

Professional Development Hours in Engineering Ethics

PDH-20, PDH-40, PDH-60

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Offered by Distance Learning – On-Line¹



TEXAS TECH UNIVERSITY

Murdough Center for Engineering Professionalism

College of Engineering, Texas Tech University

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Text

Engineering Ethics: Concepts and Cases – Harris, Pritchard and Rabins, 3rd Edition, 2005

Program and Course Director

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Assisted by

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Course Titles, Information and Fees

COURSE NUMBER <i>(Prof. Dev. Hrs Earned.)</i>	COURSE TITLE	ASSIGNMENTS	TIME REQD	COURSE FEE
ENGR ETHICS PDH-20 <i>(20 PDHs)</i>	“Basic Studies in Engineering Ethics”	1. Exams A, B, C & D 2. Ethics Case Study 3. Using Code of Ethics as Guidance (D) 4. No Final Exam Required	20–25 Hours	\$ 350 Including text
ENGR ETHICS PDH-40 <i>(40 PDHs)</i>	“Intermediate Studies in Engineering Ethics”	1. Exams A, B, C & D 2. Six Ethics Essays 3. Using Code of Ethics as Guidance (E) 4. Final Examination	40–50 Hours	\$ 475 Including text
ENGR ETHICS PDH-60 <i>(60 PDHs)</i>	“Advanced Studies in Engineering Ethics”	1. Exams A, B, C & D 2. Six Ethics Essays 3. Using Code of Ethics as Guidance (E) 4. Research Paper (Assignment F) 5. Final Examination	60–70 Hours	\$ 600 Including text

Enrollment Form on last page

¹ If you do not have high speed internet connection, we will send you a CD containing the ethics movie(s).

Course Descriptions and Objectives

Our PDH courses offer Professional Development Hours for use as Continuing Professional Competency for engineers. They are distance learning courses offered ON-LINE as a study of the importance of ethics in engineering practice. Topics include ethical theories and concepts, protection of the public safety and the environment, and resolution of ethical situations in engineering. Important elements of these courses include national and international issues, professional responsibilities, obligations, rights, and conflicts of interest.

Objectives include:

1. Increasing the participant's ability for independent ethical analysis and decision-making
2. Instilling a heightened appreciation of the impact of technology on society
3. Enhancing moral courage and promoting exemplary ethical conduct

Process for Achieving Course Objectives

The processes by which the course objectives are pursued include exams and written presentations on:

1. Ethical theories, concepts, and codes
2. Responsibilities of engineers to the public, clients, the profession, and the environment
3. Case studies involving the solution to realistic ethical issues occurring in engineering practice
4. Independent ethical analysis and decision-making in engineering practice

Content of Major Components of the Course

Introduction to Engineering Ethics: [Required of all three levels of enrollment]

In this first portion of the course participants will begin to learn about the critical and valuable role that ethics plays in the practice of engineering. Participants will also learn about responsibility; how it is defined and assigned. Some common impediments to responsible action will be considered. Participants will have an opportunity to explore/apply some of these concepts in the context of contemporary issues (e.g. computer technology and its impact on society).

Theoretical and Methodological Foundations: [Required of all three levels of enrollment]

In this portion of the course emphasis will be placed on some of the foundational aspects of applied ethics. Topics will include the role that facts and concepts play in our moral reasoning and consideration of *utilitarian* and *respect for persons* approaches to moral problems. Participants will also be exposed to the line drawing technique as a way to reason through ethical issues. Participants should develop an understanding of how fundamental disagreements about the definition and/or application of a fact or concept can lead to *moral* disagreements. Lastly, participants should be able to competently apply the moral theories surveyed to the issues/problems discussed later in the course.

Core Issues and Challenges in Engineering: [Required of all three levels of enrollment]

Participants will become acquainted with core issues in engineering. Topics will include the importance of honesty in engineering, the various forms of dishonesty, and how a conflict of interest can compromise an engineer's judgment. Participants will consider questions regarding *risk* in engineering such as how risk should be defined and how much risk is acceptable. Engineer-manager conflicts within the context of a company or organization will be addressed; highlighting the tensions that can issue from the engineer/manager relationship and understanding how these might be resolved. PDH-20 participants will review and write about the *Incident at Morales* ethics video which is an engineering ethics movie set in an international context. Only PDH-40 and PDH-60 participants will have an opportunity to explore some of these and other issues in the context of the *Gilbane Gold* video and writing assignment.

