

ARIZONA STATE UNIVERSITY EAST/TEMPE CAMPUS

GENERAL STUDIES PROGRAM COURSE PROPOSAL COVER FORM

Courses submitted to the GSC between 2/1 and 4/30 if approved, will be effective the following Spring.

Courses submitted between 5/1 and 1/31 if approved, will be effective the following Fall.

(SUBMISSION VIA ADOBE.PDF FILES IS PREFERRED)

DATE 10/24/2008

- 1. ACADEMIC UNIT: Humanities and Arts, School of Applied Arts and Sciences
2. COURSE PROPOSED: HTY 382 Ethics in Engineering and Technology 3.0
3. CONTACT PERSON: Name: Ian Moulton Phone: 7-1172
Mail Code: 0180 E-Mail: ian.moulton@asu.edu

- 4. ELIGIBILITY: New courses must be approved by the Tempe Campus Curriculum Subcommittee and must have a regular course number.
5. AREA(S) PROPOSED COURSE WILL SERVE. A single course may be proposed for more than one core or awareness area.

Core Areas

Awareness Areas

- Literacy and Critical Inquiry-L
Mathematical Studies-MA
Humanities and Fine Arts-HU
Social and Behavioral Sciences-SB
Natural Sciences-SQ SG

- Global Awareness-G
Historical Awareness-H
Cultural Diversity in the United States-C
(Note: one course per form)

- 6. DOCUMENTATION REQUIRED. (1) Course Description (2) Course Syllabus (3) Criteria Checklist for the area (4) Table of Contents from the textbook used, if available
7. In the space provided below (or on a separate sheet), please also provide a description of how the course meets the specific criteria in the area for which the course is being proposed.

CROSS-LISTED COURSES: No Yes; Please identify courses: PGV 382/PHL 382/STS 382

Is this a multisection course?: No Yes; Is it governed by a common syllabus?

Duane Roen Chair/Director (Print or Type)

Duane H. Roen Chair/Director (Signature)

Date: 10/24/08

REVISED PAPERWORK FOR RESUBMISSION

Arizona State University Criteria Checklist for

HUMANITIES, FINE ARTS AND DESIGN [HU]

Rationale and Objectives

The humanities disciplines are concerned with questions of human existence and meaning, the nature of thinking and knowing, with moral and aesthetic experience. The humanities develop values of all kinds by making the human mind more supple, critical, and expansive. They are concerned with the study of the textual and artistic traditions of diverse cultures, including traditions in literature, philosophy, religion, ethics, history, and aesthetics. In sum, these disciplines explore the range of human thought and its application to the past and present human environment. They deepen awareness of the diversity of the human heritage and its traditions and histories and they may also promote the application of this knowledge to contemporary societies.

The study of the arts and design, like the humanities, deepens the student's awareness of the diversity of human societies and cultures. The fine arts have as their primary purpose the creation and study of objects, installations, performances and other means of expressing or conveying aesthetic concepts and ideas. Design study concerns itself with material objects, images and spaces, their historical development, and their significance in society and culture. Disciplines in the fine arts and design employ modes of thought and communication that are often nonverbal, which means that courses in these areas tend to focus on objects, images, and structures and/or on the practical techniques and historical development of artistic and design traditions. The past and present accomplishments of artists and designers help form the student's ability to perceive aesthetic qualities of art work and design.

The Humanities, Fine Arts and Design are an important part of the General Studies Program, for they provide an opportunity for students to study intellectual and imaginative traditions and to observe and/or learn the production of art work and design. The knowledge acquired in courses fulfilling the Humanities, Fine Arts and Design requirement may encourage students to investigate their own personal philosophies or beliefs and to understand better their own social experience. In sum, the Humanities, Fine Arts and Design core area enables students to broaden and deepen their consideration of the variety of human experience.

Revised October 2008

Proposer: Please complete the following section and attach appropriate documentation.

