

Fall 2023

PHIL-334 (453-455-457): Engineering Ethics

Amber George

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PHL 334
Engineering Ethics and Technological Practice: Philosophical Perspectives on Engineering
New Jersey Institute of Technology
Fall 2023

Dr. Amber E. George
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Office Hours: Monday & Friday 10:00 AM- 12:00 PM EST

Prerequisites/Co-requisites: HUM 102 with a grade of C or higher, and one History and Humanities GER 200 level course with a C or higher.

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 fundamental 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 (SLOs)

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

1. Identify ethical issues
2. Describe different ethical decision-making approaches
3. Analyze engineering ethics cases
4. Apply different ethical decision-making approaches to engineering ethics cases
5. Recognize the ethical responsibilities of engineers
6. Evaluate the broader societal and environmental impacts of engineering
7. Develop and defend positions about issues in engineering ethics

Required Text: Harris, C. E., et al. (2019). *Engineering Ethics: Concepts and Cases*, 6th ed. Cengage. Additional course materials are in each module.

Teaching/Learning Strategies	Evaluation Methods	Percentage of Final Grade
Discussion Board (SLOs 1, 2, 3, 4, 5, 6, 7) Each week one (1) graded discussion. Each discussion requires one (1) initial response and two (2) substantive peer responses. All initial posts should cite appropriate resources, whether course materials or outside sources using APA citations, 7 th edition. All initial posts must be made by the initial deadline (Friday)	Writing responses to prompts and peers.	45%

<p>and follow up posts made by the last day of the module week (Sunday).</p> <p>Discussions posts will not be accepted past this Sunday deadline each week.</p> <p>The late penalty will be assessed according to the due date of the initial post.</p> <p>Additional directions and guidelines are on Canvas.</p>		
<p>Quizzes/Exams (SLOs 1, 5, 6)</p> <p>At the end of some weeks, there is a quiz/exam that will cover the previous material. This assesses your completion and comprehension of the module materials and reading requirements. More details are on Canvas.</p>	Multiple-choice questions, true-false, select all that apply, essay format.	25%
<p>Written Assignments (SLOs 1, 2, 3, 4, 5, 7)</p> <p>These activities are 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.</p>	Scaffolding writing assignment leading to a final essay	30%
<p>Readings/Audio Visual Components</p>	-	-
	Total	100%

Topical Outline of Modules: Each module begins on Monday and ends Sunday. The material for the following week will be made available to you by Thursday, so feel free to work ahead. All due dates are for Eastern Standard Time (EST) zone.

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

Instructor-Learner Communication:

Students have every opportunity to exchange ideas and express concerns with me. As such, communication is as follows:

Email/Canvas Messages: This is the primary method I will communicate with you and with which you should communicate with me. My email is Amber.e.george@njit.edu. You should check your email 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 emails 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 (Meeting-by-Meeting Outline):

Class Term Begin: 9/5/23

9/5 Module 1: Introduction to the Subject			
Theory Content:	To Read/Review:	To Do:	Due Dates
<ul style="list-style-type: none"> The nature of professional identity and professionalism Why engineering is essential to human welfare, well-being and quality of life The Importance of having a critical attitude toward technology 	The "Start Here" module Chapter 1 "Engineers: Professionals for the Human Good" <i>Module 1 Content</i>	Discussion 1 Initial Post Discussion 1 Peer Posts Module 1 Syllabus Quiz	September 8, 2023 September 10, 2023 September 10, 2023
9/11 Module 2: Ethical Approaches to Engineering			
Theory Content:	To Read/Review:	To Do:	Due Dates
<ul style="list-style-type: none"> The nature of moral theories The basics of utilitarian moral approaches to solving moral problems The nature of virtue ethics 	Chapter 2 "A Practical Ethics Toolkit" <i>Module 2 Content</i>	Discussion 2 Initial Post Discussion 2 Peer Posts	September 15, 2023 September 17, 2023
9/18 Module 3: Code of Ethics			
Theory Content:	To Read/Review:	To Do:	Due Dates
<ul style="list-style-type: none"> An understanding of codes of ethics The nature of engineering codes of ethics The correlation between codes of ethics and protection of employees 	Appendix (pp. 269-174) <i>Module 3 Content</i>	Discussion 3 Initial Post Discussion 3 Peer Posts	September 22, 2023 September 23, 2023
9/25 Module 4: Responsibility, Accountability, and its Challenges in Engineering			
Theory Content:	To Read/Review:	To Do:	Due Dates