Contemporary Problems and Future Considerations: [A portion required of PDH-20, all required of PDH-40 and PHD-60 levels of enrollment]

This portion of the course highlights several key issues that arise as engineers operate in an increasingly pluralistic environment. Topics will include the engineer's relationship to the environment including an examination of the nature and scope of an engineer's obligation to the environment. Participants will also deliberate engineering in an international context, including considering which standards of conduct should be adopted by engineers operating abroad and should engineers be morally flexible when working in another country. The challenge of increasing gender and racial diversity in engineering will be considered along with the role engineering societies

can play regarding this problem and others. PDH-20 participants will take Exam D, but will then proceed to Lesson E. PDH-40 and PDH-60 participants will review and write about the *Incident at Morales* ethics video which is an engineering ethics movie set in an international context.

Understanding and Applying Codes of Ethics: [Required of all three levels of enrollment]

In this portion of the course, participants will be asked to review the engineering ethics code of NSPE as well as the ethics code of the society for their own specific engineering discipline. Participants will be presented with four *Scenarios* to consider. The goal is to not only identify which aspects of the aforementioned codes apply to the scenario but to understand why they apply. The intent of this portion of the course is to allow the participant to see the codes in action; creating a body of living guidelines to be referred back to while practicing engineering.

Ethics in Action: Research Paper: [Required only of PDH-60 level of enrollment]

This paper represents an opportunity for the participant to apply what they have learned to a research paper. Participants will be expected to find several credible research sources highlighting a particular problem or issue germane to the course. Participants should be able to isolate and emphasize the general ethical issues highlighted by the research. A thoughtful and critical discussion of the material should follow. Thinking and writing about morality entails not only taking a position but also supporting it in a rational way. Participants will be expected to use their own moral reasoning in taking and supporting their position on the issue(s) highlighted by the research.

Information on Written Assignments and Exams

Lessons A and B require participants to study portions of the Harris text, answer Exam Questions over the assignment and write one or more Essays over a Text Topic and/or an Ethics Case.

Lessons C and D require participants to study portions of the Harris text, answer Exam Questions over the assignment; view either or both ethics videos *Gilbane Gold* and *Incident at Morales* and write an analysis of the ethical issues in the movies(s) (video analysis of *Gilbane Gold* not required of PDH-20 enrollees). (**Lesson D** for PDH-20 enrollees involves the Exam and responses to “*Ethics Scenarios*” described below.)

Lesson E requires participants to prepare and submit responses to “*Ethics Scenarios*” – a study of how engineers can receive guidance from engineering codes of ethics.

Lesson F: Research Paper (only required of PDH-60 enrollees).

- **PDH-20:** Requires Lessons **A, B, C** (*Incident at Morales*) and **D**
- **PDH-40:** Requires Lessons **A, B, C** (*Incident at Morales* and *Gilbane Gold*) plus Essays and Lesson **D**
- **PDH-60:** Requires all six Lessons (**A-F**), Lesson **F** being a major Research Paper on Ethics

Final Examination (required of PDH-40 and PDH-60 enrollees only):

The final exam is not based on the text or on previous exams, and no advance preparation by the participant is necessary. The exam can be taken at home or office, but no collaboration with others is allowed. It requires the participant to analyze and discuss a provided case study.

GRADING

Written assignments are to be submitted by Email. Evaluations of Essays and Research Paper are based on depth of thought, clarity and completeness, rather than whether or not your response agrees with the instructor or text.

PASSING REQUIREMENTS

After completing all assignments, a final exam will be administered; minimum acceptable score is 70%.

VERIFICATION OF COMPLETION

Upon successfully completing the course, the participant will receive a Certificate of Completion.

**Texas Tech University allows a maximum of one year
from date of enrollment to complete a course.**

----- Call, Email or Mail -----

I wish to enroll in the following Correspondence Course in Engineering Ethics

Basic Level: PDH - 20 (2007-2008 Fee: \$350)	Intermediate Level: PDH - 40 (2007-2008 Fee: \$475)	Advanced Level: PDH - 60 (2007-2008 Fee: \$600)
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Last Name: <input style="width: 95%;" type="text"/> Shipping Address: <input style="width: 95%;" type="text"/> Billing Address: <input style="width: 95%;" type="text"/> Date: <input style="width: 40%;" type="text"/>	First Name: <input style="width: 95%;" type="text"/> Phone: <input style="width: 95%;" type="text"/> Email: <input style="width: 95%;" type="text"/> Amount: \$ <input style="width: 100px;" type="text"/> ← \$350, \$475, or \$600
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If paying by Credit Card, please complete and fax this form to 806-742-0444 or email it to engineering.ethics@ttu.edu , then call 806-742-3525 with credit card number and expiration date.	(To be completed by MCEP) Card #: VISA MC Discover Am Express	(To be completed by MCEP) Expiration Date: Security Code:
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If paying by check, please make check payable to
“Texas Tech University”
 and mail to:
 Murdough Center for Engineering Professionalism
 Texas Tech University, Box 41023
 Lubbock, TX 79409-1023

Ethics Web Site – www.murdough.ttu.edu