ASU - [HU] CRITERIA			
HUMANITIES, FINE ARTS AND DESIGN [HU] courses must meet <i>either</i> 1, 2, or 3 <i>and</i> at least one of the criteria under 4 in such a way as to make the satisfaction of these criteria A CENTRAL AND SUBSTANTIAL PORTION of the course content.			
YES	NO		Identify Documentation Submitted
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Emphasize the study of values, of the development of philosophies, religions, ethics or belief systems, and/or aesthetic experience.	Syllabus and justification
<input type="checkbox"/>	<input type="checkbox"/>	2. Concerns the comprehension and interpretation/analysis of written, aural, or visual texts, and/or the historical development of textual traditions.	
<input type="checkbox"/>	<input type="checkbox"/>	3. Concerns the comprehension and interpretation/analysis of material objects, images and spaces, and/or their historical development.	
<input type="checkbox"/>	<input type="checkbox"/>	4. In addition, to qualify for the Humanities, Fine Arts and Design designation a course must meet one or more of the following requirements:	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. Concerns the development of human thought, including emphasis on the analysis of philosophical and/or religious systems of thought.	Syllabus and justification
<input type="checkbox"/>	<input type="checkbox"/>	b. Concerns aesthetic systems and values, literary and visual arts.	
<input type="checkbox"/>	<input type="checkbox"/>	c. Emphasizes aesthetic experience in the visual and performing arts, including music, dance, theater, and in the applied arts, including architecture and design.	
<input type="checkbox"/>	<input type="checkbox"/>	d. Deepen awareness of the analysis of literature and the development of literary traditions.	
		THE FOLLOWING ARE NOT ACCEPTABLE:	
		• Courses devoted primarily to developing a skill in the creative or performing arts, including courses that are primarily studio classes in the College of Fine Arts and in the College of Architecture and Environmental Design.	
		• Courses devoted primarily to developing skill in the use of a language – However, language courses that emphasize cultural study and the study of literature can be allowed.	
		• Courses which emphasize the acquisition of quantitative or experimental methods.	
		• Courses devoted primarily to teaching skills.	

Course Prefix	Number	Title	Designation
HTY / PGV / PHL / STS	382	Ethics in Engineering and Technology	HU

Explain in detail which student activities correspond to the specific designation criteria. Please use the following organizer to explain how the criteria are being met.

Criteria (from checksheet)	How course meets spirit (contextualize specific examples in next column)	Please provide detailed evidence of how course meets criteria (i.e., where in syllabus)
1. Emphasize the study of values, of the development of philosophies, religions, ethics or belief systems, and/or aesthetic experience.	The course emphasizes the study of professional ethics in engineering and related fields of technology.	Examples from the syllabus include extended case studies of the Citicorp Building design flaw and the Space-Shuttle Challenger accident, application of moral thinking and moral theories to engineering practice (e.g. in cases of bribes and kickbacks), development and use of professional codes of ethics, support for whistle-blowers, and social responsibility of the engineering profession (e.g. regarding sustainability). In class discussions, writing assignments, and exams students are required to critically reflect on such as issues as: the popular image of engineers and how this impacts their ability to make ethical decisions, personal moral dilemmas they have encountered as students or employees, the meaning of "professional responsibility," ethical responsibilities of engineers in an international context, and "overconsumption" as an ethical issue for engineers.
4a. Concerns the development of human thought, including emphasis on the analysis of philosophical and/or religious systems of thought.	The course concerns the development of human thought, including emphasis on moral philosophy as it applies to the engineering profession and related fields of technology.	Examples from the syllabus include an introduction to moral thinking and moral theories, including utilitarianism, duty ethics, rights ethics, and virtue ethics, the application of such theories to ethical problems in engineering and technology, and consideration of such theories in relation to professional codes of ethics. In class discussions, writing assignments, and exams

		students are required to apply the various moral theories, as well as professional codes of ethics, to ethical problems in such areas as product safety, conflict of interest, fraud, and intellectual property, as well as to “macroethical” issues such as privacy concerns in the development of information and communication technology.

HTY/PGV/PHL/STS 382: Ethics in Engineering and Technology

HU Justification:

Course Description: From Catalog:

Role of engineering and technology in society; focuses on ethical issues confronting engineering and technology professionals.

HU Criteria

1. The course emphasizes the study of professional ethics in engineering and related fields of technology. Examples from the syllabus include extended case studies of the Citicorp Building design flaw and the Space-Shuttle Challenger accident, application of moral thinking and moral theories to engineering practice (e.g. in cases of bribes and kickbacks), development and use of professional codes of ethics, support for whistle-blowers, and social responsibility of the engineering profession (e.g. regarding sustainability). In class discussions, writing assignments, and exams students are required to critically reflect on such as issues as: the popular image of engineers and how this impacts their ability to make ethical decisions, personal moral dilemmas they have encountered as students or employees, the meaning of "professional responsibility," ethical responsibilities of engineers in an international context, and "overconsumption" as an ethical issue for engineers.

