

Fall 2020

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

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New Jersey Institute of Technology

*Department of Humanities*

**SYLLABUS**

**Semester:** Fall 2020  
**Course Number:** PHIL 334 – 457 AND 459  
**Course Title:** Engineering Ethics and Technological Practice: Philosophical Perspectives on Engineering  
**Instructor:** Professor Milton J. Bravo  
Office hours: Via Webex Mondays 12 pm to 2 pm, and by appointment  
E-mail: [bravo@njit.edu](mailto:bravo@njit.edu)

*The following information are taken from pages in Canvas, as both of these courses are taught asynchronously via the learning management system Canvas.*

**Welcome!**

The purpose of this course is to provide students with an introduction to the philosophical examination of the nature of engineering practice and applied technology. The course will:

- (1) introduce students to moral and intellectual values and how they relate to the societal functions of professionals
- (2) introduce students to the ethical duties of engineers in the practice of their careers and the moral obligations implied by the uses of technology and
- (3) identify and understand the importance of historical case studies in the field of engineering and emerging technologies.

We will consider questions such as:

- How do the societal functions of engineers and the practical application of technologies relate to basic moral and intellectual values?
- What are the basic more 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?

The following introduction pages will provide you with a snapshot of the course. There is no word document or pdf version of a syllabus. Rather, these introductory pages serve as your syllabus, and it will provide course content, course information, week by week reading assignments, learning activities, and assessments.

**Nota Bene:**

This is an asynchronous course. There are differences between in-person class AND online-asynchronous class. The introductory pages will also describe these differences.

Please follow Module One: Course Welcome & Overview page to begin the course

### **Course Description:**

The purpose of this course is to provide students with an introduction to examining ethical issues that may arise during careers in science and engineering. The course will (1) briefly introduce students to moral and intellectual values and how they relate to the societal functions of engineers and the practical application of technologies, (2) introduce students to the ethical duties of engineers in the practice of their careers and the moral obligations implied by the uses of technology and (3) identify and understand the importance of historical case studies in the field of engineering ethics. This online course will be taught in an asynchronous online learning environment, which means we will use digital learning technologies to enable lessons to be experienced at any time.

### **Course Goals**

Students will:

- Identify the novel elements introduced into ethics (as compared to traditionalist accounts) by factors unique to Engineering Ethics.
- Identify and discuss the ethical constraints on the actions of professionals in fields involving Engineering.
- Research a topic in Engineering Ethics and provide a presentation on an analysis of the topic and the ethical or social issues it raises.
- Analyze case studies within Engineering Ethics to identify stakeholders and the positive and negative impacts on them.
- Correctly apply the principles of an accepted ethical framework to the analysis of case studies.

### **Learning Outcomes:**

By the conclusion of the semester, students will have learned:

- Think critically about your personal understandings and misunderstandings of ethical frameworks;
- To critically define moral conduct and understand its importance in the field of engineering;
- Independently and collaboratively ask critical ethical questions; evaluate and synthesize multiple answers across lessons and modules;
- Develop your authoritative “voice” to communicate clearly and persuasively your insights about an ethical dilemma and its impact on the engineering profession;
- Practice intellectual solidarity with your classmates through active reading and earnest engagement with others.

### **Required Texts:**

- Ethics in Engineering, 4<sup>th</sup>, by Mike Martin and Roland Schinzinger ISBN 978-0-07-283115-3
- Cyberethics, Morality and Law in Cyberspace, 6<sup>th</sup> edition by Richard A. Spinello ISBN 978-1284081398

# Assessment and Evaluation

Students' engagement in the course will be assessed in three main categories, each weighted according to their centrality in achieving the course objectives stated above:

**Discussion Posts & engagement in the online course:** Since the success of the course depends on the contributions of all of us in our online classroom, as well as individual learning, students are required to:

1.
  1. Uphold a code of learning and active participation in all Discussion forums
  2. Posts on Discussion forums must be prepared, contributing to overall class discussion and semester-long learning.
  3. Unless otherwise stated in the module for that week, there will be one weekly post due every week by Thursday, 11:59 pm, which consists of 50 points (Exception includes the modules designated for the end-of-term project). **No late submissions will be accepted.**
  4. Unless otherwise stated in the module for that week, every week, you will be required to respond in a respectful manner to your classmates' posts. One (1) reply will be required, worth 30 points. This part of the assignment will be due every week no later than Sunday, 11:59 pm (Exception includes the modules designated for the end-of-term project). **No late submissions will be accepted.**

