

Fall 2021

## **PHIL 334-459: Engineering Ethics**

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# PHL 334 - Engineering Ethics

New Jersey Institute of Technology

Online

Dr. Amber E. George

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Office Hours: Monday & Friday 10:00 AM- 12:00 PM EST

**Course Description:** This course presents a philosophical examination of the nature of engineering practice and applied technology. We will consider 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 and creation of technology? What are the ethical duties of engineers in the practice of their careers?

## 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

**Required Text:** Harris, C. E., et al. (2019). *Engineering Ethics: Concepts and Cases*, 6<sup>th</sup> ed. Cengage. Additional course materials will be listed in each module.

Teaching/Learning Strategies	Evaluation Methods	Percentage of Final Grade
Discussion Board	Discussion Board	45%
Examinations/Quizzes	Examinations/Quizzes	15%
Written Assignments	Assignments Final Essay	20% 20%
Readings/Audio Visual Components	-	-
	Total	100%

**Topical Outline:** Students are required to read course materials and complete discussion board requirements. There will be additional assignments, quizzes/examinations, and a final essay to complete this term.

**Instructor Feedback & Response Time:** I will reply to your questions, concerns, and comments typically within 24-48 hours. Assignments will typically be graded within 1 week from due date.

**Instructor-Learner Communication:**

Students will be provided every opportunity to exchange ideas and express concerns with me. As such, communication will be achieved as follows:

**E-Mail/Canvas Messages:** This is the primary method through which I will communicate with you, and with which you should communicate with me. My email is [Amber.e.george@njit.edu](mailto:Amber.e.george@njit.edu) You should check your e-mail account each day as important course information might be waiting for you. During weekdays, I will do my best to respond to student messages within 24 hours. Over weekends, my goal is to respond to e-mails within 48 hours.

**Activity Feedback:** I will always provide feedback on all graded assignments. If for some reason your work misses the mark, I will leave you feedback identifying what you can do to improve. My goal is to assess your submissions within a week of the assignments' due dates.

**Office Hours:** Monday and Friday mornings 10am-12pm. I can also be available by appointment outside of these hours. Please note that I am in New York and therefore on EST.

**Announcements:** I will use the Announcements area in Canvas to broadcast course-related information to everyone in the class. Please check the Announcements frequently.

**Reading/Assignment Schedule:**

<b>Introduction Week</b>	<b>Introduction to the Course</b> <ul style="list-style-type: none"><li>• Review the “Start Here” module</li></ul> <i>**Syllabus Quiz</i>
<b>Module 1</b>	<b>Introduction to the Subject</b> <ul style="list-style-type: none"><li>• Chapter 1 “Engineers: Professionals for the Human Good”</li><li>• <i>Module 1 Content</i></li></ul> <i>**Discussion Board 1</i>
<b>Module 2</b>	<b>Ethical Approaches to Engineering</b> <ul style="list-style-type: none"><li>• Chapter 2 “A Practical Ethics Toolkit”</li><li>• <i>Module 2 Content</i></li></ul> <i>**Discussion Board 2</i>

<p><b>Module 3</b></p>	<p><b>Code of Ethics</b></p> <ul style="list-style-type: none"> <li>• Appendix (pp. 269-174)</li> <li>• <i>Module 3 Content</i></li> </ul> <p><b>**Discussion Board 3</b></p>
<p><b>Module 4</b></p>	<p><b>Responsibility, Accountability, and its Challenges in Engineering</b></p> <ul style="list-style-type: none"> <li>• Chapter 3 “Responsibility in Engineering”</li> <li>• <i>Module 4 Content</i></li> </ul> <p><b>**Discussion Board 4</b></p> <p><b>**Quiz</b></p>
<p><b>Module 5</b></p>	<p><b>Tensions Between Responsibilities and Organizations</b></p> <ul style="list-style-type: none"> <li>• Chapter 4 “Engineers in Organizations”</li> <li>• <i>Module 5 Content</i></li> </ul> <p><b>**Discussion Board 5</b></p> <p><b>**Stage One of Final Essay – Topic Declaration</b></p>
<p><b>Module 6</b></p>	<p><b>Trustworthiness in Relationships</b></p> <ul style="list-style-type: none"> <li>• Chapter 5 “Trust and Reliability”</li> <li>• <i>Module 6 Content</i></li> </ul> <p><b>**Discussion Board 6</b></p>
<p><b>Module 7</b></p>	<p><b>Responsibility in Design and Operation of Products or Engineered Systems</b></p> <ul style="list-style-type: none"> <li>• Chapter 6 “The Engineer's Responsibility to Assess and Manage Risk”</li> <li>• <i>Module 7 Content</i></li> </ul> <p><b>**Discussion Board 7</b></p> <p><b>**Quiz</b></p>
<p><b>Module 8</b></p>	<p><b>Engineering Meets Environmental Ethics</b></p> <ul style="list-style-type: none"> <li>• Chapter 7 “Engineering and the Environment”</li> <li>• <i>Module 8 Content</i></li> </ul> <p><b>**Discussion Board 8</b></p> <p><b>**Stage Two of Final Essay Development - Write an Outline</b></p>
<p><b>Module 9</b></p>	<p><b>Human Engineering Meets Animal Ethics</b></p> <ul style="list-style-type: none"> <li>• <i>Module 9 Content</i></li> </ul> <p><b>**Discussion Board 9</b></p>