<ul style="list-style-type: none"> • The nature of responsibility and accountability • The fundamental impediments or obstacles to responsibility • Suggestions for how virtues can assist engineers in coping with impediments 	<p>Chapter 3 "Responsibility in Engineering"</p> <p><i>Module 4 Content</i></p>	<p>Discussion 4 Initial Post</p> <p>Discussion 4 Peer Posts</p> <p>Module 4 Quiz</p>	<p>September 29, 2023</p> <p>October 1, 2023</p> <p>October 1, 2023</p>
<p>10/2 Module 5: Tensions Between Responsibilities and Organizations</p>			
<p>Theory Content:</p> <ul style="list-style-type: none"> • The nature of organizational culture, communication, and managerial practices • An understanding of whistleblowing and its relationship to loyalty • How to preserve moral integrity and moral decision making 	<p>To Read/Review:</p> <p>Chapter 4 "Engineers in Organizations"</p> <p><i>Module 5 Content</i></p>	<p>To Do:</p> <p>Discussion 5 Initial Post</p> <p>Discussion 5 Peer Posts</p> <p>Stage 1 of Final Essay</p>	<p>Due Dates</p> <p>October 6, 2023</p> <p>October 8, 2023</p> <p>October 8, 2023</p>
<p>10/9 Module 6: Trustworthiness in Relationships</p>			
<p>Theory Content:</p> <ul style="list-style-type: none"> • An understanding of trustworthiness in engineering • An appreciation of different forms of dishonesty • Issues related to conflicts of interest 	<p>To Read/Review:</p> <p>Chapter 5 "Trust and Reliability"</p> <p><i>Module 6 Content</i></p>	<p>To Do:</p> <p>Discussion 6 Initial Post</p> <p>Discussion 6 Peer Posts</p>	<p>Due Dates</p> <p>October 13, 2023</p> <p>October 15, 2023</p>
<p>10/16 Module 7: Responsibility in Design and Operation of Products or Engineered Systems</p>			
<p>Theory Content:</p> <ul style="list-style-type: none"> • The risks imposed on the public in the design and management of engineered systems • Assessing harm in terms of quantifying and qualifying risks • The nature of informed consent concerning the distribution of risk 	<p>To Read/Review:</p> <p>Chapter 6 "The Engineer's Responsibility to Assess and Manage Risk"</p> <p><i>Module 7 Content</i></p>	<p>To Do:</p> <p>Discussion 7 Initial Post</p> <p>Discussion 7 Peer Posts</p> <p>Module 7 Quiz</p>	<p>Due Dates</p> <p>October 20, 2023</p> <p>October 22, 2023</p> <p>October 22, 2023</p>
<p>10/23 Module 8: Cultural Diversity in Engineering</p>			
<p>Theory Content:</p> <ul style="list-style-type: none"> • The nature of international technical standards for engineers 	<p>To Read/Review:</p> <p>Chapter 8, "Engineering in the Global Context"</p>	<p>To Do:</p> <p>Discussion 8 Initial Post</p>	<p>Due Dates</p> <p>October 27, 2023</p>

<ul style="list-style-type: none"> • Potential moral dilemmas engineers may encounter working in international areas • How to approach possible conflicts of engineering standards in different cultures 	<i>Module 8 Content</i>	Discussion 8 Peer Posts October 29, 2023 Stage 2 of Final Essay October 29, 2023
10/30 Module 9: Engineering Meets Environmental Ethics		
Theory Content: <ul style="list-style-type: none"> • The history of the environmental movement • The nature of sustainability • The conflicts between sustainability and economic development <ul style="list-style-type: none"> • Why engineers should be concerned about the environment 	To Read/Review: Chapter 7, "Engineering and the Environment" <i>Module 9 Content</i>	To Do: Due Dates Discussion 9 Initial Post November 3, 2023 Discussion 9 Peer Posts November 5, 2023
11/6 Module 10: Human Engineering Meets Animal Ethics		
Theory Content: <ul style="list-style-type: none"> • Ecological Engineering • The nature of speciesism • The conflicts between animal ethics and human development <ul style="list-style-type: none"> • Why engineers should be concerned about animals 	To Read/Review: <i>Module 10 Content</i>	To Do: Due Dates Discussion 10 Initial Post November 10, 2023 Discussion 10 Peer Posts November 12, 2023 Module 10 Quiz November 12, 2023
11/13 Module 11: Future Challenges fo Engineers		
Theory Content: <ul style="list-style-type: none"> • Introduction to challenges engineers are likely to face in the future • Suggestions for how technological advancements offer promise • Ethical challenges and how to address them • How you will apply ethics to your personal and professional lives 	To Read/Review: Chapter 9 "New Horizons in Engineering" <i>Module 11 Content</i>	To Do: Due Dates Discussion 11 Initial Post November 17, 2023 Discussion 11 Peer Posts November 19, 2023
11/20 Module 12: Selected Topics in Ethical Engineering		
Theory Content:	To Read/Review:	To Do: Due Dates

<ul style="list-style-type: none"> • Important cases involving ethics in engineering 	Cases (pp. 210-268) <i>Module 12</i> <i>Content</i>	Discussion 12 Initial Post Discussion 12 Peer Posts Written Exam	December 1, 2023 December 3, 2023 December 3, 2023
12/4 Module 13: Wrap-up and Review			
Theory Content: <ul style="list-style-type: none"> • Important takeaways from the course • How you will apply ethics to your personal and professional lives 	To Read/Review: <i>Module 13</i> <i>Content</i>	To Do: Discussion 13 Initial Post Discussion 13 Peer Posts Stage 3 Final Essay	Due Dates December 8, 2023 December 10, 2023 December 12, 2023

Textbook Reading: This course requires that a great deal of intellectual and philosophical ground be covered. The course is rather reading-intensive, as the readings 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.