**Quizzes:** Unless otherwise stated in the module for that week, every week you will be required to complete a short quiz which will ensure you are completing the reading assignment. 20 points per lesson (Exception includes the modules designated for the end-of-term project). These are due every week no later than Thursday, 11:59 pm. **No late submissions will be accepted.**

**Total points per lesson:** Unless otherwise stated in the module for that week, the majority of lessons will have 50 points for individual posts, 30 points for replies, and 20 points per quiz. This means you will receive a total of 100 points per lesson. The exceptions include the modules designated for the end-of-term project.

**Individual Presentation:** Research a theme within engineering ethics or cyberspace ethics and select 2 cases to summarize and analyze through the lens of (a) ethical frameworks, (b) tools for ethical decision making, and (c) code of ethics from professional societies. Modules during the fifth and ninth week of this semester will assist you with this project, worth 250 points.

**To summarize, the majority of the lessons will consist of the following points:**

- 50 points per individual post
- 30 points per week (reply post)
- 20 points per quiz

**Totals:**

- 11 quizzes at 20 points each = 220 points
- 11 forums at 80 points each = 880 points
- 1 forum at 50 points (lesson 1) = 50 points
- 2 forums at 100 points (lesson 5 and 9) = 200 points
- 1 individual presentation = 250 points

**Total Possible Points – 1,600 points**

# Grading

The following is our grading scale. Note that the grade for the average work is a C+

1440 + points	A	90-100	Excellent: Honors level / superior work
1390 points	B+	87-89	Very good work
1280 points	B	80-86	Good, solid, above-average performance
1230 points	C+	77-79	Average level of performance
1120 points	C	70-76	Satisfactory, but with some problems
800 points	D	50	Passing, but unsatisfactory; below average
Less than 800	F	0-59	Failure, inferior performance

## Related Information:

1. CANVAS: Assignments, course content, links, and resources for group projects are available on Canvas. Students are expected to check regularly the course's Canvas site for class announcements regarding university events related to the course, cancellations, assignment clarifications, and on-line discussions in which you are required to participate.
2. Academic Integrity: All papers and examinations must adhere to University's policies regarding academic integrity (please see the Student Handbook). Any infractions of those policies will be subject to the sanctions listed there (a failing grade for any plagiarized assignments, a formal report of the incident submitted to the Dean, possible suspension from the course based on the Dean's evaluation). Please see me if you have any questions about the academic integrity of any of your work.
3. ADA Notice: Under the Americans with Disabilities Act and Section 504 of the Vocational Rehabilitation Act of 1973, all students, with or without disabilities, are entitled to equal access to the programs and activities of a university. If you believe that you have a disabling condition that may interfere with your ability to participate in the activities, course work, or assessment of the object of this course, you may be entitled to accommodations. Please schedule an appointment to speak with someone at the Office of Disability Support Services in Fenster Hall Room 260, 973 – 596 – 5598 or [dss@njit.edu](mailto:dss@njit.edu)

**Schedule of Topics, Readings and Assignments (N.B. subject to change at Professor's discretion, please check Moodle always for scheduling details):**

**Lesson 1: Introduction to the course**

**Lesson 2: Introduction to Ethical Frameworks**

**Lesson 3: Introduction to Engineering Ethics**

**Lesson 4: Moral Reasoning and Code of Ethics**

**Lesson 5: Tools for Ethical Decision Making**

**Lesson 6: Engineers as Moral Agents**

**Lesson 7: Commitment to safety**

**Lesson 8: Workplace responsibilities and rights**

**Lesson 9: Independent Research Assignment: Annotated Bibliography Due**

**Lesson 10: Ethical Values and the Digital Frontier**

**Lesson 11: Free Speech and Content Control**

**Lesson 12: Intellectual Property and ethical issues of property in Cyberspace**

**Lesson 13: Regulating internet privacy in Cyberspace**

**Lesson 14: Individual Presentations**

**Lesson 15: What I learned**