

(Spring & Fall semesters, Academic Year 2022)

Sample Syllabus ***
For using
Giving Voice to Values (GVV)
in an
Undergraduate Engineering Ethics Course



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Course Description

This course seeks to equip undergraduates with knowledge, understanding, and practice to prepare them for ethical leadership now, as students, and for their future as engineering leaders.

Goals

By the completion of this course students will be able to:

1. Identify theories and principles of ethics
2. Find and understand engineering codes of ethics specific to student's major
3. Use the Giving Voice to Values (GVV) method of scripting and rehearsing
4. Apply "Pillars of GVV" in addressing ethical dilemmas
5. Recognize key elements of classic engineering ethics cases
6. Use self-awareness and conscientious thinking in contributing to a high-functioning team
7. Conceive what is possible in terms of values-driven leadership in engineering

Primary Course Textbook

Engineering Ethics: Contemporary and Enduring Debates, by Deborah G. Johnson

Other Readings, Films, and GVV Materials

Where the syllabus indicates a reading to be done, film to be watched, or GVV material to be completed, this must be done **before class**, in preparation for that particular class.

- GVV materials (videos, quizzes, and exercises) are located in the second tab of the course Collab site.
- Readings are located under the resources tab on the course Collab site.
- Films and videos are under the “Announcements” tab (or linked on the schedule section of the syllabus).

Sensitive Course Content

There are films and readings in the course that cover difficult and sensitive topics. Some students may be uncomfortable with some of this material. Please review the syllabus and determine for yourself if and where this may be the case. If needed, alternative material can be assigned.

Learning Teams

Eight learning teams of 4 people will be formed on the first day of class. Teams will learn together and work together for the entire semester. All team members should contribute equally to team assignments, including the writing of journal entries. *Roles to be shared over the course of the semester:*

1. *Evaluator*: Prepares and submits, on behalf of the team, peer evaluations for team-led discussions and personal ethics statements.
2. *Organizer/planner*: Collects team contact information, schedules team meetings, and keeps the team organized and informed. Communicates with Prof. Berne on behalf of the team.
3. *Scribe*: Prepares the final draft of journal entries and submits on behalf of the team. Notes highlights of in-class team discussions and reports back to the entire class, if asked.
4. *Discussion leader*: Manages team discussions for efficiency, assuring that the conversation stays on task, that everyone contributes, and that no one person dominates.

Ungraded Expectations

GVV Quizzes and Surveys

Team Journal Entries

Quizzes

Quizzes are administered at the start of class. A minimum score of 85 is required to pass. The quizzes are taken as a team. If you do not participate with your team you will receive a grade of NC for that particular quiz.

Graded Assignments

1. Ethics Autobiography
2. Team Discussion Leadership
3. GVV Implementation Plan
4. Class Participation
5. Personal Ethics Statement
6. Reading Quizzes
7. Final Exam (optional)

Sample Course Schedule

COURSE INTRODUCTION

Wednesday, August 24

Course Introduction

- Course overview—syllabus review
- Student introductions
- Team formation and organization
- Intro to ethics: *Apperception* game

Before class, create an account on **Apperception** <https://apperception.unt.edu/home>

Part I: ETHICS THEORY

Monday, August 29:

Read: Do engineers need codes of ethics? Ch. 2 in [Engineering Ethics](#)

Wednesday, August 31:

Read: How should engineers think about ethics? Ch. 3 in [Engineering Ethics](#)

Watch: *Flash of Genius*

Monday, September 5:

Read: Where does morality come from? Ch.1 in [The Righteous Mind](#)

Wednesday, September 7:

Read: Beyond WEIRD morality, in [The Righteous Mind](#)

Watch: *Return to Paradise*

(Warning: This film has a graphic depiction of harsh prison conditions and capital punishment.)

DUE September 9th at midnight: Ethics Autobiography

Part 2: ENGINEERING ETHICS DEBATES

Monday, September 12 (Teams I & II debate)

Guns for Hire

Read: Should engineers see themselves as guns for hire? Ch. 4 in [Engineering Ethics](#)

Wednesday, September 14 (Teams III & IV debate)

Whistle-Blowers

Read: Are whistle-blowing engineers heroes, or traitors? Ch. 5 in [Engineering Ethics](#)

Watch: *Snowden*

Monday, September 19: Guest Speaker

Safety and Catastrophes: Deep Horizon Spill

Watch:

1. *The Great American Oil Spill &*
2. *Who's Responsible for Safety?*

Wednesday, September 21 (Teams V & VI debate)

Read: Are rotten apples or rotten barrels responsible for technological mishaps? Ch. 6 in Engineering Ethics

Watch Film: *Command and Control*

Monday, September 26 Guest Speaker

Autonomous Cars

Read: Will autonomous cars ever be safe enough? Ch. 7 in Engineering Ethics &

“Automated Ethics”, available at: <https://aeon.co/essays/can-we-design-machines-to-make-ethical-decisions>

Participate in *The Moral Machine* judging: <https://www.moralmachine.net/>

Wednesday, September 28 (Teams VII & VIII debate)

Social Justice

Read: Is social justice in the scope of engineers’ social responsibilities? Ch. 8 in Engineering Ethics

Watch Film: *Flint’s Deadly Water*

Monday, October 3: **Fall Reading Day** (No class)

Part 3:

Giving Voice to Values (GVV)

Note: Some GVV material is worked on as a team, inside and outside of class. Other GVV material is worked independently, such as viewing some of the videos and completing the surveys and quizzes.