4a. The course concerns the development of human thought, including emphasis on moral philosophy as it applies to the engineering profession and related fields of technology. Examples from the syllabus include an introduction to moral thinking and moral theories, including utilitarianism, duty ethics, rights ethics, and virtue ethics, the application of such theories to ethical problems in engineering and technology, and consideration of such theories in relation to professional codes of ethics. In class discussions, writing assignments, and exams students are required to apply the various moral theories, as well as professional codes of ethics, to ethical problems in such areas as product safety, conflict of interest, fraud, and intellectual property, as well as to "macroethical" issues such as privacy concerns in the development of information and communication technology.

ETHICS IN ENGINEERING AND TECHNOLOGY
HTY 382/PGV 382/STS 382 (PHL 382 will be added in Spring 2009)

Instructor

Dr. Joseph R. Herkert

Course Description

Role of engineering and technology in society; ethical issues confronting engineering and technology professionals; introduction to moral theories; codes of ethics; ethics support; risk and product safety; information and communication technology; technology and sustainable development; case studies in engineering and technology. Three hours credit.

Course Requirements

1. Completion of all assigned readings and submission of one or more questions raised by the reading (number of questions for each reading to be assigned by the instructor) (10% of course grade).
2. Careful preparation, class attendance, and participation in class discussions (15% of course grade).
3. Participation in online group discussions (10% of course grade).
4. Completion of 4-5 short individual written assignments (20% of course grade).
5. Participation in a group project (20% of course grade).
6. Take-home final essay examination covering the entire course (25% of the course grade).

Online Discussion Groups

Participation in online discussions is a critical course requirement and will be graded.

Group Project

Each group will consist of 4-6 students who will be responsible for planning and leading an entire class session on a case study in ethics in engineering or technology to be assigned by the instructor (see attached guidelines).

Attendance Policy

Attendance is expected at all times. Roll will be taken and the number of unexcused absences will figure in calculation of the student's grade for preparation, class attendance, and participation. It is the student's responsibility to inform the instructor if there is a legitimate excuse for an absence (e.g., illness). Late assignments will only be accepted in the event of an excused absence.

Academic Integrity

With the exception of assigned group activities, all students are expected to do their own work in this course. Students are expected to be familiar with and adhere to the provisions of the Student Academic Integrity Policy. See <http://www.asu.edu>.

Statement for Students with Disabilities

The Americans with Disabilities Act (ADA) is a federal antidiscrimination statute that provides comprehensive civil rights protection for persons with disabilities. One element of this legislation requires that all qualified students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you

have a disability requiring an accommodation please contact the Disability Resource Center at ASU Polytechnic located in Student Affairs Quad # 4 or call 480-727-1039 / TTY: 480-727-1009. Eligibility and documentation policies online: <http://www.asu.edu/studentaffairs/ed/drc/>

Required Reading

1. Unger, S. *Controlling Technology: Ethics and the Responsible Engineer*, 2nd Ed., Wiley, 1994.
2. Electronic reserve readings electronic journals, web pages, and miscellaneous materials as indicated in the course outline.

Guidelines for Group Projects

Each group will consist of four to six students who will be responsible for planning and leading an entire class period on a case study in ethics in engineering or technology. Groups will be formed and topics assigned in consultation with the instructor. However, it is the responsibility of the student groups to research the topics and obtain the information necessary for the class presentations. .

You are allowed considerable leeway in the organization of the class period, but two requirements should be kept in mind: all members of the group are expected to participate equally in the project, and provision must be made for meaningful and significant class participation. You are encouraged to be creative. For example, such formats as talk shows, games, and role-playing are appropriate. Keep in mind, however, that the number one priority should be serious presentation and discussion of the topic. Up to one third of the class time may consist of guest speakers, videos, etc. If you invite a guest speaker, make sure they understand that their time and role in the class will be limited.

The groups are required to meet twice with the instructor to discuss progress on the projects. The first meeting will consist of a discussion of the topic, progress to date on research, and a general outline of the class presentation, including division of responsibilities among the group members. By the time the second meeting takes place, the bulk of your research should be completed and you should be finalizing the details of the presentation itself.

The group project constitutes 20% of the overall course grade. *Group members who do not fulfill their responsibilities to the group will be removed from the group and receive a grade of "F" for the project.* The grade for the project will be based upon three sources: an evaluation by each group member of the contribution to the project of the other members in the group, an evaluation of the class presentation by the rest of the class, and an evaluation of the project by the instructor. Each group is required to submit to the instructor a bibliography of sources consulted and copies of handouts, overheads, PowerPoint slides, etc. utilized in class. Other supporting material (outlines, notes, etc.) may also be turned in.

All students in the class are required to complete the assigned readings for each case presented.