Quizzes/Exams: To take exams in this course, you must use Respondus LockDown Browser. This program prevents you from printing, copying, going to another URL, or accessing other applications during a quiz. [Watch this video to get a basic understanding of LockDown Browser.](#) Please take the following steps when taking a quiz:

1. [Download and install LockDown Browser from this link:](#)
2. Once your download and installation has finished, log into Canvas using your standard browser.
3. From your Dashboard or under "Courses", click on the course in which you have to take the exam that requires LockDown Browser.
4. After you enter the course, find the exam and click on it.
5. A new tab will open with a message stating "Assessment Loading". You will also see a pop-up window asking you to open Lockdown Browser. Click "Open Lockdown Browser".
6. Lockdown Browser will automatically launch and your quiz will be loaded into Lockdown Browser. Click "Begin" to take the quiz. Once a quiz has been started with LockDown Browser, you cannot exit until the "Submit Quiz" button is clicked.

Questions or problems can be submitted via web form by going to: <https://servicedesk.njit.edu> and clicking on the "Report your issue online" link. You may also call the IST Service Desk with any questions at 973-596-2900.

Grading System:

A	92 - 100
B+	87 - 91
B	80 - 86
C+	75 - 79
C	70 - 74
D	65 - 69
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 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 week's topic 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 are 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, and 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: Quizzes will be penalized 5% for each late day. Late assignments will be penalized 10% for each day late. Discussion posts are not assignments and will only be accepted by the Sunday due date each week. The late penalty for discussions is assessed according to the due date of the initial post each week. It is impossible to duplicate the discussion board's interactive nature when the discussion is over for a given module week. The discussion board will be closed for that module week, and class members will not respond to messages or posts after the discussion has ended.

If you know you will be offline the day an assignment is due, please submit it early. 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 to make up work. All makeup work is at the discretion of the instructor.

Late Submission of Required Course Work: It is essential to understand that each student is responsible for their own attendance and communication about that attendance with the instructor and for any work missed due to absences. In other words, the instructor bears no responsibility for informing you that you are missing an assignment or late in submitting a project. Nor is it incumbent upon the instructor to notify the student that they are not making a satisfactory grade or progress in the course. The instructor also has a fair amount of discretion in setting policies regarding late submission and completion of coursework and make-up work that could be a substitute for initially assigned work—if possible or feasible at all.

Academic Integrity: 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 to which you are working. 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: <http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>.

Please note that my professional obligation and responsibility is to report any academic misconduct to the Dean of Students Office. Any student found violating the code by cheating, plagiarizing, or misusing any online software 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 get in touch with the Dean of Students Office at dos@njit.edu

Information Literacy: Knowing how to find, cite, and reference your sources is integral to your success in this course. Sometimes you would like an additional explanation of the ideas we discuss in the course. The best resources are course materials and the online lectures and presentations, as both were (1) written by academic experts and (2) peer-reviewed.

All of your assignments will be automatically submitted to **Turnitin**. Since plagiarism is not always intentional, this tool helps students protect themselves from possible plagiarism scenarios while also assisting instructors with identifying apparent attempts at plagiarism. Once your essay has been submitted, Turnitin will analyze it for a percentage of the possibly plagiarized essay and identify any areas that may need to be edited to reduce plagiarism.

The instructor also reserves the right to check your discussion assignments if they suspect the academic integrity policy is violated. However, this is more an opportunity to help you learn how to properly cite your work and maintain a culture of academic integrity than a policing system.

You may view your **Turnitin Originality Similarity Report** and make any necessary edits to ensure that your submission complies with NJIT's correct citation and academic integrity policies.

The objective is to keep the similarity score under 30%, denoting proper quotes and common phrase citations. Scores above 30% signify extensive matching content and will be scrutinized for plagiarism and proper references. Aim to write in your own words, appropriately citing paraphrases and quotes using APA style.

The University's Policy **prohibits recycling papers/material from** a previous course for which you received credit. This constitutes cheating because you already know the grade quality of the work.

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 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 professionally and appropriately 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 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.

Faculty Reserves the Right to Change Syllabus - Subject to Change Clause: While information and assurances are provided in this course syllabus, it should be understood that content may change in keeping with new research and literature and that events beyond the instructor's control could occur. Students will be informed of any substantive occurrences that will produce syllabus changes.

Religious Holidays: To appreciate religious diversity, students who desire to observe a religious holiday during a scheduled class meeting should request reasonable consideration by the end of the second week of the course.