Wednesday, October 5:

Giving Voice to Values: How and Why it Works

Class Prep: (approx. 3-4 hours)

- a) Work through GVV Part 1, up to *Foundational Pillars of GVV*, watching videos and doing team assignment
- b) Take the survey

Monday, October 10:

Foundational Pillars of GVV

Class Prep: (approx. 2 hours)

- a) Work through *Foundational Pillars of GVV*
- b) Take the quiz
- c) Watch video “Key Takeaways from section 1”

Wednesday, October 12:

Recognizing and Learning from Your Success and Failures

Class Prep: Work through GVV Part 2, “Normalization and Self-Acknowledgement and Alignment”

Watch film: *Obedience to Authority*

Monday, October 17:

Recognizing and Learning from Your Success and Failures

Class Prep: Work through to the end of GVV Part 2

Wednesday, October 19:

Developing Scripts and Action Plans GVV Case

Brad Raffensberger podcast viewing and discussion

Class Prep: Work completely through GVV Part 3

DUE October 20th at midnight: GVV Implementation Plan

Part 4

Ethics in Engineering

Monday, October 24: Abortion

Leadership by Team I

How is engineering/technology connected to the topic of abortion? As an engineer what role should you play, or not play, in the abortion debate? What are your moral responsibilities in designing technologies that enable abortions?

Read:

1. Coding for abortion access, by Moira Weigel
2. SWE Statement on Supreme Court Ruling
3. Point of View: End of *Roe v. Wade* and right to abortion will impact research, says ENG professor
4. Abortion is illegal for millions. Will Big Tech help prosecute it? (Washington Post, June 9, 2022)

Watch: The Abortion Divide (Frontline)

https://www.youtube.com/watch?v=vMrOB_pffOs

Wednesday, October 26: Topic: Invitro Fertilization

Leadership by Team II

What technologies were designed for use in invitro fertilization? As an engineer what role should you play, if any, in the debate about IVF? What are your moral responsibilities in designing technologies that enable assisted reproduction?

Read: Use of invitro fertilization—ethical issues

Watch Film: *One More Shot* (\$4.49 on VIMEO): <https://vimeo.com/ondemand/onemoreshot>

(Warning: This film depicts personal struggles with infertility)

Monday, October 31: Genetic Engineering

Leadership by Team III

How is engineering involved in genetic engineering? As an engineer what role would you be willing to play in the design of genetic engineering devices and systems? What are your moral responsibilities in designing technologies that enable controlling the genetic characteristics of babies?

Read: Should you design the perfect baby?

Watch Film: *GATTACA*

Wednesday, November 2: *No formal class*

Viewing of OEC Webinar on Ethics, Social Justice and Engineering

Monday, November 7: Data Ethics & Surveillance

Leadership by Team IV

Should computer scientists and software engineers be designing programs and systems that threaten personal privacy? As an engineer, what would you be willing to do, or not to do, considering either harm or good in the deployment of such systems?

Read: The Internet of Things and dual layers of ethical concern

Watch: *In the Age of AI*, available at https://www.youtube.com/watch?v=5dZ_1vDgevk

Wednesday, November 9: Creating self-aware machines

Leadership by Team V

Should computer scientists be designing systems that appear to display human-like intelligence and self-awareness? As an engineer, what role would you be willing to play in the design of a self-aware system with a seeming “soul?” What harms or good might arise from such an activity for you?

Watch Film – *Ex Machina*

Listen to: “The Google engineer who sees company's AI as 'sentient' thinks a chatbot has a soul” available at:

<https://www.npr.org/2022/06/16/1105552435/google-ai-sentient>

Monday, November 14: Lying and Deception in Engineering

Leadership by Team VI

Under what conditions might you feel pressure to lie or deceive in the work setting? Can you imagine yourself in a position, where lying or being deceptive seems like the right thing to do? And, if you were to feel such pressure, what might you be able to do to hold onto your honesty and integrity? What harm or good might arise from such a deceptive act for you?

Read: The escalation of deception in organizations

Watch: *BACKFIRED: When VW Lied to America*

Wednesday, November 16: Designing and Manufacturing Guns

Leadership by Team VII

How is engineering involved in the design and manufacturing of guns? As an engineer what role would you be willing to play in this undertaking? What would be your moral responsibilities, if any, in designing such engineered artifacts as artillery or weapons for personal use? Are Smart Guns the answer to our problem with gun violence in America?

Read: TIME: Guns in America available at: <https://time.com/guns-in-america/>

Opinion: *As Engineers, we must consider the ethical implications of our work*

Watch: *A Smarter Gun* available at: <https://topdocumentaryfilms.com/smarter-gun/>

Monday, November 21: Weapons of Mass Destruction
Leadership by Team VIII

What engineering is involved in WMDs? As an engineer what role would you be willing to play in the design and deployment of WMDs? What would be your moral responsibilities, if any, in designing technologies that enable wide-scale obliteration of life and structures?

Read: Global health security and weapons of mass destruction & Professional ethics and social responsibility:
military work and peacebuilding

Watch: *War Games* or *Eye in the Sky*

Wednesday, November 23: Thanksgiving Recess (No Class)

Monday, November 28: Presentation of *Personal Ethics Statements*

Wednesday, November 30: Presentation of *Personal Ethics Statements*

Monday, December 5: Presentation of *Personal Ethics Statements*

Tuesday, December 13: Final Exam

*** This syllabus is the intellectual property of Rosalyn W. Berne.
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