Course Outline and Reading Assignments

0. Course Introduction/Orientation

1. What are Engineering and Technology?

Required Reading:

Unger pp. 1-13
 Some Definitions of Engineering
 Some Definitions of Technology
 Davis, Defining 'Engineer'
 Ferguson, The Imperatives of Engineering
 Florman, The Engineering View
 Kline, What is technology?
 National Academy of Engineering, Attributes of Engineers in 2020

Recommended:

Bugliarello, The Social Function of Engineering
 Kash, Engineers as Revolutionaries

2. The Engineering/Technologist Image

Required Reading:

Engineering Jokes
 Alpert, The Care and Feeding of Engineers
 Layton, The Engineer and Business
 Bell and Janowski, The Image Benders
 Clark and Illman, Portrayals of Engineers in "Science Times"
 National Academy of Engineering, Harris Poll Reveals Public Perceptions of Engineering
 Harris Interactive, American Perspectives on Engineers and Engineering (Executive Summary) (P)

Required Viewing:

One feature film with engineer(s) or technologist(s) in prominent roles chosen from among those on a list provided by the instructor.

Recommended:

Harris Interactive, American Perspectives on Engineers and Engineering

3. Engineers and Technologists on the Spot*Required Reading:*

Unger pp. 15-16, 30-50, 54-56

William LeMessurier

Morgenstern, The Fifty-Nine Story Crisis

Pritchard, Responsible Engineering: The Importance of Character and Imagination

Kremer, (Re)Examining the Citicorp Case

Recommended:

Casa Ben Linder

Three Mile Island: The Inside Story (Smithsonian)

4. Challenger*Required Reading:*

Unger pp. 91-102

McConnell, Recommendation to Launch

Roger Boisjoly and the *Challenger* Disaster (read seven part discussion; skim supporting material)

Harris, Explaining Disasters

Gladwell, Blowup

Robison, et al., Tuftes and the Morton Thiokol Engineers on the Challenger

Recommended:

Feynman, R. Personal observations on the reliability of the Shuttle (Appendix to Rogers Commission Report)

The Challenger Accident (Spaceflight Now)

5. Moral Thinking and Moral Theories*Required Reading:*

Unger 50-54

Schinzinger and Martin, Moral Reasoning
 Martin, Personal Meaning and Ethics in Engineering
 Anonymous, I Gave Up Ethics--To Eat!
 WMU Case: Price is Right?
 WMU Case: Health in the Workplace

6. Codes of Ethics

Required Reading:

Unger pp. 106-133, 281-284, 290-314
 Belluck, Prosecutors Say Greed Drove Pharmacist to Dilute Drugs
 Cohen and Grace, Engineers and Social Responsibility
 Davis, Three Myths About Codes
 Harris, Internationalizing Professional Codes in Engineering
 Ladd, The Quest for a Code of Professional Ethics
 NSPE Case 78-10: Related Services for Private Party Following Public Employment
 NSPE Case 88-7: Public Criticism of Bridge Safety

Required viewing:

Incident at Morales

Recommended:

Pfatteicher, Depending on Character: ASCE Shapes Its First Code of Ethics

7. Support for Ethical Engineers and Technologists

Required Reading:

Unger pp. 20-30, 251-280, 136-174, 177-187, 194-204
 Kumagai, The Whistle-blower's Dilemma
 Castro, Experience of a Whistleblower
 Oliver, Whistle-Blowing Engineer

Required Viewing:

Gilbane Gold

Recommended:

Government Accountability Project

8. Risk and Product Safety

Required Reading:

Unger pp. 187-194, 209-215

Busby & Coeckelbergh, The Social Ascription of Obligations to Engineers

Winner, Engineering Ethics and Political Imagination

Schwartz, Too Bad Hippocrates Wasn't an Engineer

Neely, The Peculiar Problem of Product Liability

Brannigan, Teaching Ethics

Boisjoly, Professionalism

WMU Case: Trees

Recommended:

Long Shadow of Chernobyl (National Geographic)

9. Information & Communication Technology

Required Reading:

Anderson and Labay, Ethical Considerations and Proposed Guidelines for the Use of Radio Frequency Identification

Bowyer, Face Recognition Technology

Johnson, Long-range Challenges of Information Technologies

Lessig, The Internet Under Siege

Miller & Larson, Agile Software Development

Morgan & Newton, Protecting Public Anonymity

Rochlin, Expert Operators and Critical Tasks

Rochlin, The Logistics of Techno-War

Recommended:

Computer Professionals for Social Responsibility

10. Technology & Sustainable Development

Required Reading:

