page)

### **Unit 4: Designing—final project workshops (Nov 11-Dec 11<sup>th</sup>)**

Nov 11-13 Week 11: Special topics TBD-- class choice

**Due Fri Nov 15<sup>th</sup>:** Recorded summary of case shared with group members

Nov 18- 20 Week 12: Work-In-Progress Presentation Group Workshops

**\*\*no reading this week: watch your group members' presentations\*\***

Nov 25 Week 13: (Mon, Nov 25) Writing workshop for final paper/ "Death By Trolley" game

**\*\*no class meeting Wednesday, enjoy break!\*\***

**---Thanksgiving Break---**

Week 14: Special topics TBD—class choice

Week 15: Wrap up: class choice

**Due Mon, Dec 9<sup>th</sup>:** Reflection journal #3

**Unit 5: Development—final project**

**Final papers due Dec 20<sup>th</sup>**