<b>Module 10</b>	<b>International Engineering</b> <ul style="list-style-type: none"> <li>• Chapter 8 “Engineering in the Global Context”</li> <li>• <i>Module 10 Content</i></li> </ul> <i>**Discussion Board 10</i> <i>**Quiz</i>
<b>Module 11</b>	<b>Future Challenges for Engineers</b> <ul style="list-style-type: none"> <li>• Chapter 9 “New Horizons in Engineering”</li> <li>• <i>Module 11 Content</i></li> </ul> <i>**Discussion Board 11</i>
<b>Module 12</b>	<b>Selected Topics in Ethical Engineering</b> <ul style="list-style-type: none"> <li>• Cases (pp. 210-268)</li> <li>• <i>Module 12 Content</i></li> </ul> <i>**Discussion Board 12</i>
<b>Module 13</b>	<b>Wrap up and Review</b> <ul style="list-style-type: none"> <li>• <i>Module 13 Content</i></li> </ul> <i>**Discussion Board 13</i> <i>**Final Essay</i>

**Textbook Reading:** Course requires that a great deal of intellectual and philosophical ground be covered. The course is rather reading-intensive, as the readings that form the basis of all other course activities. Hence, it is the student’s responsibility to carefully complete all readings before contributing to a discussion forum or otherwise engaging in a course-related activity. In other words, you must complete the readings, complete them well, and do this before attempting anything else. Without these, it is impossible to derive any benefit from the course.

**Discussion Board Forums:** You must have all your posts for each week’s discussion board completed by the date listed online. Students are expected to respond to the **discussion prompt** I post no later than **Friday 11:59 PM** each week. Students must also post a **minimum of two (2) replies to classmates’ posts per discussion board/week by Sunday 11:59PM**. Posts will be graded principally on quality, but also on quantity. It is important that you post throughout the week, **at least two different days**. Additional guidelines about expectations will be displayed online.

All initial posts should cite appropriate resources whether it be course materials or outside sources using APA citations, 7<sup>th</sup> edition. Additional directions will be listed online.

**Assignments:** These activities are meant to be interactive and help you engage with ideas and experiences that bring about questions, comparisons, insights, criticisms, speculations, and tentative

conclusions. The specific requirements along with a grading rubric for each assignment are located online.

**Final Essay:** This essay will engage you in the process of reflective, analytical, and argumentative philosophical thinking. Specific instructions and guidelines for the essay will be given online.

**Examinations/Quizzes:** There will be some weeks when you will complete a quiz/exam. The quiz/exam will assess your completion and comprehension of the module materials and reading requirements.

**Grading System:**

A	94-100
B+	87-93
B	80-86
C+	74-79
C	66-73
D	60-65
F	0-64

**Student Attendance Policy:** Students who fail to participate by posting in two consecutive discussion board assignments may be instructor-initiated withdrawn from the course.

**Attendance and participation is essential in this class.** In an online class, attendance is partially determined by the amount of participation and times a student accesses the course and materials. To be successful in this class, plan on accessing our environment multiple times per week. Please do not wait until the last minute to submit your assignments; that will not give you the time needed to learn about the topic of the week or ask questions promptly should you need help.

- You can find the list of each assignment and their due dates by going to our Canvas Syllabus, looking at the course Calendar, or downloading the Assignment Calendar. *This is not a work-at-your-own-speed class; assignments submitted past the published due dates may not be graded and those points not included in your final grade.*
- Your participation will also be tracked through Canvas Grades. The statistics that can be gathered include the date of last participation, which folders have been viewed and when, as well as how many assignments have been submitted along with when they were submitted, and how well you did. It is through this data that I can also partially determine your participation.

**Late Policy:** Late assignments will be penalized 10% for each day late. If you know you will be offline the day an assignment is due, please make sure to post it early. If any student feels that they might be falling behind in the course, it is best to contact me to discuss the situation as early as possible. No assignments will be accepted after the final day of class. No assignments will be accepted after the final day of class. Students with an excused absence (hospitalization, jury duty, or family emergencies) may

be asked to produce proper documentation in order to make up graded work. All make up work is at the discretion of the instructor.

**Academic Integrity:** Any form of cheating or dishonesty, including plagiarism, is a fundamental violation of the nature and purpose of the college. Such behavior will not be tolerated and will result in at least lowered grades, possible failure in a class, program dismissal, and, in the most severe cases, dismissal from the college. The responsibility for maintaining personal integrity and honor in academic activities rests with the student. Each faculty member will provide information on academic integrity to students in the course outline at the beginning of the semester, including any necessary explanation of violations, possible infractions of academic integrity and the scope of sanctions, e.g., warning, lowering of the grade on the assignment or course, course failure, or dismissal from the program or university.

**Disability Statement:** In Accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990, this college strives to ensure that “no otherwise qualified individual with a disability shall, solely by reason of her or his disability, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program” administered by the University. If you are a student who requires academic accommodations due to a disability, please contact the disability support office.

**Student Code of Conduct:** Respect for the rights of others and for the College and its property are fundamental expectations for every student. The Student Code of Conduct (see above) outlines behavioral expectations and explains the process for responding to allegations of student misconduct. In other words, no trolling. **Remember, you are not anonymous online.** Students are expected to respond and write in a professional and appropriate manner when activities are assigned to create scenarios, discuss beliefs, present on a selected subject, or post to the web board. Inappropriate or harmful language will not be tolerated and could result in disciplinary measures and / or a failing grade for the class.

**Instructional Requirements and Support:** You should have the following: At least an Intel or AMD 2.0 GHz processor, but an Intel Dual Core 2 Duo would be best. At least 2 Gb of memory (RAM), but 4 Gb would be best. A broadband Internet connection (DSL, cable, or T1). A 56K dial-up connection should work but is not recommended. Have the recommended software, Microsoft Office, and Adobe Acrobat Reader. Scan your PC for viruses each week and keep up-to-date with the latest virus definitions and Windows updates. If you have questions about your computer and the technology used at the college please call the Student Help Desk.