Allenby, Engineering and Ethics for an Anthropogenic Planet

Beder. The Role of Technology in Sustainable Development

Manion, Ethics, Engineering, and Sustainable Development
Roberts, Sustainable Development
Sotoudeh, Links Between Sustainability and Technology Development
Woodhouse, Curbing Overconsumption

Recommended:

World Federation of Engineering Organizations, Engineers and Sustainable Development

11-13. Group Projects

14. Course Summary

Required Reading:

Unger pp. 240-243

Kemper, Evil Intent and Design Responsibility

van Gorp and van de Poel, Ethical Considerations in Engineering Design Processes

Whitbeck, Ethics as Design

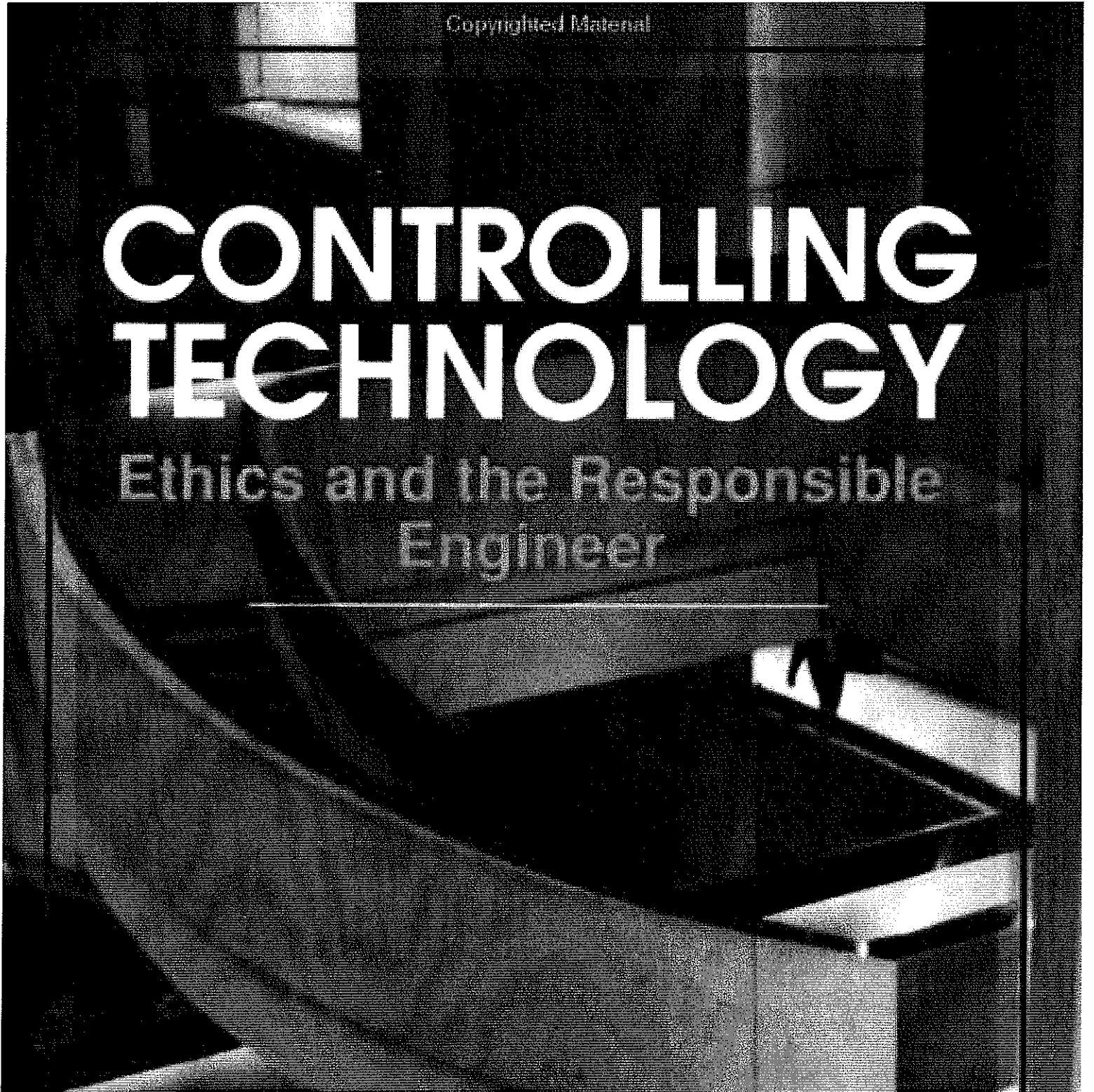
Recommended:

Unger pp. 220-238

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CONTROLLING TECHNOLOGY

Ethics and the Responsible
Engineer



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